"SWOT AND IMPACT ANALYSIS ON THE ADOPTION OF WATER EFFICIENCY AND MANAGEMENT SOLUTIONS BY THE TOURISM SECTOR"

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1 Executive summary

This report is produced in the framework of the Interreg MED project "Coastal areas sustainable tourism water management in the Mediterranean - CASTWATER". The project objective is to support sustainable tourism water management in Med coastal areas, by improving the monitoring and assessment of the water sustainability performance of the tourism sector.

The objective of this report is to make a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) of the territorial context in the Med coastal areas for the development of water efficiency measures on one side and to assess the impact of water efficiency measures on the MED coastal areas socio-economic and environmental issues on the other side. The project partners provided input data to this analysis through an online input form, on which they were asked to give their opinion on how different factors influenced the water efficiency measures on their territory. These factors were selected and organised according to the PESTEL methodology (Political, Economical, Socio-cultural, Technological, Environmental, Legal). Assessments were made on a scale of five from very favourable to very unfavourable. Similarly partners assessed impacts of water efficiency measures on a set of characteristics of their territory on a scale of five from very positive to very negative. For each partner, several respondents from different professional positions were requested.

Altogether 40 replies from 10 MED coastal areas were received and analyzed. The analysis was completed by a research on publications to place this survey in a larger context. Caution in the quantitative data of the analysis is necessary as it appeared that many replies were not fully justified and sometimes came from a wrong interpretation of the question. However a qualitative analysis still shows some main elements of reflexion for the development of futures strategies for water efficiency.

Among the main favorable elements of the context on which these strategies can be built are the recognized importance of local policies and a good knowledge of the water issue locally. Water pricing is a complex issue which is crucial to have an incentive effect for water efficiency measures. Awareness is another way to raise the value of scarce water. Tourism activity is growing, but is still oriented towards the 3S (Sea, Sun, Sand) model of mass tourism, with raising standards developing for more

water intensive activities. Sustainable development policies, as well as increased international awareness of the need for sustainable tourism practices present opportunities to transform this model of tourism. However the threats to touristic competitiveness, in an increasingly vulnerable region to climate change is a factor that raises concern and needs to be tackled. The competitiveness aspect was also the most concerning one in the impact analysis of water efficiency measures, where most of impacts were considered as positive.

2 Introduction

The project is an Interreg MED project aiming to support sustainable tourism water management in MED coastal areas, by improving the monitoring and assessment of the water sustainability performance of the tourism. Interregional cooperation and transnational implementation of the project activities will support the partnership coastal areas to share and exchange knowledge, monitoring and benchmarking methods, tools and experiences, overcoming the fragmented context that characterises the field under study in the Mediterranean basin.

This document is the second deliverable of the Interreg MED CASTWATER project activity 3.4 "Exploring the potential impact of the adoption of water efficiency solutions by the tourism sector". The first deliverable (D3.4.1a) provided the project partners with the methodology and tools to gather the input data for the analysis. This document based upon a desk research and the data from the partners provides the SWOT and impact analysis on the adoption of water efficiency and management solutions by the tourism sector. The methodological section (section 3) reviews the chosen methodology and also some of the difficulties met in the course of the work. The PESTEL analysis in section 4 reviews each factor of the Political, Economical, Socio-cultural, Technological and Legal contexts of water efficiency measures in the Mediterranean context. For each factor, main characteristics obtained through a desk research are followed by the data from the partner's territories. The SWOT matrix in

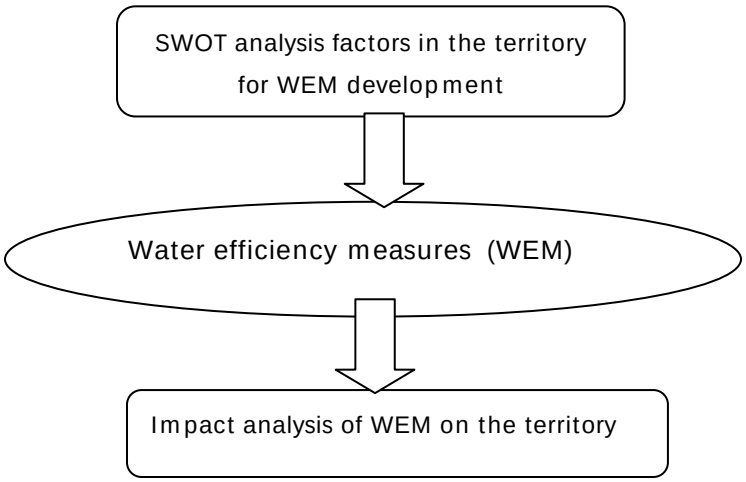
section 5 provides a synthetic view of the main results from the PESTEL analysis. Section 6 reviews the impacts of water efficiency measures on the partner's territories according to their responses.

Conclusions and recommendations are provided in section 7.

3 Methodology - remarks

This task contributes to the territorial studies engaged by the Interreg MED CASTWATER project in WP3, in order to develop a common MED approach for monitoring and performance assessment of the tourism sector on sustainable tourism water management.

More specifically the objectives of the task is to provide an analysis of the characteristics of the territory which will influence the potential success of water efficiency management (SWOT analysis), as well as of the potential impacts (impact analysis) of water efficiency measures on the territorial environment and socio-economic competitiveness.



The analysis was conducted on the basis of a desk research and of input data provided by the project partners, in a specific tool (input form) which was filled online.

Given the different perspectives of different territorial actors, it was requested that at least three types of actors provide this input within each territory: a regional authorities representative (state services), a socio-professional representative of the tourism sector, and a representative local authorities (communities). Additional respondents from the research sphere for example were also recommended when available.

For the **SWOT analysis**, a list of factors classified along the PESTEL method (Political, Economic, Socio-cultural, Technological, Environmental, Legal contexts) was proposed to the respondents with the request to select the effect it had on the adoption of water efficiency measures (on a scale of 5 : from very favourable to very unfavourable, with an additional "don't know" option). It was requested to justify the reply for each factor through a short comment. Similarly the respondents were asked to select the impacts of water efficiency measures on a list of socio-economic and environmental aspects through a scale of 5 from very negative to very positive with an additional "don't know" option).

Altogether forty (40) responses were obtained from nine (9) territories, and from different professional origin.

A major difficulty arose during the analysis as about half of the responses did not contain any comments that could help to interpret the answers. Another issue was that some of the comments clearly showed a different interpretation of the question which was always "Is this factor globally in favor or not for the implementation of water economy measures on your territory? Sometimes comments indicated that the respondents rather answered a question such about the impact of the factor on the tourism activity.

These difficulties call for great caution for a direct interpretation of the graphs showing all the responses. Also given the limited sample of respondents, no statistical value should be given to these results. This is to remind that this analysis is meant to be a qualitative one and should be interpreted as such.

The desk research to find the most important characteristics of each PESTEL factor for their potential effect on water efficiency measures was in this context extremely important for the SWOT analysis, complemented by some relevant information given by the territories. Intended desk research on the basis of other EU projects as mentioned in the Methodology of this study did not provide much input, as the focus of these projects was too different. The desk research was therefore mainly based on various publications, each covering some aspects of the context.

In order to identify the factors as Strength or Opportunity (or Weakness of Threat), it was necessary to assess if the factor was internal to the territory (ie. a specific feature of the territory or a factor that local actors could act upon), or external (ie. a factor that is imposed on the territory from outside). For some factors the situation is not so clearcut, as both external and internal elements exist. This will need to be taken into account in the interpretation of the analysis.

The **impact analysis,** is mainly based on the replies from the territories, as it often relates to the same issues but from a different perspective.

Throughout document the same colors were used in the figures to indicate the more favorable (or positive) assessment to the more unfavorable (or negative) ones:

Very favorable/very positive
Favorable/positive
Neutral
Unfavorable/negative
Very unfavorable/very negative
N/A

4 Analysis of the PESTEL factors

The PESTEL analysis factors (Political, Economic, Socio-cultural, Technological, Environmental, Legal) provided the frame for the collection of the input data to the SWOT analysis. The desk research and replies for each of them is reviewed in this chapter.

4.1 Political context

4.1.1 Sustainable development policies

Sustainable development policies is a large concept embracing environmental, social and economical aspects of development. The UN has adopted the 2030 Agenda for Sustainable Development, with 17 goals. Goal 6.4 is stated as following: *"By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity"*.

The EU has formulated a long-term strategy for sustainable development in 2001, updated in 2005[1], and at Mediterranean level the contracting parties to the Barcelona convention also have adopted a Mediterranean Strategy for Sustainable Development (MSSD): one for 2005-2015 and a revised one for 2016-2025[2]. Most countries have developed their own national strategy for sustainable development.

Sustainable management of natural resources, including water resources is usually one of the many elements of these strategies. Water policies are therefore developed to address specifically water management and efficiency issues. The EU Water Framework Directive, Article 9 indicates that "*water-pricing policies provide adequate incentives for users to use water resources efficiently*". At national level, specific policies related to water management may further set specific goals and tools

[1] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV:l28117
[2] http://planbleu.org/sites/default/files/publications/mssd_2016-2025_final.pdf

promoting water efficiency measures (for example fiscal incentives, credits or subventions).

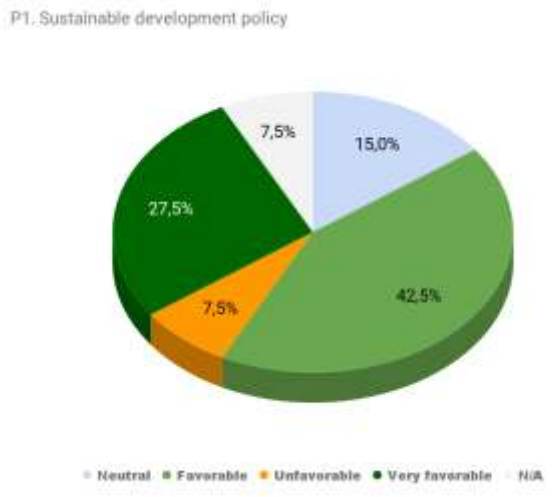
All partners acknowledged the **opportunity** that sustainable development policies give or could give for the development of water efficiency measures.

They are however disparities among the territories for what concerns the actual stage of development of these policies and their impact.

Some countries (France, Spain) gave examples of measures that have already an incentive role. The river management plans are for example based on sustainable development policies. French water agencies set taxation and efficiency objectives in their plans. France also established water repartition zones in water scarce areas with special abstraction rules.

In other countries the process is ongoing in the right direction but not as advanced, as it is either in its early stages (Greece) or is considered as too general to have specific impacts on water efficiency measures (Italy, Croatia).

Figure 1 Replies to Sustainable development policy



4.1.2 Tourism development policies

The sector of tourism is also undergoing changes, as increasing attention is given to sustainable tourism strategies and policies. In 2005 the United Nations World Tourism Organization (UNWTO) and United Nations Environment Programme (UN Environment) identified 12 aims for sustainable tourism, of which aim 11 is *" Resource efficiency: To minimize the use of scarce and nonrenewable resources in the development and operation of tourism facilities and services.".*

However a recent analysis of Sustainable Tourism in the Mediterranean issued by Plan Bleu Regional Activity Centre (Plan Bleu, 2017) recognized that "*Despite increasing awareness of the societal risks linked with tourism development, sustainability principles are not yet widely applied*". Among critical issues, the report identifies "*Natural resource depletion, in particular fresh water, energy and food, by tourist facilities (resorts, hotels)", "Disputes over resource sharing (especially water and energy) between inhabitants and tourist facilities, compounded by climate change."* and *"Wastage of scarce energy, water and food due to mismanagement of tourist facilities or services.".* These issues are with no doubt linked to the application of water efficiency measures.

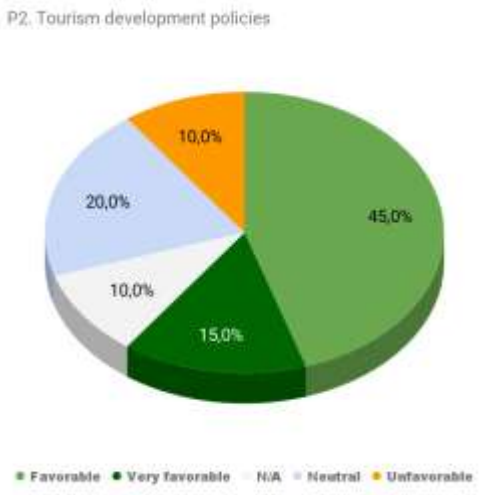
The existence of international sustainable tourism policies is therefore **an opportunity** for water efficiency measures, but its absence at national level may be seen as a **threat**.

Indeed responses from CASTWATER partners are mitigated. Mainly partners recognize this factor as favorable to water efficiency measures but few give evidence of such support. Only Murcia stated that In the Strategic Plan for Tourism 2015-2019, in the Region of Murcia, the sustainability of resources is foreseen as a key indicator of smart and quality tourism. In France a labelisation programme for sustainable tourism practice does not seem to provide expected results. In Croatia a national Tourism development strategy till 2020 was voted by the Parliament, stressing the importance

of sustainable development, but at the same time keeping certain water intensive activities in priority development.

Respondents from several territories indeed commented that the current tourism policies lead to more water consumption by supporting the development of intensive water related leisure activities.

Figure 2 Replies Tourism Development policies



4.1.3 Internal policies of tourism operators

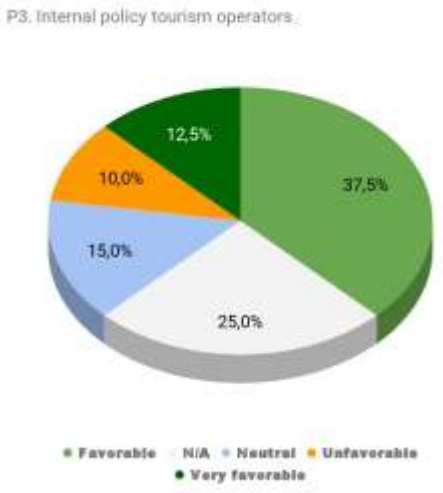
Some big international operators have developed internal responsible business programmes, whereas smaller operators may rely on a multitude of green labels or quality charts for tourism if they wish to build value to their internal policy efforts. Mass tourism industry mostly relies on tourism certification programmes that focus on the physical plant or the internal business. For example it is now quite common to find information on water saving suggestions in hotel rooms (towels replacement for example). Due to the variety of certification systems, it is difficult to evaluate the effectiveness of certification in reducing the impact of tourism on the environment.(Di Stefano, 2004)

Among respondents from the territories, a number replied in a neutral way (or N/A) as they did not have enough knowledge on this topic. Some acknowledged the

important role that tourism operators could or should have but with no evidence of such practice. Professional representatives were generally more optimistic, with the Chamber of commerce in France expressing the opinion that internal policies were more efficient than public policies.

These responses suggest that this factor does exist, but **is not fully acknowledged as an opportunity** for water efficient measures.

Figure 3 Replies for internal policies of tourism operators



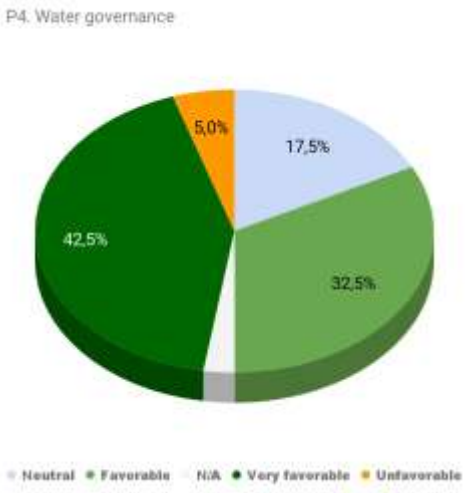
4.1.4 Water governance

Water governance in EU countries should apply the EU Water Framework Directive (2000), which sets the water basin level as the best management level. River basin management plans require a good knowledge of the state of waters and their use, including an economic analysis of water use to enable a discussion on the cost-effectiveness of the various possible measures. This process involves the participation of water users (public participation) so as to balance all needs and to make it more enforceable. The Directive also requests that water prices are adequate to reflect true costs and provide incentives for a sustainable use.

Applying the Directive on the territories can therefore provide a real **opportunity** to organize the dialogue between water users, set local priorities and promote water efficiency measures.

This factor has therefore been identified as **very favorable** to water efficiency measures by most respondents, though some respondents believe that there is still progress to achieve in organizing water users (Crete).

Figure 4 Replies on water governance



4.1.5 Water distribution network governance

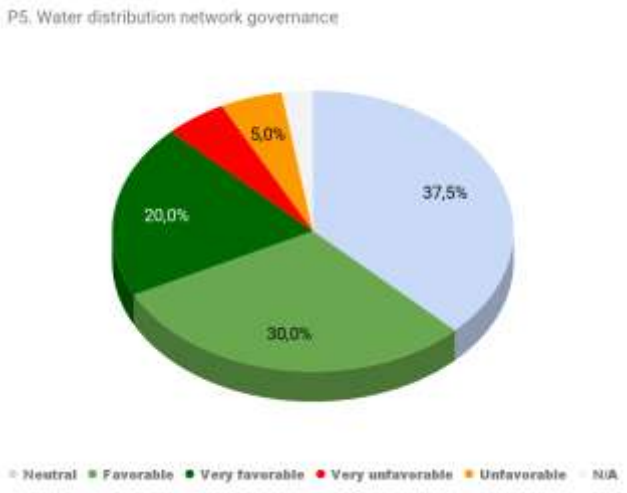
The *supply of water is a service of general interest*, and *water is not a commercial product like any other* states the EU Water Framework Directive. However as raising quality standards or replacement of ageing infrastructure demand investments, many countries seek out the private sector to modernise and expand their water and sanitation infrastructure and/or to improve the efficiency of water systems.

OECD has published guidance on necessary framework for such public-private partnerships (OECD, 2009). This report however prevents from *focusing solely on the private vs. public dimension of operators* ***as the obstacles to water and sanitation infrastructure development are largely unrelated to ownership****. To some extent, private sector participation brings to light the tensions that the development of water*

infrastructure generates, tensions that usually remain hidden when infrastructure is kept in the public sector.

There is no evidence indeed that this factor has an impact on water efficiency measures in the tourism sector. For most of respondents water services are and should remain exclusively public, and in those countries where private partnership exists, as for example in France it does not seem to make a difference on the efficiency of water use.
Several respondents commented that they trust more the public sector to set water efficiency policies.

Figure 5 Replies Water distribution network governance



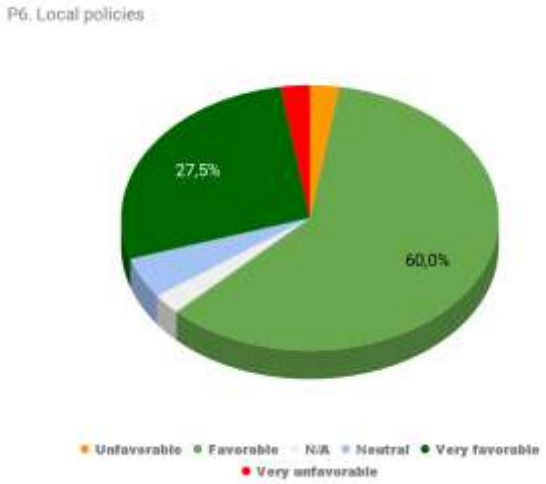
4.1.6 Local policies

Whereas the frame policies are established at national level, it usually up to local authorities to implement them, and to find special solutions adapted to the local conditions. Local authorities can be quite proactive and innovative, developing their own public consultations, strategies and measures.
In France, local initiatives are often initiated through calls for projects on various thematic by public institutions and are further used as pilot cases.
Typically these may range from awareness raising campaigns, to seasonal use restrictions, progressive pricing, or specific urban development and management solutions. It also concerns crisis management in a drought context. The commitment

of local authorities to the development of water efficiency measures is therefore an important **strength** (or **weakness** in its absence) for the territories.

Indeed most respondents indicated that local policies are favorable to water efficiency measures and are an essential part of their development. There are some remarks considering however a lack of financial capacities, or a missing specific link between water and tourism activities. Unfortunately few respondents gave examples of positive actions, those given were principally linked to restrictions in crisis periods (Cyprus, Hérault, Veneto) or existing special management plans (Crete, Hérault). In Istria region, the local administration started a new project for sustainable development targeted at SMEs of the tourism sector, where water savings are specifically encouraged.

Figure 6 Replies Local Policies



4.1.7 Other

Other remarks were given by the respondents to this political context analysis.

Water is a very political issue and there is a need for strong political will in order drive towards efficiency.

It is necessary to have a comprehensive strategy, as conflicts may arise between tourism development, or more generally urban planning and water planning. Connections with energy policies are also necessary.

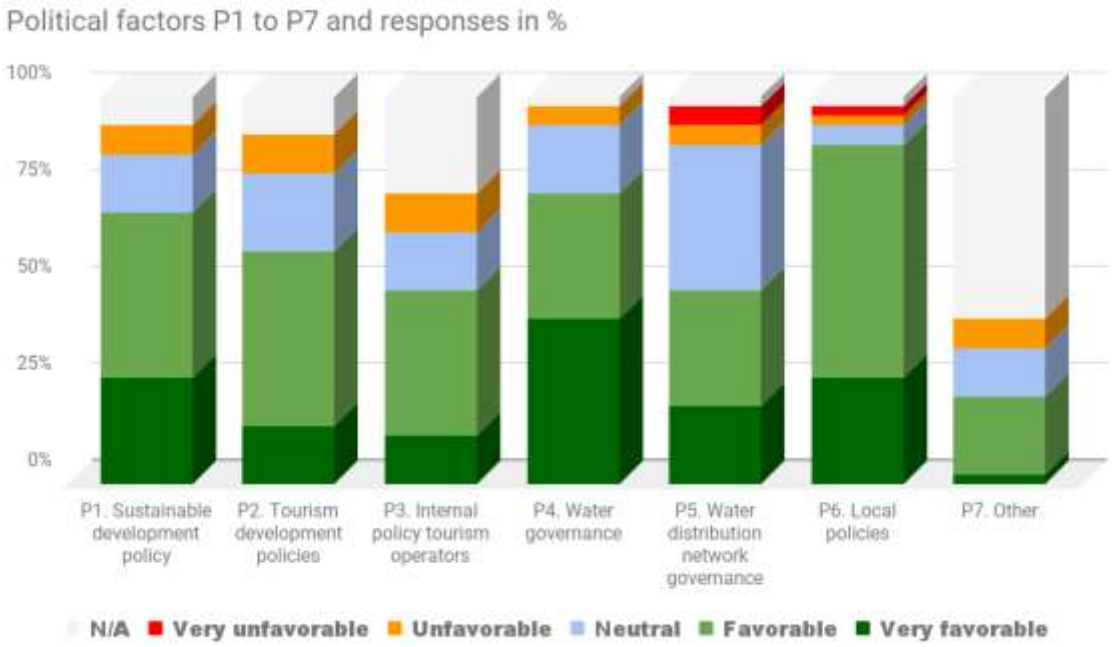
The difficulties of funding water may be a real problem, as public revenue is low and private investments in the water sector often seen as a controversial issue. The responsibility of water management belongs to the public sector, and water as a human right is a key political factor for the implementation of water efficiency measures, since this is a fundamental right that no policy can prevent or weaken .

The role of other actors such as professionals from the water business sector, or users associations may also have an impact on some water use practices in order to attain more efficiency.

4.1.8 Summary of replies on political context

Among the political factors we see that Water Governance and even more Local Policies seem to win a majority of opinions as to their importance and favorable impact for the water efficiency measures.

Figure 7 Summary of replies on political factors



4.2 ECONOMIC CONTEXT

4.2.1 Water price

The EU Water Framework Directive states that water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive. The Directive is requiring *to take into account the principles of recovery of the costs of water services, including environmental and resource costs*.

Water pricing is a complex issue. According to OECD works, it should meet four policy objectives which are sometimes in conflict (OECD, 2010):

- environmental sustainability: which includes water use efficiency
- economic efficiency: allocation of water to high value use for the society
- financial sustainability : cost efficiency and cost recovery

- social concerns: affordability and equity

Water pricing is usually set in the frame of national regulations, but local authorities are in charge of adapting it to their local needs especially in regions where water is scarce. So though it is a mix of external and internal features within the SWOT analysis, this factor can be considered as a **strength or a weakness** to water efficiency measures depending of its level (internal).

However it was difficult to find a general tendency in the replies from the respondents, so as to whether the current water price is favorable to water efficiency measures, though all agreed that high prices would be an important factor to encourage water efficiency measures. Within the same territory opinions often diverge on whether the price level is high enough, which can be explained by the different vision from the different type of actors on this issue and how controversial this issue can easily be.

For some respondents the price on their territory is quite high (Murcia for example has the highest price in Spain), for others it is still considered as rather low with a limited incentive effect for water efficiency measures, but it would be difficult to change it in current economic context. Malta is an example where though the water price is among the highest in the Mediterranean region, it still considered as too low to have efficiency incentives by some respondents.

Hérault noticed that as many camping sites take water directly from groundwater they are not impacted by the price of water supply.

Figure 8 Replies for water price

4.2.2 Special water prices

Besides the level of price discussed above, the structure of the pricing or special seasoning price is also a factor that can encourage water efficiency measures. This is quite important as we face touristic peaks especially during the driest and hottest Mediterranean seasons when water is scarce but mostly appreciated (leisure, green areas).

Note that metering and monitoring of water use and discharges is absolutely vital in the context of the economic incentives. In some areas, however, for example illegal water abstraction, improved monitoring procedures need to be accompanied by legal enforcement (EEA, 2012).

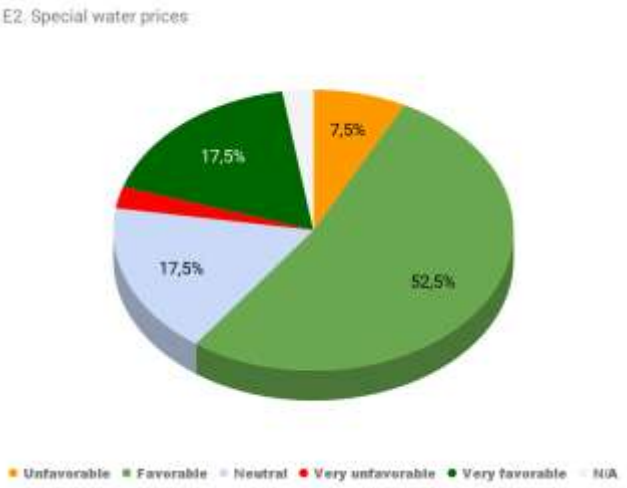
Greece, Cyprus, Malta and Italy have progressive increasing pricing systems beyond a certain volume of consumption (increasing block tariffs) (Chohin 2008). France applies a constant volumetric rate (OECD 2010), as does Croatia.

In Hérault in order to reflect water scarcity, for some cities where there are a lot of tourists in summer, some specific tariffs are in place to take into account these peaks.

Besides this example no seasonal pricing seems to be applied elsewhere, though restrictions and cuts in case of excessive consumption can be applied in case of severe drought.

This situation is reflected by the respondents, who globally assess the special water pricing policy more favorable to water efficiency measures than the previous factor (level of water price), though it could be improved. So it could be seen as a **strength** in the SWOT analysis.

Figure 9 Replies Special water prices



4.2.3 Cost of water saving measures

A number of measures can potentially reduce the use of public water supplies. These can be broadly grouped into the broad categories of watersaving devices; greywater re-use and rainwater harvesting; behavioural change through awareness-raising; metering; and leakage reduction in distribution and supply networks.[i]

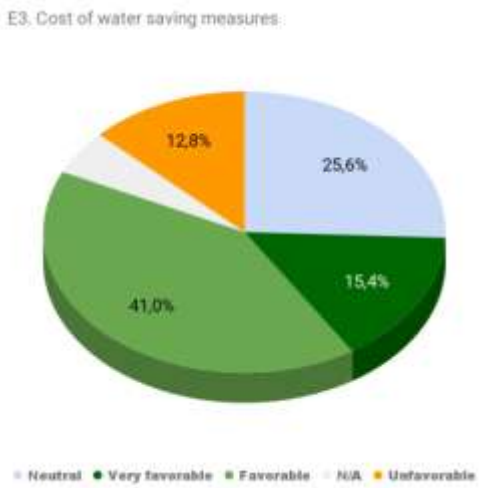
Some of these measures are relatively cheap to implement by household and tourism business especially in the category of water saving devices, rainwater harvesting for external use or awareness actions. Grey water re-use, or in house use of rainwater

necessitates some more important investment. Leakage reduction in distribution and supply networks is taken care of by public authorities and request serious public investment.

On the whole the impact of the cost of water saving devices is very closely linked with the two previous factors, which are the price level and structure of water pricing. As soon as the price is high enough then the favorable return upon investment makes it worth applying the measures. Awareness campaigns may have some limited effect by appealing to users' responsibility but it is difficult to measure their effect.
Overall it is considered that reducing water use will be economical. Many water saving technologies such as flow limiters on taps and showers, or lavatory cisterns with reduced flush options have short payback times between 0,1 and 9, 6 years (Gossling 2012). This factor is therefore to be seen as an **opportunity** for water efficiency measures.

Replies given by respondents on this topic indicates that the assessment of this factor is generally rather favorable to water efficiency measures, however comments given are often more cautious. In some cases water prices are too low to be an incentive to these investments, in others sufficient to promote them. Some investments are considered as being poorly cost efficient. In some cases high investment to remedy to leakages in the public supply network could be much more efficient in volume of water saved than small private investments on water saving devices.
The necessity to inform correctly the tourism business and tourists on the existence of water saving possibilities is indicated as being necessary.

Figure 10 Replies costs of water saving measures



4.2.4 Trends in the tourism activity (quantitative)

In all north Mediterranean countries represented by EU CASTWATER project partners, trends in the number of international tourists are growing (Plan Bleu 2017). It is expected that the number of international tourist arrivals in these countries will have more than doubled between 2000 and 2020 (Gossling et al, 2012).

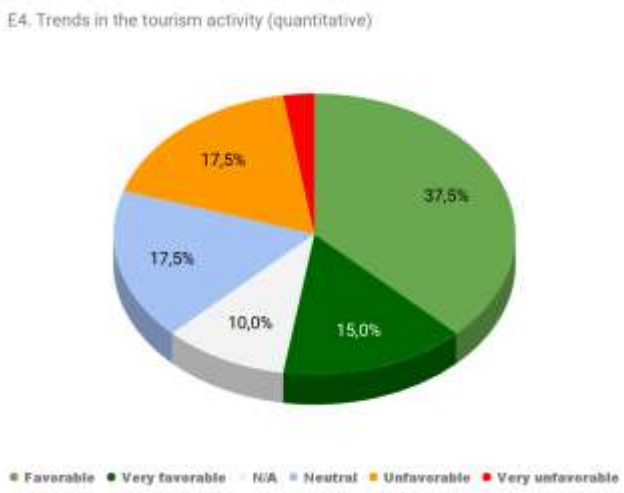
Though from a purely environmental point of view, this increased pressure may be seen as negative, from the point of view of water efficiency, the challenge that this increased water demand is putting on water resources management may be seen as an opportunity to develop more water efficiency measures.

All partners confirmed that indeed the number of tourists is increasing over the years. For half of the partners this would benefit to the development of more water saving strategies to cope with this situation
Some respondents were more skeptical, as they considered that the demand from the tourists for water does not decrease as the awareness level is low.

In Malta the growing financial gains from tourism benefit to other investments than water efficiency, as the share of water costs decreases in the overall budget of this activity.

As pointed by one of the respondents the quantitative evolution of tourism is strictly linked to the competitiveness of the territory, and needs therefore to be seen as a **strength** (or weakness) of the territory in the SWOT analysis. In case it is seen as a weakness, the respondent suggested to consider tourists flow management strategies.

Figure 11 Replies Quantitative trends of tourism



4.2.5 Trends in the tourism activity (qualitative)

This factor is basically trying to look into the development of less water consuming type of tourism demand (and offer). The predominant model which made the success of the Mediterranean tourism is the so-called 3S (Sea, Sand and Sun) model. Over the years, the 3S model has been extended to include different facilities, including golf courses, swimming pools, leisure parks, etc. Nature-based, rural and ecotourism are products designed to be sustainable, responsible and community-based activities. In particular ecotourism has been successfully developed in many places. This type of tourism is however more difficult to monitor and assess as it is more spread and often linked to individual business. (Plan Bleu, 2017)

Respondents gave a diversity of comments on this factor which makes it difficult to assess. Though they agree that there is a rising demand for environmentally concerned tourists, it is not clear to what degree this type of tourism is actually targeted in their territory. Hérault sees on the contrary rising luxury standards in its camping sites (swimming pools, spas, aquaparcs..) which are more water consuming. In Croatia several water parks opened in the last ten years (none existed before).

Though more than half of respondents gave a favorable assessment of the qualitative trend in tourism for water efficiency measures, comments that were given indicate that some of the replies are often more a theoretic good wish response than reflecting the actual situation. Therefore altogether, given the Plan Bleu assessment, the factor would be considered more as a **weakness** in the SWOT analysis.

Figure 12 Replies Trends qualitative tourism

4.2.6 Competition between tourism activities

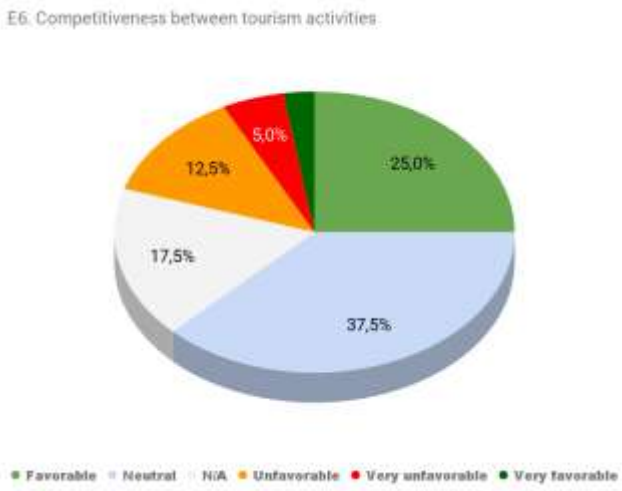
In a context of rising demand for sustainable tourism, competition between tourism activities where water consumption would be taken into consideration could be a

favourable factor. However as stated above (see 4.1.2), we are still far from sustainable tourism principles being largely implemented.

On the contrary, as stated by some respondents, the touristic offer with more water related services would be privileged by tourists. In fact it may be that "ecotourists" rather prefer to stay further from coastal areas. Another respondent pointed that apart from hotels, it was difficult to set a competition between touristic activities based on water consumption.

Most respondents therefore gave a **neutral** assessment to the role of this factor.

Figure 13 Replies competition beteween toursim activities



4.2.7 Competition with other territories

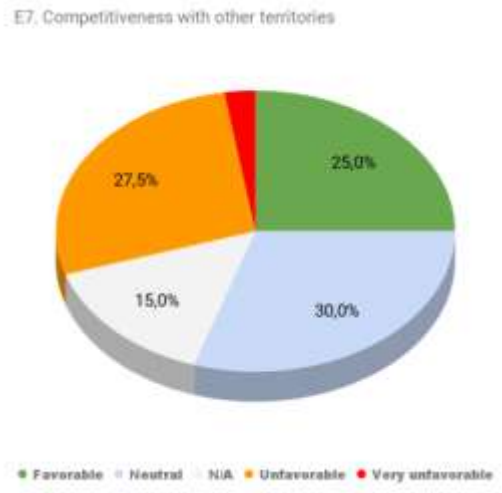
Similarly to the previous factor, in a context where sustainable tourism principles are just on a slow rise, it is difficult to compare touristic destinations on the basis of their sustainability. This could be a factor of choice, given that today many comparison websites could facilitate the research for the perfect sustainable coastal touristic place. But as mentioned before in the previous factor, it would be worth checking if

indeed most environmentally concerned people prefer more inland destinations than crowded coastal areas.

In fact territories with the highest water deficits (Malta, Murcia, Cyprus) have invested in alternative water sources in order not to lose its competitiveness in the predominant 3S tourism model. This is an indication of this type of touristic offers today is the more important in this competition between destinations.

Opinions are divided, but mostly respondents who justified their response with comments recognized that this factor is **threat (or neutral**) to the development of water efficiency measures.

Figure 14 Replies competition with other territories



4.2.8 Conflicts of interest between water users

Disputes over resource sharing (water and energy) between inhabitants and tourists is a recognized critical issue identified in the Mediterranean tourism sector (Plan Bleu 2017). In Mediterranean summer high season it has been reported that use conflicts exist between agriculture, hydro electricity production and household consumption,

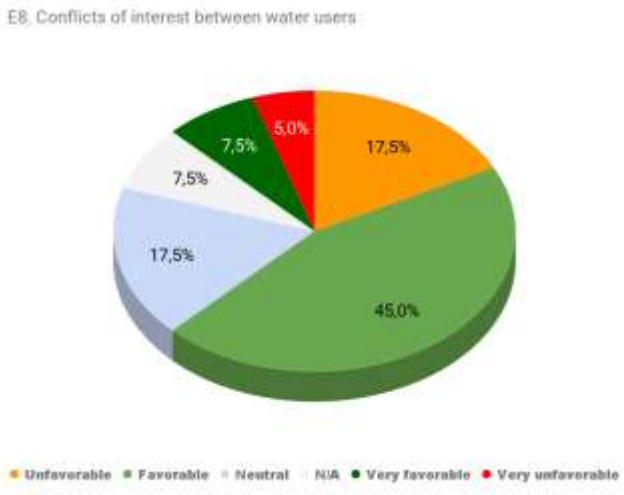
with tourist facilities sometimes being given advantage, as tourism can bring 60 times more added value for example than agriculture (Gossling et al, 2012)..

If sharing a resource may provoke tensions, especially in a drought crisis period, a good governance will take advantage of the necessary dialogue between users to raise awareness of other users on necessary efforts to concede.

Differentiated price setting for different uses (based on economic efficiency criteria) may be an indicator of the priorities given to water uses. However its impact on water efficiency measures is difficult to assess, especially for the tourism sector as tourism may not be differentiated from general domestic use.

Respondents' main opinion is that conflicts between users over the resource is favorable to water efficiency. Though not all territories experience such conflicts, they see the potential for a better understanding of overall necessities for the territory. However as some respondents pointed out it adds more complexity to water saving strategies when taking into account different uses.

Figure 15 Replies conflicts of interest between users



4.2.9 Other Constraints of the tourism market sector

The following additional comments were given:

- in two regions with extremely low water resource, the choice was made to invest in expensive desalinization plants to support high priority tourism industry (Malta, Murcia). In both cases some respondents considered this factor as unfavorable to water saving measures.
- increasing economic activity is seen as an opportunity for new investments in infrastructures
- there are contradictory trends globally unfavorable, with increased water efficiency devices being used by the tourism sector on one hand but more water intensive services developed on the other.

4.2.10 Summary of replies on economic context

In comparison with the political context, the economic context is much less favourable to water efficiency measures. Water prices and especially special water prices targeted to water scarcity are among the most important factors to support or not the decisions on efficiency measures. Water efficiency is very low ranking in competitiveness strategies.

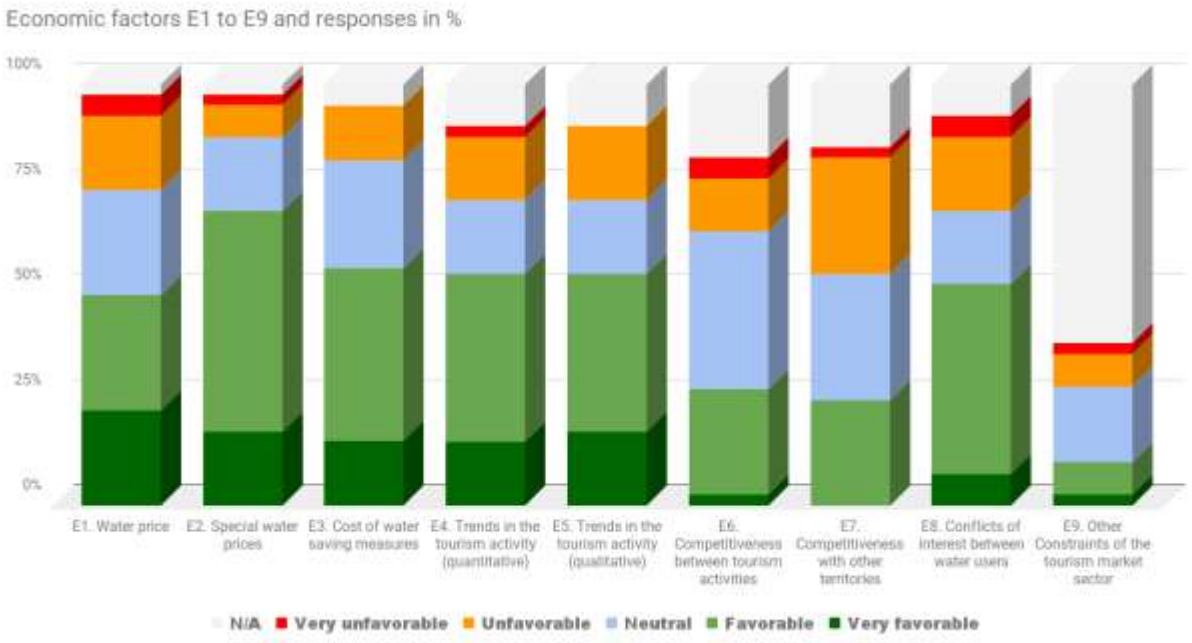


Figure 16 Summary of replies on economic context

4.3 SOCIO-CULTURAL CONTEXT

4.3.1 Knowledge

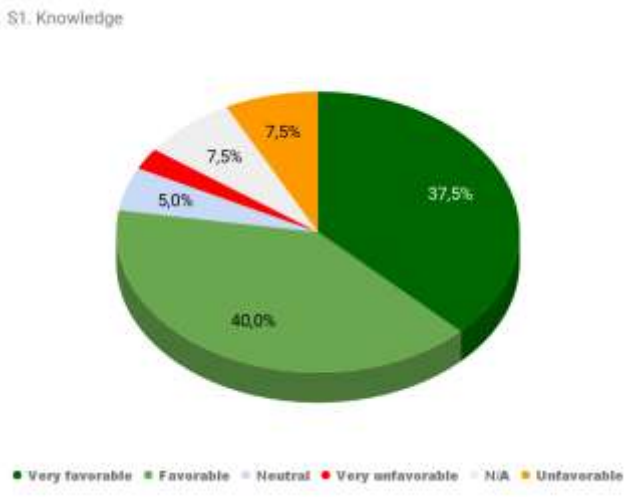
To ensure the necessary transparency and inform policies at the local and international levels the knowledge base for action needs to be improved. At the local level it is absolutely vital that competent authorities make any water management decisions (e.g. regarding incentives, allocations or restrictions) in full awareness of the availability of their freshwater resources at the catchment level and in full awareness of the actual needs of all actors in their jurisdiction. (EEA Report 1/2012).

Continuous monitoring of the water resources (quantity, quality), of their use, forecasts of the future trends, and knowledge of best available technical or managerial solutions for their efficient use is a key **strength** to ensure the implementation of optimal water efficiency measures.

Respondents to the questionnaire all agreed to the importance and favorable aspect of this factor. They all seem to have the data, but several comments pointed out that this knowledge should be widely available, in order to improve awareness and acceptability of measures by the users. A Chamber of Commerce acknowledged that this knowledge greatly reduced disputes over decisions. Participation in projects (such as EU funded projects and others) was mentioned as a good way to improve and exchange knowledge between project partners.

Also the few negative comments were mostly justified by a lack of dissemination of this knowledge to a larger sphere.

Figure 17 Replies on knowledge



4.3.2 Awareness of tourists

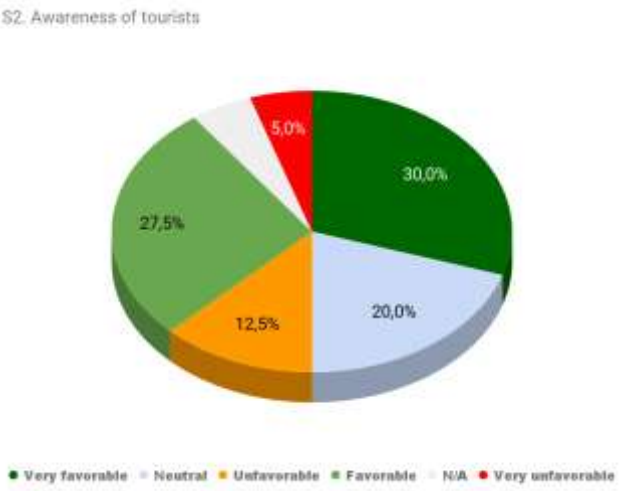
The role of the tourist in its water consumption demand is of great importance. As stated in the Plan Bleu report (2017) the Mediterranean tourism predominant model is the 3S (Sea, Sun and Sand) model which is in majority (but not solely) oriented toward mass tourism which is usually not the most environmentally concerned population. For many people, vacations mean also freedom from usual values. "It's the vacancy of values that make the value of vacations" wrote Edgard Morin in 1965, and there is probably still a lot of truth in this. The current trends in more water intensive leisure activities being developed even in territories with scarce water resources, is an image of this demand.

Raising the tourists' awareness on the limited resource of water available in the territory is therefore a non negligible task for local authorities, NGOs, or tourism business.

Interesting responses were given by the respondents on this issue. Though the majority acknowledges the importance of the tourist awareness, opinions were quite divergent considering the current level of information given to tourists on water resource and water saving practices.

Some results in western Greece of WP 3.2 (survey of practices in tourism business) in this project showed even that most tourist businesses consider bad business practice to put such restrictions to their customers or even ask them for reduced water consumption.

Figure 18 Replies on awareness of tourists



4.3.3 Awareness of tourism operators staff

This factor is related mainly to the economic benefits that tourist operators realize by reducing their water bill, which is linked to water price level (factor 4.2.1). But it can also be part of a marketing strategy to promote sustainable business which is related to the factor of business policy discussed in 4.1.4. Responses to this internal policy factor was not very convincing as being a tangible strength in the region though.

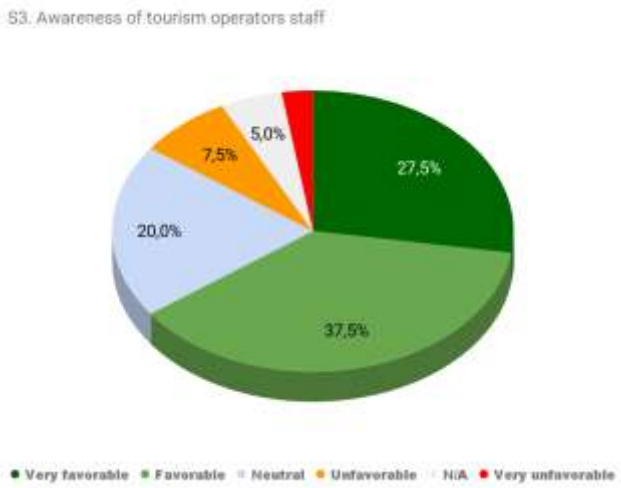
Indeed some results in Western Greece of WP 3.2 in this project (survey of practices in tourism business) say that most businesses ask from their employees to be careful in water consumption (in order to reduce costs).

Several respondents justified their favorable evaluation of this factor, by saying that it is important to have trained staff. Those who commented their unfavorable evaluation

actually assessed that there was a very limited interest or knowledge from the business sector besides obvious solutions. As one respondent added, this might change only if tour operators would intensively promote destinations on the basis of sustainable development which is not the case yet for our region.

Figure 19 Replies to awareness of tourism staff

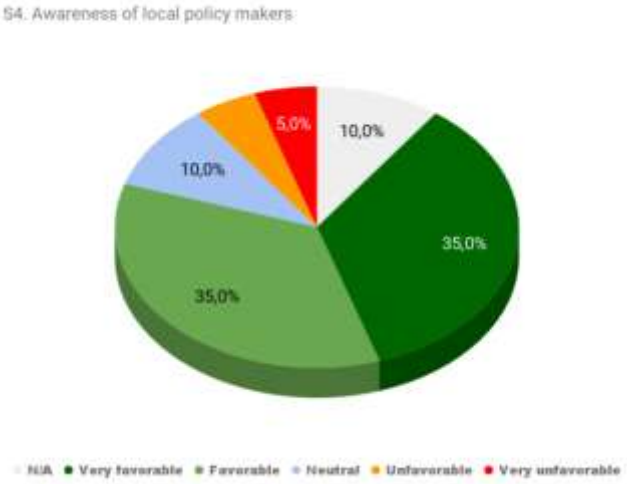
Figure 20 Replies to awareness of local policy makers



4.3.4 Awareness of local policy makers

Awareness of local policy makers depends on the support of specialists that can read, interpret and bring the information in an accessible format, or access to continuous training for local policy makers. The idea here, was to assess the availability of trained expertise to support local authorities, but it may probably not have been clearly stated and it was not interpreted this way.

Almost all replies to this factor are very similar to the replies to the 4.3.1 factor (relative to knowledge), including in the comments given. It is highly probable that both these factors can be integrated into one in this analysis.



4.3.5 Cultural aspects linked to water

The paper "Conceptual frame on water culture and its use to raise public awareness on sustainable water management in the Mediterranean basin" (Laureano et al 2008) is the main source of information for this chapter, and the following paragraphs are excerpts from this study.

The Mediterranean climate is typified by an enormous irregularity in the distribution of rainfall in space and time. However, flourishing civilizations have developed in this area with most of traditional techniques relative to the water organization for water harvesting, conservation and diversion. There are also very important cultural values of water and water landscapes, linked to the personal and collective identity and to the historical, archaeological and cultural heritage of societies in these places.

Today the debate about water issues usually revolves around the following questions: Water rights and management schemes (public, private, joint); Level of water provision (consumption) and the criteria for distributing water among different groups of users; The cost of water (criteria to calculate how much users must pay for water). The way the debate is formulated depends on the local water culture.

Some key and important values need to be recovered and valuated in order to ensure increased public awareness, such as:

- Perception of scarcity: The old generations were more sensible to the water scarcity in the region because the access to water was very painful. Nowadays, with the full access to water at all time and places, a wrong feeling and opposite perception have been built: the water is a cheap commodity and abundant resource. To recover the scarcity value, a lot of work is needed at all scales: awareness, cultural values, economic measures and legislation.

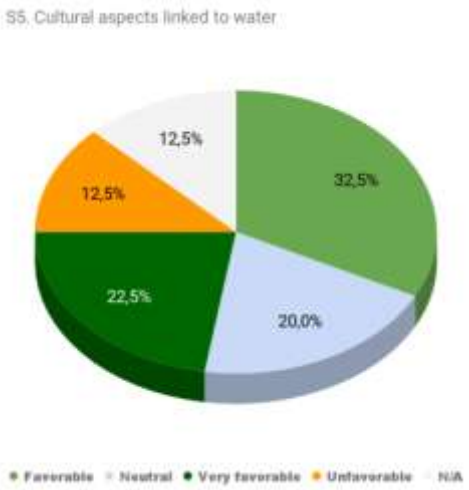
- Sharing of scarce resources by different actors: Certainly, the economic and population growth need more and more water. In addition to improving resource management, there is huge scope for improving water demand management.

- Recovery of water, no waste water: Though a lot of efforts (technology, economy) are still needed for the treatment of waste water, huge habits and misunderstandings are to overcome in parallel especially in the agriculture sector where the products produced on such water type are not well accepted by the consumers.

The perception of this factor in our analysis reflects a diversity of situations among countries. Greece for example is very attached to traditional low prices for water and its public management, but has kept an understanding of the value of a scarce resource. Malta used to have a very high awareness of water scarcity, which seems to decrease due to technological solutions for water supply (a National Water Conservation Campaign is about to be launched to tackle this issue). In Murcia, there is no culture of "free water" which is considered as a valuable and scarce resource that must be managed with great efficiency. In France, there is some improvement in the considerations given to water resources that were perceived as unlimited. This relative abundance of water probably explains some reluctance (and sanitary legal barriers) to water reuse.

These cultural specificities represent **strengths or weaknesses** of the territories for water efficiency strategies.

Figure 21 Replies cultural aspects



4.3.6 Touristic image of the territory

Mediterranean coastal tourism has benefited and contributed to the democratization of the holiday dream, offering easy-to-reach and affordable leisure breaks through the so-called 3S (Sea, Sand and Sun) model. All-in-one packages including low-cost airlines, comfortable accommodation and cheap food, have massively increased tourist flows towards the Mediterranean coasts. Over the years, the 3S model has been extended to include different facilities, including golf courses, swimming pools, leisure parks, etc. Despite increasing awareness of the societal risks linked with tourism development, sustainability principles are not yet widely applied in facility and destination management (Plan Bleu 2017). Mass tourism is a predominant image given to the Mediterranean region.

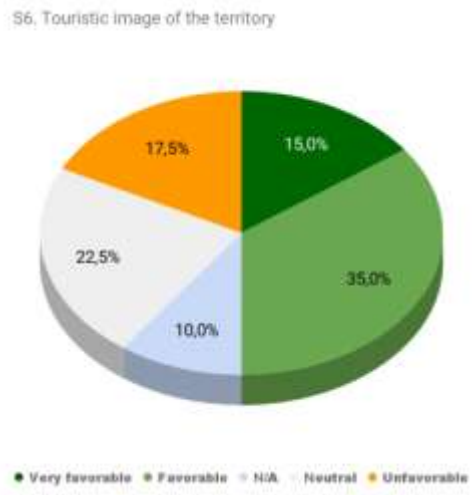
The promotion of sustainable tourism as an important element of the territories tourism marketing, would be a very favorable factor to the development of water efficiency measures, and indeed it is acknowledged that the image given by the territory impact the tourism target groups and activities.

However though many of the respondents indicated that a sustainable image in tourism was Favorable, very few of them justified such response. Murcia only stated

that in its communication strategy, efficient water management is part of the business model.

Though sustainable tourism is part of the official national policy in Malta some respondents did not perceive this particular drive to sell Malta as a sustainable tourist destination. Several respondents doubted that acknowledging the limited water resources of a territory would attract tourists and feared they might go elsewhere. Hérault recognized its image as a mass tourism destination, which is not in favor of sustainable behaviours. In Cyprus a respondent commented that the factor was favorable, provided the image was not luxury tourism.

Figure 22 Replies on touristic image of the territory



4.3.7 Other socio-cultural factors

The following additional comments of information were given the socio-cultural factors by the respondents.

In the Region of Murcia there are very favorable socio-cultural aspects for the implementation of water efficiency measures. Among these factors, we can mention the traditional tribunal for the resolution of water conflicts, the Council of Wise Men of

the plain of Murcia, which is more than 1000 years old and is declared an intangible heritage of humanity by UNESCO, together with the Valencia's traditional Water Tribunal. On the other hand, there are important archaeological vestiges from Arab period (711-1243) such as waterwheels, ditches, and other elements highly appreciated by tourists. Dated from the XVIII century, in the Region of Murcia, the first dams built in Spain are found. All these socio-cultural factors determine a tradition that forces us to implement water efficient measures in the tourism sector.

The highly politicized context for water and energy issues is not necessarily sound or helpful to make unpopular decisions.

The importance of environmental education of the population through school, or through awareness campaigns was cited by several respondents.

The lack of interest for involvement of the professional sector in organized consultancies or projects was also mentioned as disappointing.

4.3.8 Summary of replies on the socio-cultural context

The main conclusions from this analysis, is first that knowledge among the most important and favourable factor to water efficiency measure provided it is well disseminated. Second the touristic image of the territory as a sustainable destination is clearly not seen as a priority for most respondents, which is linked probably with an insufficient awareness level of the tourists attracted to these places.

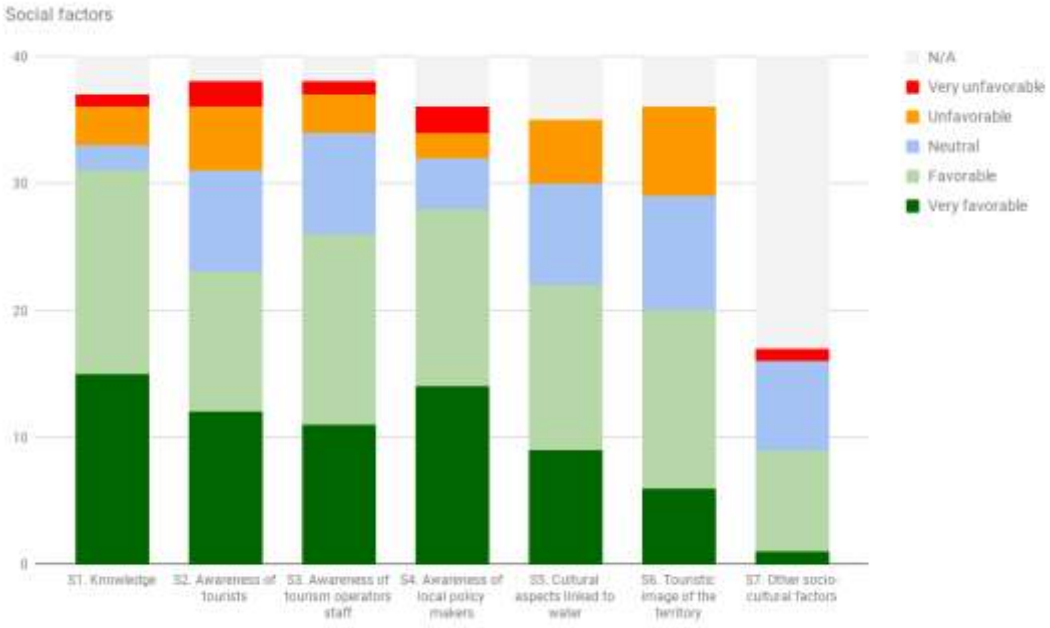


Figure 23 Summary of responses on socio-cultural context (number of responses)

4.4 TECHNOLOGICAL CONTEXT

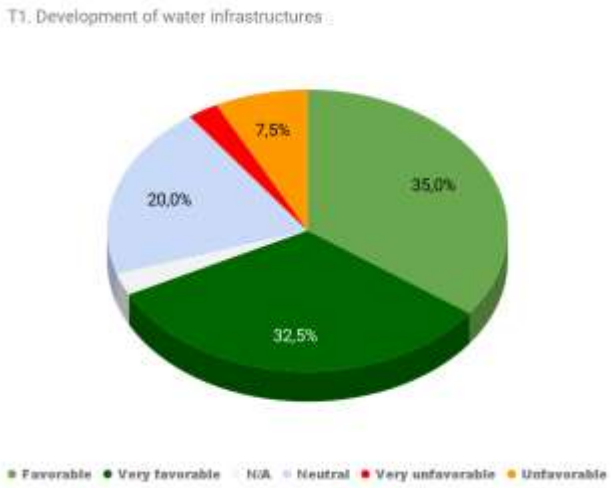
4.4.1 Development of water infrastructures

Water efficiency measures include demand side and supply side aspects. While the demand side includes all options to decrease water consumption, the supply side is about providing alternative resources to the main drinking water supply. When water infrastructures such as a raw supply network, or a double network for grey waters is present on the territory it might weaken the incentives to save water resources. A study in Hérault concluded that the availability of raw water in an individual housing area increased overall water consumption from 20 to 25%.

On the other hand water supply networks in good conditions (no losses) are important for the promotion of water efficiency measures, as it may be difficult to advocate for them when the public network is inefficient.

The respondents were divided in their assessment of the situation for some territories. Territories such as Cyprus, Murcia, or Malta gave confident responses, assessing a good technological context for water efficiency measures. In Greece (including Crete) though some favorable assessments were made, most of comments acknowledged an old supply infrastructure that needed replacement, and even if a stormwater collection exists, it goes directly to the sea without possible reuse. Many infrastructure investments were done in Croatia in the past years in order to decrease the important leakages of the supply network (reducing it from 29% in 2010 to 20% in 2015).

Figure 24 Replies Water infrastructure



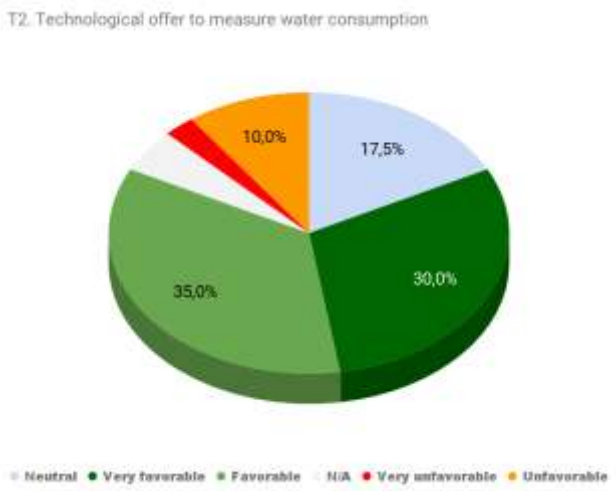
4.4.2 Technological offer to measure water consumption

Measuring water consumption is a first essential step in order to have knowledge and awareness on the level of consumption. It also allows to monitor progress on gained efficiency. Naturally this is a necessary tool to establish water bills based on the consumption.

Water metering industry is evolving, with the development of telematic control of consumption, on a continuous basis when needed. Availability of modern equipment is a strength for the water efficiency measures.

In this area also the situation is not equal among territories, though all seem to be equipped with individual water metering, some territories have more modern equipment than others but altogether this factor may be assessed as a favorable one.

Figure 25 Replies on technologies to measure water consumption



4.4.3 Technological offer to reduce water consumption

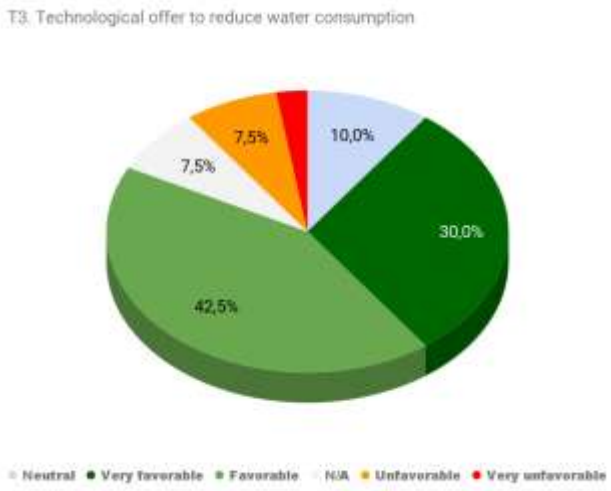
There is a big diversity of technologies widely available that help reducing water consumption such as flow restrictors, dual flush toilets, or movement sensors in water taps for example.

These technologies seem to be well known in most of the respondents' countries and in use and this factor can be considered as a strength.

In Murcia the use of the best available economically accessible technology is even mandatory through a Parliamentary Act. Also in Murcia a manual was prepared by the professional associations of the tourist industry with wide information on the technological offer to reduce the consumption of water in the tourist sector. The

results of the survey in task A3.2 in Western Greece reflected that many businesses adopted the common measures for water efficiency such as flushes in bathrooms with low consumption and movement sensors in water taps. In France, such equipment was also becoming standard equipment. Few respondents though (from Malta and Crete) were more doubtful on the sufficient awareness of the availability of such equipment.

Figure 26 Replies on technology to reduce water consumption



4.4.4 Technological offer to recover rainwater

Rainwater harvesting consists of the collection and storage of rainwater for a future use. The systems range from rather simple domestic models to sophisticated public collecting networks for storm waters.

Domestic models collect rainwater from the buildings' roofs and are stored in cisterns, from where it can be used for the gardens, washing the cars, or sometimes for domestics use such as toilet flushing, which request then more sophisticated equipment.

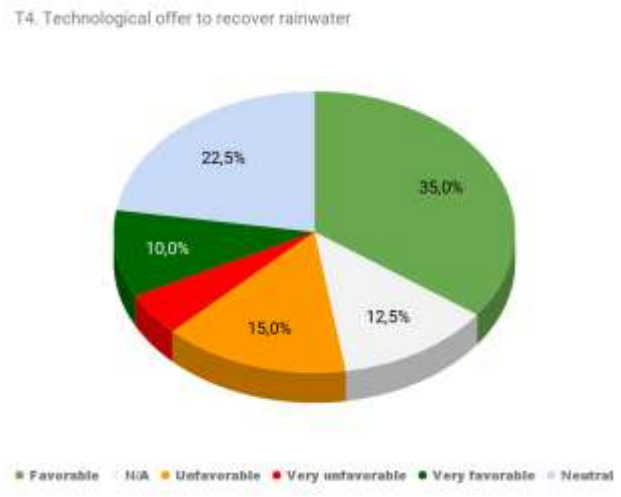
Harvesting of urban stormwater for reuse demands a further treatment and distribution. It is a relatively new form of water reuse compared to rainwater tanks. Harvested stormwater has commonly been used in certain countries for irrigating public parks and golf courses, and other non-potable uses are possible.(NSW DEC 2006)

Results from respondents show that these technologies are not common in the region for all territories. Murcia considers that rainfall is too low to make the technology attractive. In Greece a very small proportion of tourism business have implemented rainwater harvesting. In Hérault also the technology is not felt as adapted for the conditions of the territory and there is also a lack expertise.

No one mentioned the reuse of urban storm water, which is therefore assumed as not being commonly implemented.

Though it may be justified by specific climate conditions or by a lack of performing, accessible and adapted technology, this factor can be considered among weaknesses of the region.

Figure 27 Replies Technologies to recover rainwater



4.4.5 Technological offer for water reuse

Wastewater reuse has developed from simple collection and disposal of waste water without any treatment to very sophisticated engineering solutions for the treatment of wastewater for their further use in agriculture, industry or even for drinking purposes depending on the level of the quality requirements.

Reuse of water (e.g. from waste water treatment or industrial installations) is considered to have a lower environmental impact than other alternative water supplies (e.g. water transfers or desalination), but it is only used to a limited extent in the EU[3].

Technically feasible water reuse projects often do not get implemented due to institutional, economic, and organisational barriers, or poor public perception and education. These non-technical barriers are a limitation to the expansion of water reuse planning. (Alcade et al, 2014)

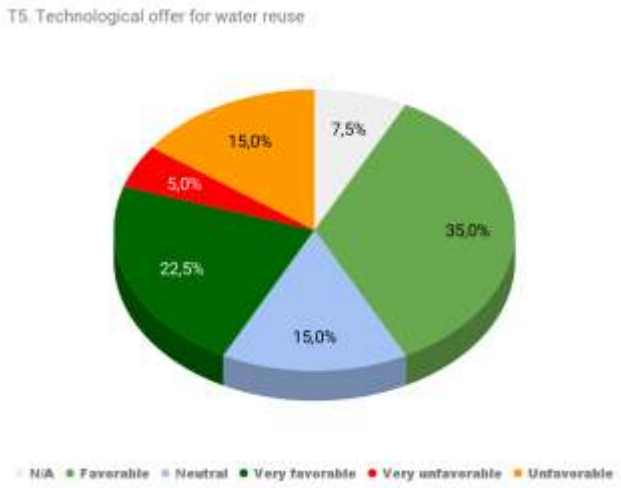
EU Guidelines were published in June 2016 and this should bring some change to the situation.

[3] http://ec.europa.eu/environment/water/blueprint/reuse_en.htm

In our survey, though many respondents put a favorable response to the assessment of this factor, only Murcia Region indicated that the technological offer for water reuse is very important for them: the Region of Murcia has a sewage and water treatment system composed of more than 90 facilities that serve almost 100% of the population. The reclaimed water is almost 10% of the regional water budget. These sewage and water treatment system facilities are equipped with a tertiary treatment system and produce a pre-potable water capable of being used for ecological flow, irrigation, and other tourist uses such as water parks. It is a strength of the Murcia region for water efficiency.

Comments given for other territories mainly suggest that this technology, though promising (many favorable assessments), still would need some more thinking for its development. Therefore as the technologies are available on the market, this factor could be considered as an **opportunity** for water efficiency.

Figure 28 Replies to technologies for water reuse



4.4.6 Alternative availability of water resources

The groundwater resources of the Mediterranean region are either the main sources of freshwater or are vitally needed to supplement surface-water sources. Groundwater represents more than 50% of the available water resources in Mediterranean islands.

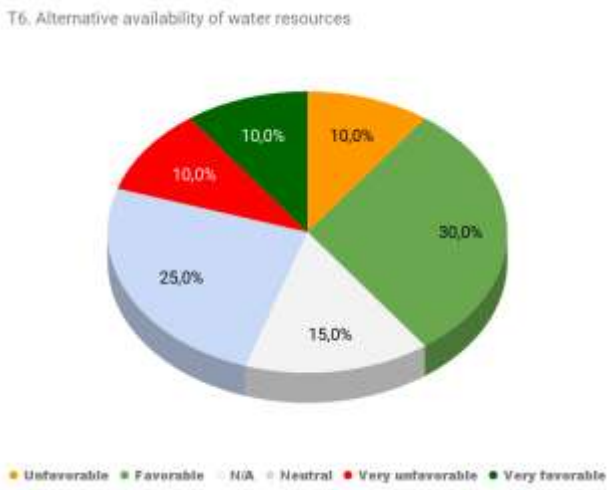
Groundwater exploitation in the region has increased dramatically during the last decades due mainly to an increase in irrigated agriculture, tourism and industry. Thus, many groundwater resources are at risk of being exhausted through over-pumping. Main problems for groundwater use deal with: lack of public control, intensive use (lowering water tables and increasing cost of abstractions), pollution (nitrates), marine intrusion in coastal areas, negative effects on streams, rivers and ecosystems. (MED EUWI, 2007)

Desalination technologies are usually used in islands or in places where there are not other resources available or the existing ones are overexploited, like in coastal areas. Occasionally, when no permission is allowed for the use of conventional resources (e.g. golf courses) or when there are crops with high value or demand, if the operation and maintenance is supported by the benefits (Salgot et al, 2005). The dominant desalination process on the market is separation by membrane or reverse osmosis. Malta, Spain and Cyprus are largely using this technology. Sporadic water desalination units installed by SMEs are indicated in Croatia.

Another water resource is the transfer of water from other regions, but was not discussed in this analysis.

Many of the respondents estimated that this factor is favorable to water efficiency however this might be a biased interpretation of the question, as some respondents rightly argued that having alternative resource does not give incentives for an efficient use.

Figure 29 Replies to alternative water sources



4.4.7 Other technological factors

Some additional comments on this technological context issue were given:

Murcia mentioned the importance of the hydrological modeling in semi-arid zones, for its forecasts including projections that climate change may have on the availability of the resource.

Crete reminded of the strong link between ongoing renewable energy programs and water and irrigation networks which will have benefits on energy savings and costs reductions.

Cyprus mentioned its programme in leakages and non revenue water detection on its networks.

4.4.8 Summary of replies on the Technological context

Generally the level of water infrastructures, water metering and availability of water saving devices technologies in the region supports water efficiency, though some improvement can be made. The availability of alternative water resources reduces the

needs for water efficiency measures. Rainwater recovery and water reuse is not widely developed but for some exceptions and need more development.

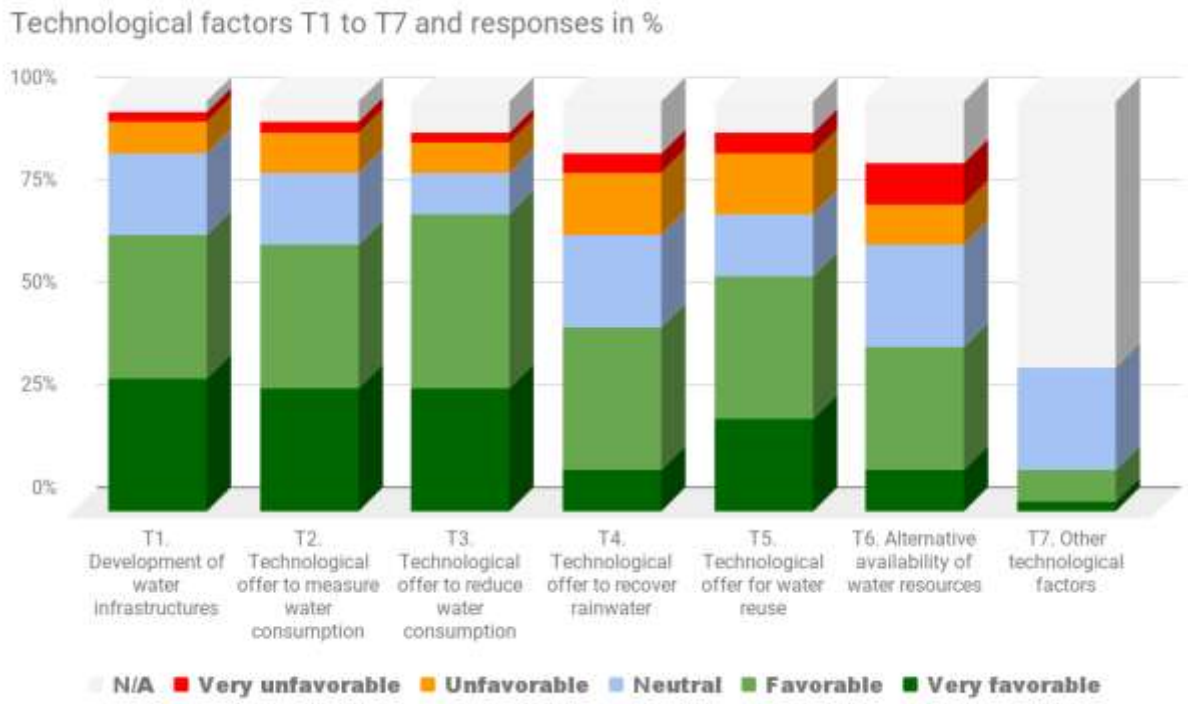


Figure 30 Summary of replies on Technological context

4.5 ENVIRONMENTAL CONTEXT

4.5.1 Fresh water availability

Better than words, the map below, extracted from the UNEP/MAP report on the last State of the Environment of the Mediterranean region 2009 (Plan Bleu; 2009) indicates the available renewable fresh water resources per inhabitant per year (not taking into account tourist population). Seasonal concentration of rainfall (rare but intense), as well as its interannual variability, is another specific characteristic of the region.

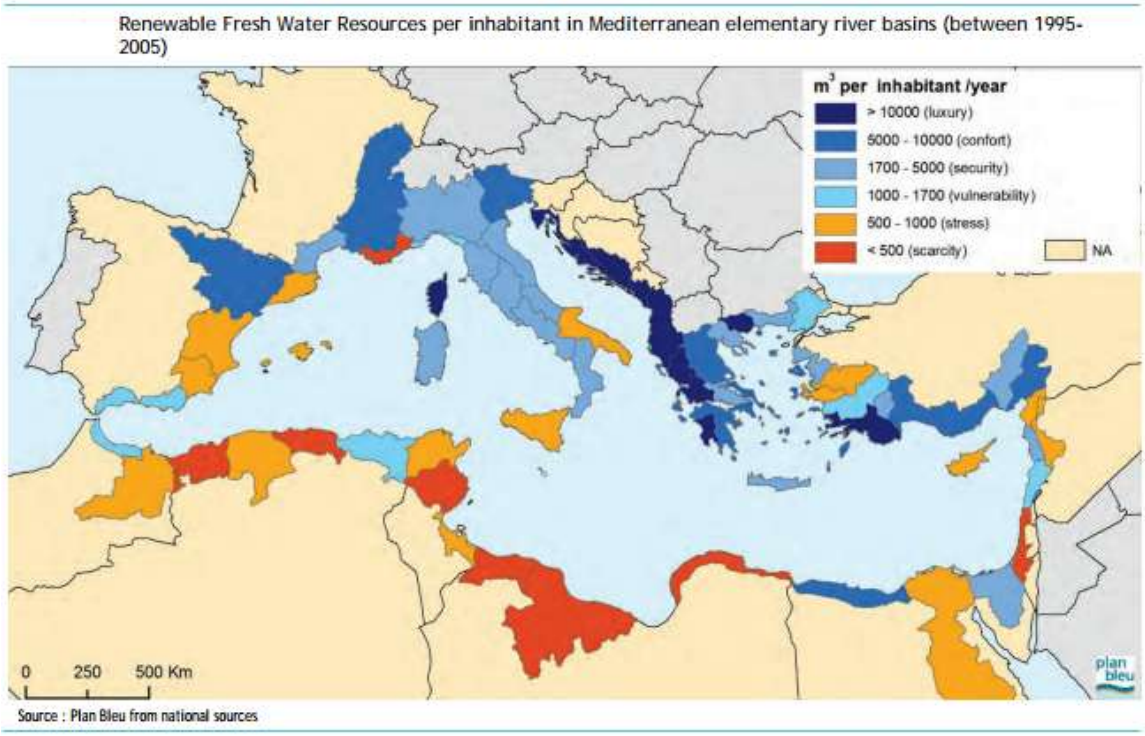
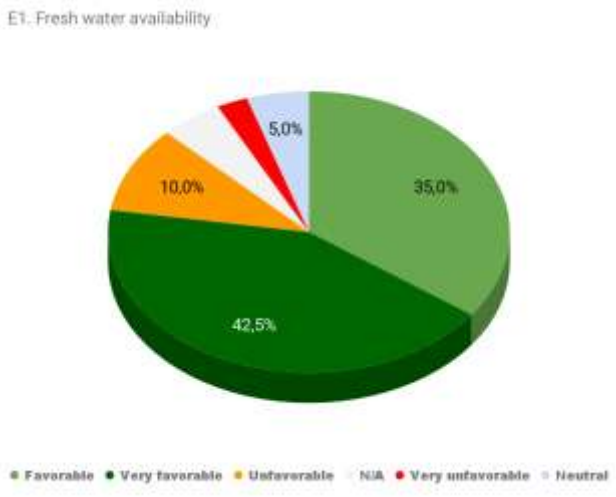


Figure 31 Fresh water resources map

The increasing challenge put on fresh water resources is an **opportunity** for water efficiency development in most Mediterranean countries, though efficiency is not always the major solution chosen when alternative supply is possible.

Most respondents agreed to this factor being favorable, even if some regions are under much less water stress than others.

Figure 32 Replies to Fresh water availability

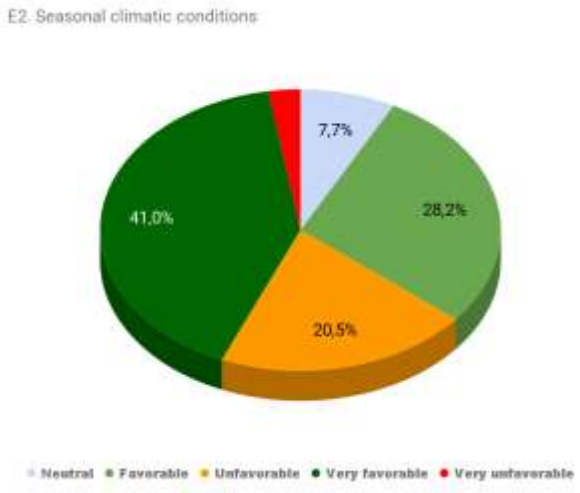


4.5.2 Seasonal climatic conditions

Mediterranean climate is also recognized as the Dry Summer Subtropical climate. Mediterranean summer is characterized by a dry and hot weather. This drought period is also the period when the tourists massively arrive, increasing existing stress on water resources. High temperatures increase evaporation, increase water demand for agricultural needs as well as tourists demand for water related leisures. As the previous factor this challenge is an **opportunity** in most Mediterranean countries for water efficiency development, though it is not the sole solutions developed.

Most respondents agreed to this factor being favorable.

Figure 33 Replies to seasonal climatic conditions



4.5.3 Territorial natural conditions

Among the territories of the project 3 are islands with limited internal water resources (Crete, Cyprus and Malta). The continental territories have variable landscape, with wetlands and transitional waters, plains and mountains each with its specificities and vulnerabilities. Transitional waters in particular are vulnerable but valuable ecosystems with an important ecological and economical role that need to be preserved.

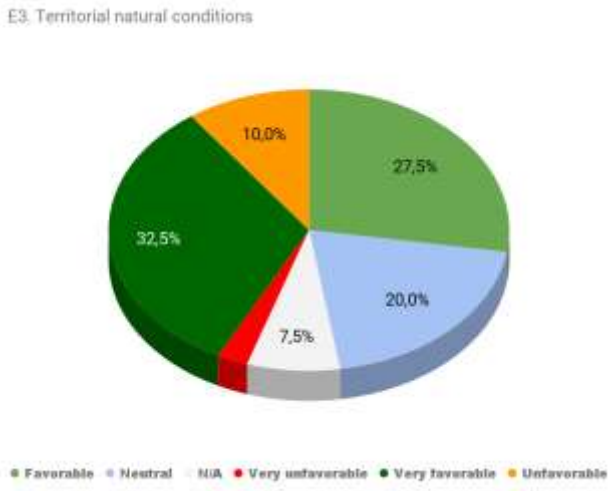
The CIRCLE-MED project Climbiomednet (http://www.circlemednet.unisalento.it) established a database with information on all Mediterranean lagoons (see map fig 34)

Figure 34 Map of Mediterranean Lagoons (Climbiomednet project)

This vulnerability and necessity to preserve could be seen as an additional incentive to have more efficient water use as intensive water use in a context of water rarefaction will increase the risk of salt water intrusion to these ecosystems with the loss of their economic and environmental value.

Most respondents therefore acknowledged that the natural conditions of the territories where favorable to the water efficiency measures (i.e. Strength of the territories for the SWOT analysis). There are some unfavorable assessments, but accompanying comments indicate another interpretation of the question, more directed to the effect of the factor on tourism or on water resources as such.

Figure 35 replies to territorial natural conditions

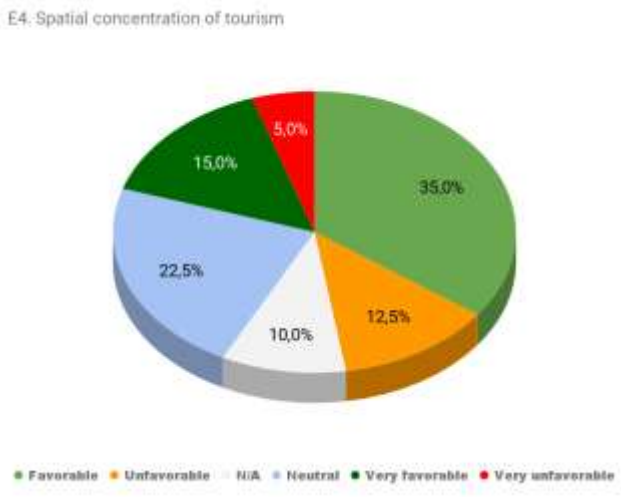


4.5.4 Spatial concentration of tourism

Mediterranean tourism is mostly concentrated on the coastal line, and is confined to urban areas where the highest water demand occurs. Low density ecotourism with lower water demand is less developed. Istria for example indicated that at high season only 5 % of its total tourism occurs inland.

This high water demand spatial concentration could be a factor of even greater need for a water efficient use, which might be easier to implement than when the demand is scattered and not so impacting. The assessment of the factor if therefore rather favorable even though this question was not an easy one to reply to for some of the respondents, and many respondents remained neutral in their assessment.

Figure 36 Replies to spatial concentration of tourism



4.5.5 Climate change consequences

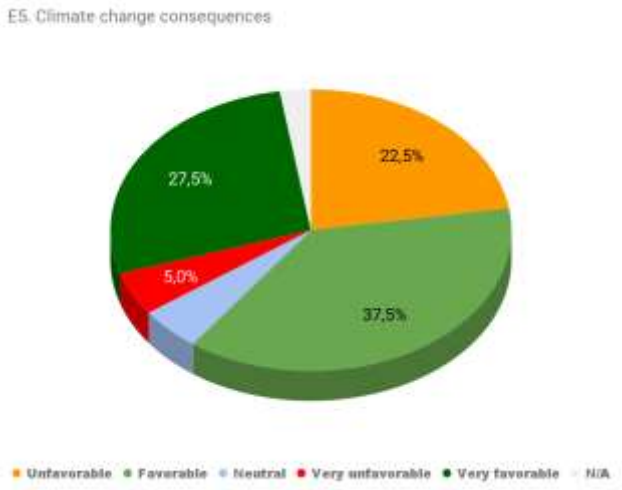
As a "hot spot" of climate change, the Mediterranean will be, in the twenty first century, the site of particularly marked changes in terms of rises in temperature and decreases in average rainfall, inter-annual variability and extreme meteorological events. The climate models reveal temperature rises likely to range between 2.2 and 5.1°C for the time frame 2100 and a decrease in average rainfall in the range of 4 to 27%, with a particularly marked decline in the summer. These evolutions are likely to induce a decrease in the available water resources on the three rims of the Mediterranean basin, together with a rise in water demand, especially in the agricultural sector (UNEP Blue Plan, 2008). Coastal aquifers may suffer in addition from sea water intrusions as sea water level increases.

Climate is an essential criterion on the choice of destination of international tourists. If heat-waves and summer temperatures increase, the Mediterranean regions could become less attractive to the benefit of more northern destinations. Extreme natural events or a significant rise in the cost of transport relating to global warming prevention programmes could also harm tourist activity as could potential clashes with other users over scarce water resources. (UNEP MAP Plan Bleu 2009)

In this context the forecasts of an increased scarcity of water resources is an opportunity to develop water efficiency measures as part of the development strategies (including tourism).

Most respondents agreed to this analysis and assessed the factor as a favorable one. (It is suspected that unfavorable assessments were given to indicate that climate change was unfavorable to tourism rather than relating it to water efficiency).

Figure 37 Replies to climate changes consequences



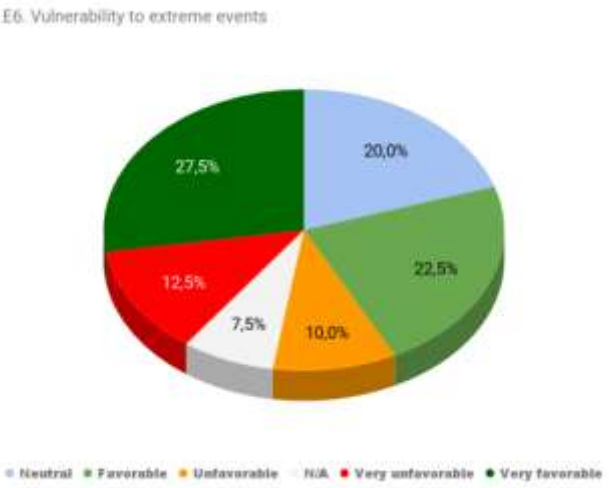
4.5.6 Vulnerability to extreme events

As just indicated above, climate change will increase the number of extreme climatic events such as heat waves, storms or forest fires. In order to decrease their vulnerability to those events, the territories need to get prepared for emergency responses in particular in the water supply sector with more water storing capacities. However as stated in the WERF report "While infrastructure poses some planning challenges, workshop participants further noted that water planning is a constant gamble overall, especially when it comes to extreme climate/weather events. Storing too much water could contribute to flooding in unexpected rainy years, whereas

storing too little water merely worsens drought years" (Water Environmental Research Foundation 2014).

Similarly as the previous factor, increased awareness of the vulnerability of the water resources may have a favorable effect on efficiency measures.

Figure 38 Replies to vulnerability to extreme events



4.5.7 Other environmental factors

Other specific comments were added by some respondents such as:

- Murcia indicated that its environmental factors were very favorable for the tourism industry. The lack of water is a limiting factor to be addressed through the implementation of water efficiency measures and other measures, including transfer of other watersheds and water markets.

- Hérault reminded of the problems linked with mosquitoes control

- Crete reminded that the type of agriculture developed on the territories (in terms of water demand) also impacted the water saving strategies

4.5.8 Summary of Environmental context

The environmental context with its increasing water scarcity and vulnerability is globally favourable to water efficiency measures. Number of replies in this section, were confused and not oriented towards the effects of the environmental conditions on water efficiency needs, caution is therefore necessary in interpreting the graphs.

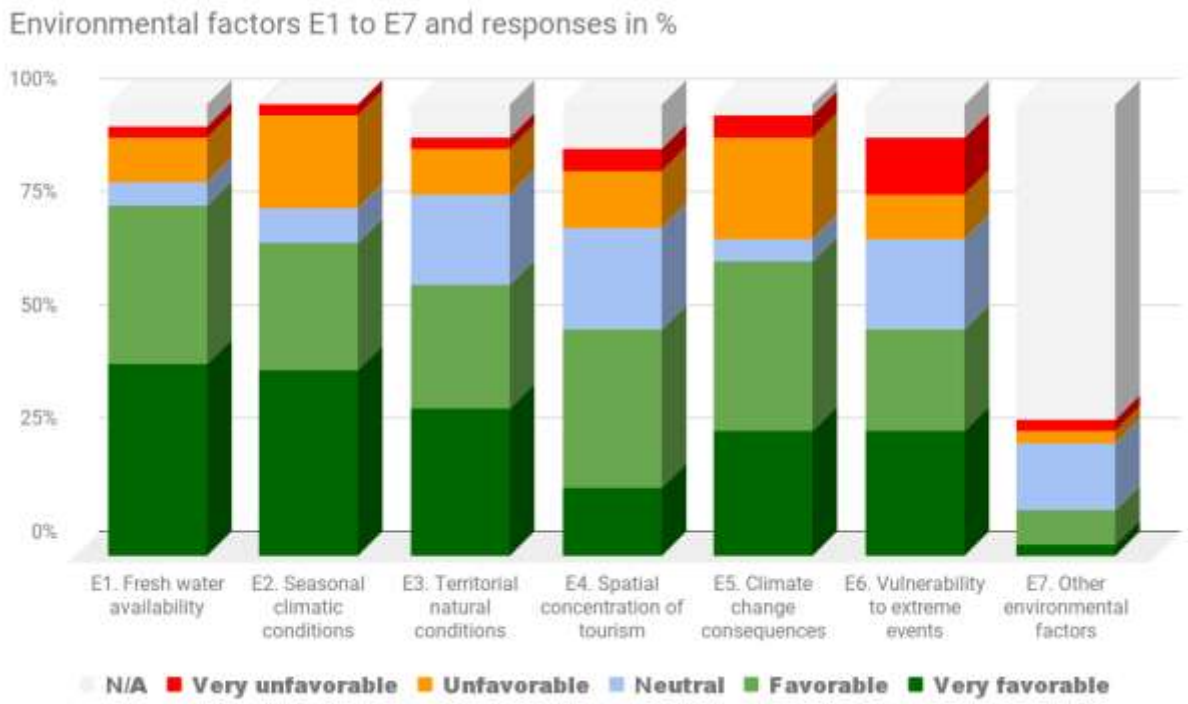


Figure 39 Summary of replies on environmental context

4.6 LEGAL CONTEXT

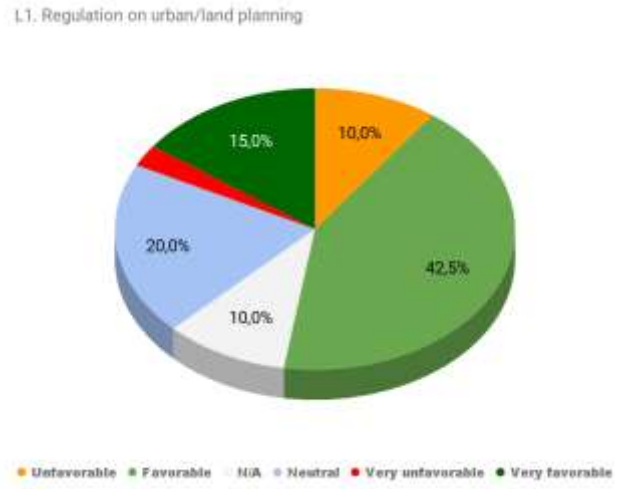
4.6.1 Regulations on urban/land planning

The EU report on the Review of the European Water Scarcity and Droughts Policy (2012) states that "the assessment of the River Basin Management Plans (RBMPs) shows that they often have not been adequately coordinated with other physical and

socio-economic plans e.g. on land use. This lack of coordination, together with the absence of supporting financing plans, severely hinders the implementation of the RBMPs in general and of measures relevant to water scarcity and drought (including water efficiency measures) in particular".[4] The same report states further that "adapting land use to reduce the vulnerability of water resources is not common at Member States level and highly fragmented support actions and technical measures are promoted instead of integrated land and water use planning".

Though the majority of respondents gave a favorable assessment of this factor for water efficiency measures, only one respondent gave a concrete example of the direct integration of land planning with water policy, and a couple of other gave example of partial integration. Results from the research conducted in WP 3.2 in Western Greece did not find any connection between land planning and water consumption, and few other respondents also acknowledged that this connection did not exist.

Figure 40 Replies to regulations on urban/land planning



[4] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52012DC0672

4.6.2 Regulation on the uses of recycled water

Despite the water reuse applications already developed in many countries, a number of barriers still prevent the widespread implementation of water reuse throughout Europe and on a global scale. Among the barriers identified, the first on relates to inconsistent or inadequate water reuse regulations/guidelines, which lead to delays and misjudgements. The convergence of water reuse regulations is a very important challenge for the worldwide development of water reuse and its integration into urban water management. New regulations should be based on health and environmental protection, and should include treatment goals and adequate and affordable water quality monitoring. Costly monitoring of compliance, such as that required by several recent regulations, could be an impediment to water reuse development. (Alcade et al, 2014)

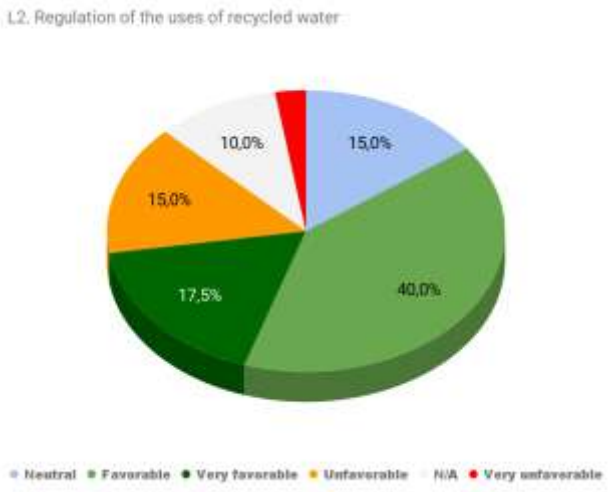
In Europe, there are no guidelines or regulations at the European Union (EU) level. However, several environmental Directives must be taken into account when developing legislation to govern future water reuse at the EU level. Among these Directives, Article 12 of the Urban Wastewater Treatment Directive (91/271/EEC) requires that "treated wastewater shall be reused whenever appropriate" and "disposal routes shall minimize the adverse effects on the environment", with the objective of the protection of the environment from the adverse effects of wastewater discharge. Cyprus, France, Greece, Italy and Spain have developed the most comprehensive standards included as regulations in the national legislation. (Alcade et al, 2014)

The EU published in June 2016 "Guidelines on Integrating Water Reuse into Water Planning and Management in the context of the WFD"[5] which is another step towards common standards.

[5] http://ec.europa.eu/environment/water/pdf/Guidelines_on_water_reuse.pdf

Respondents had divided opinions on the impact of this factor on water efficiency, a majority gave a favorable opinion but few comments acknowledged that the legislation could be too restrictive.

Figure 41 Replies on regulation water reuse



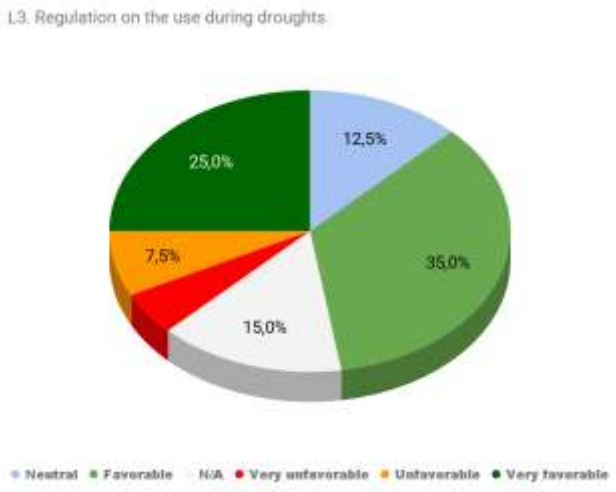
4.6.3 Regulation on water use during droughts

The EU report on the Review of the European Water Scarcity and Droughts Policy (2012) state "the practice to restrict water use in times of water scarcity or drought is included in many Member States' water allocation policies. In some Member States, restrictions are determined according to a hierarchy of water users, under which the environment is sometimes being included as a separate sector. Abstraction rules are sometimes more stringent in areas suffering from chronic water shortage."

This question also met some misunderstandings in the replies, not necessarily oriented towards the effect of such regulations on water efficiency (some comments mentioned rather effects on tourism). Great caution is therefore necessary in interpreting the graph.

One comment stated that though such restriction might not have a direct impact on water efficiency measures, they may at least contribute to raising awareness of users on water scarcity.

Figure 42 Replies to regulations on use during droughts



4.6.4 Regulation of groundwater use

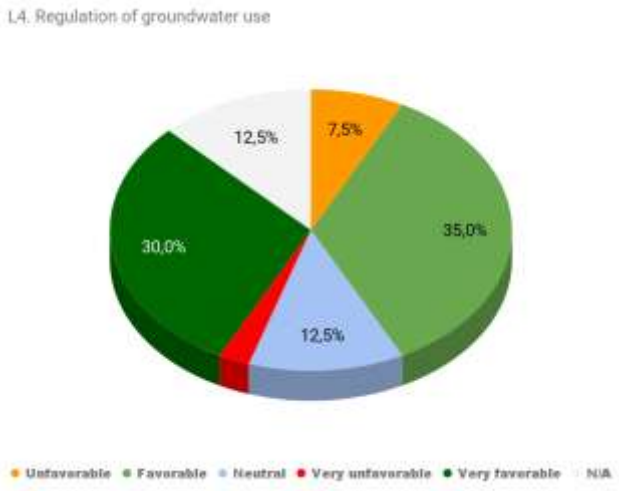
Groundwater European legislation is integrated In the Water Framework Directive with a new daughter Groundwater Directive issued in 2008 aiming to a good quantitative et chemical status of these resources by 2015 as it has become increasingly obvious that groundwater should not only be viewed as a water supply reservoir, but should also be protected for its environmental value.

The respondents mentioned several times in previous comments that users tend to drill and use ground water resources as a cheaper access to water than through a connection to the water supply network. In such cases, until there is a better control there will be no incentives for these users to invest in water efficiency measures.

Though respondents acknowledged the importance of such regulations for water efficiency measures, the situation in each country is difficult to assess through the replies. In some cases, aquifers are already classified as over exploited and cannot be

used as an alternative resource. The most recurrent comment however touched upon the difficulty to control the use of groundwater (illegal use) and enforce regulations.

Figure 43 Replies to regulations of ground water use



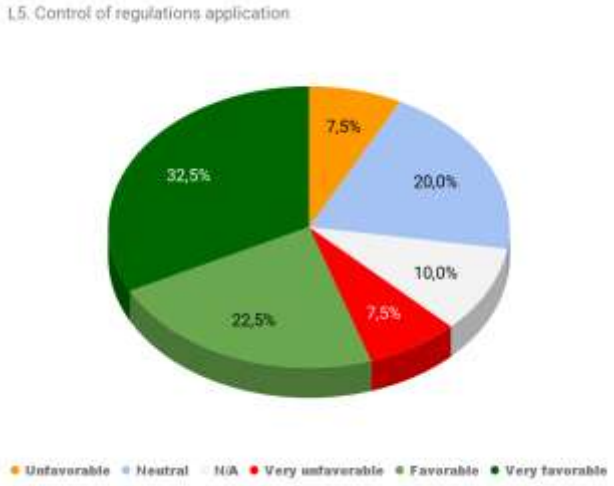
4.6.5 Control of regulations application

Most respondents agreed that the control of the enforcement of the regulations is an important and favorable factor for the development of water efficiency.

However several respondents acknowledged that this control is not sufficient or difficult to achieve, and this situation is a threat for water efficiency measures.

In Spain however transgressing water legislation constitutes an offence under the Criminal Code (eg. contaminating the natural courses of water and other bodies of water as well as overexploitation of water without the corresponding authorizations).

Figure 44 Replies to control of regulations application



4.6.6 Other legal factors

Among other factors:

- Spain has a specificity of water markets legal regulation, which allow the exchange of resources between users. This market may favor the tourism industry which, in a situation of scarcity, could buy water rights from farmers.

4.6.7 Summary of Legal context

Though caution is necessary on some mistaken interpretation of the questions, it is interesting to observe a much more cautious assessment of the favourable effect of the legal context on water efficiency measures. There is clearly here some issues that need to be investigated at national level. Restrictive regulations on water reuse, and insufficient control of the regulations are the most clearly pointed out in the analysis.

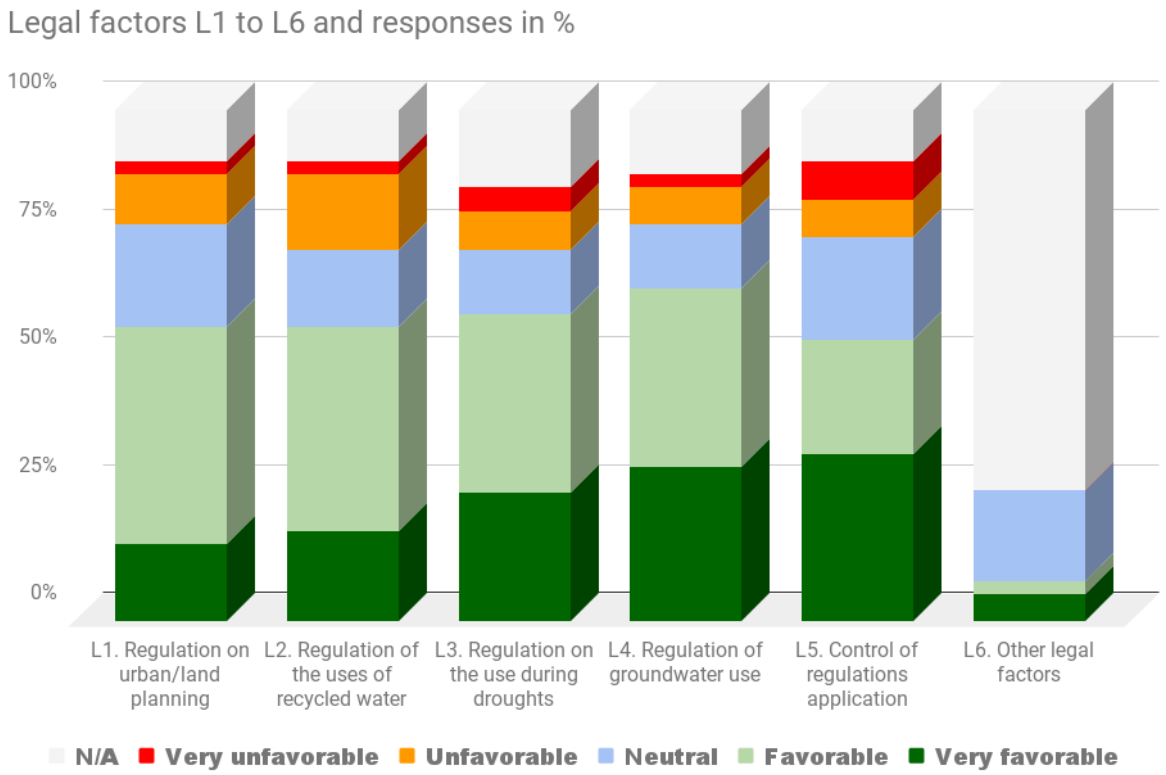


Figure 45 Summary of responses on legal context

5 SWOT Matrix

Results from the desk research and from relevant commented replies to the input form were used to establish this SWOT matrix for development of water efficiency measures. The factors are grouped under each of the PESTEL context (P, Ec, S, T, EN, L) to make it easier to read.

This matrix gives a synthetic view of the situation on all the territories and on which factor decision makers can act to further support water efficiency measures.

The actions to be undertaken that can be deduced from these four elements are:

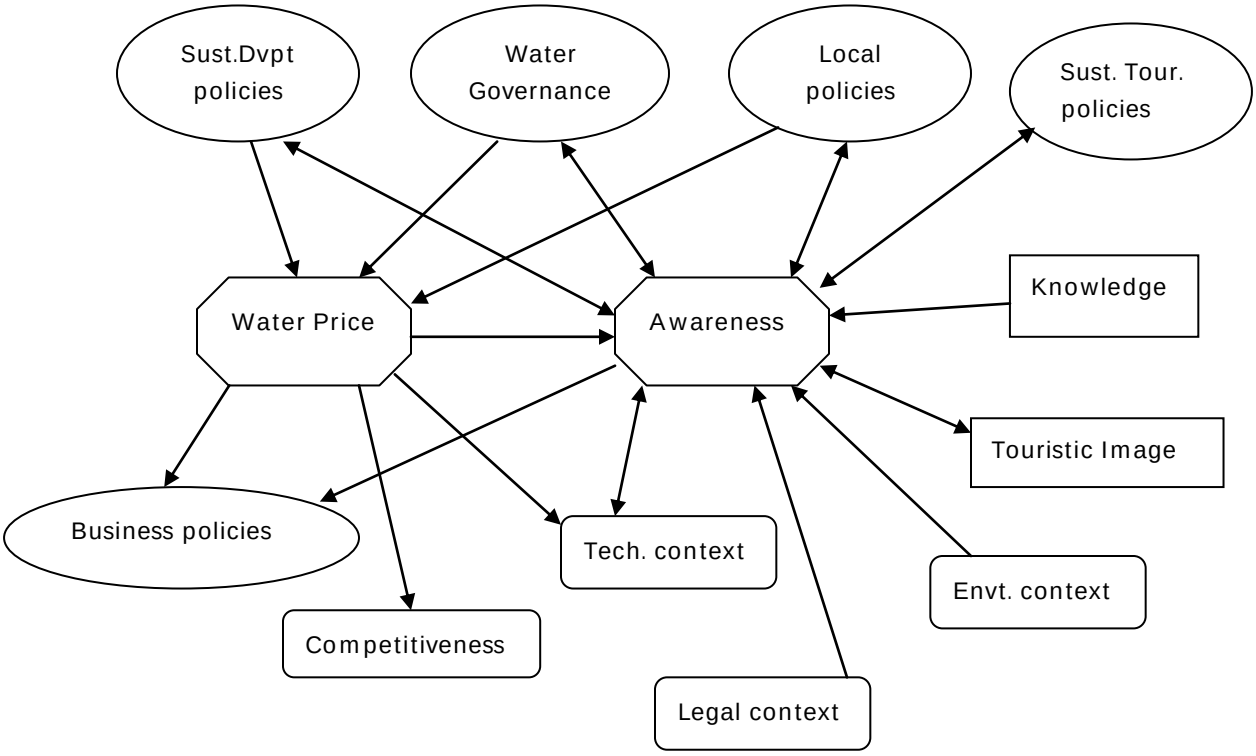
- Build on strengths
- Eliminate (or correct) weaknesses
- Exploit opportunities
- Mitigate the effect of threats

There are of course some important differences between the partners' territories, so each of them will have to adapt the matrix and keep those elements that are relevant for its particular situation.

Those factors that seemed to have no strong effect on water efficiency measures were not selected in the SWOT matrix.

STRENGTHS = build on…	WEAKNESS = correct or eliminate…
P Water efficiency oriented local policies **Ec** - Incitative water prices and special pricing (progressive, seasonal) - Growing trends in the number of tourists **S** - Good knowledge about the resource and existing solutions - Awareness (of policy makers, tourism staff, tourists) - Traditional value of scarce water - Water sharing culture **T** - Good condition of water infrastructures - Good availability of technology to measure water and to reduce water consumption - Availability of water recycling technologies	**Ec** Low water price (low incentives) - Growing trends in tourism standards (more water intensive) **S** Cultural perception of water resources as unlimited - Cultural reluctance to water reuse - Little interest to promote sustainable tourism image of the territory **T** - Aging and leaking water infrastructures (necessary renewal) - Poorly developed technology to recover rainwater - Slow development of technology for water reuse - Available supply of alternative water resources as a demotivator for efficiency
OPPORTUNITIES = exploit…	**THREATS** = mitigate…
P Existing sustainable development policies at national level - Existing international sustainable tourism development policies Adoption of internal policies of tourism operators, certification programs - Effective framework for water governance, with participation of water users and integrated planning **Ec** Reasonable return on investment for water saving devices **En** Scarce water resources in an increasingly vulnerable region to climate change consequences (trends and extreme events) Vulnerable ecosystems highly dependent on water flows Most water stressed season is the most intensive for tourism	**Ec** Competition with touristic destinations with more water supply **L** -Lack of coordination between urban planning and water use planning - Possible legal barriers to water reuse - Weak enforcement of regulations

These factors are not independent from each other. In particular awareness issues as well as water price issues have influence or are influenced by many of the other factors as illustrated in the scheme below.



6 Impacts Analysis

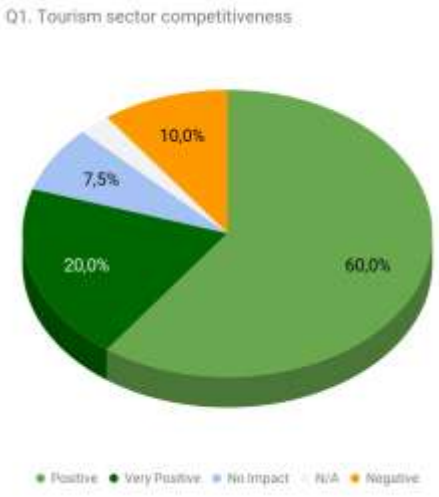
This second part of the analysis aimed at assessing the impacts of water efficiency measures on different socio economic or environmental aspects of the territories according to the views of the respondents to the input form.

Tourism sector competitiveness: do water efficiency measures improve or worsen the competitiveness of the tourism sector of the territory?

Most respondents have opinion that water efficiency measures increase the competitiveness of the tourism sector. Reasons given differ from economical savings (when water price is high) to improved image towards a certain type of tourists. However this could be not true for all, small business might not find it so beneficial as large business for the first reason, and mass tourism will not necessarily seek a water efficient destination but rather good water related services. To mitigate this, a good information is necessary to accompany the measures and their acceptance by the tourists.

Though no reasons were given in the survey for the few negative evaluations, some of the arguments in the PESTEL analysis (see 4.2.6 competition between tourism activities and 4.2.7 competition with other territories) are to be kept in mind. Both these factors' influence on water efficiency measures was not seen as so favorable for a majority of respondents.

Figure 46 Impact on tourism competitiveness

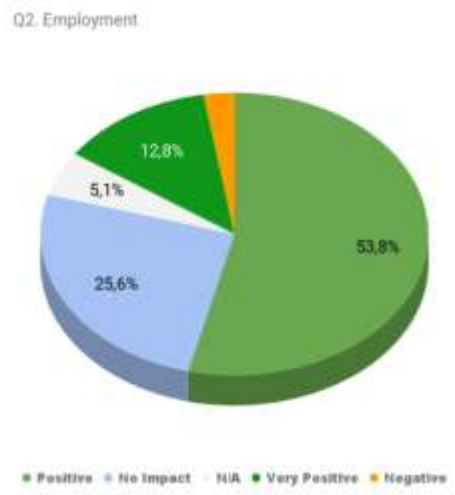


Employment: do water efficiency measures create or suppress jobs on the territory?

A majority of respondents' opinion is that the development of water efficiency would create jobs. Some people indicated examples of job creation sectors such as education, controlling process, accommodation design, high technologies, and compliance sector. For some respondents the measures would provide a shift in the qualifications needs for the jobs rather than create new jobs. One respondent indicated that if measures included stopping constructions of new activities, it could be a loss for construction related jobs. For quarter of respondents it had no impact.

We have not found any background data to support such findings.

Figure 47 Impact on employment



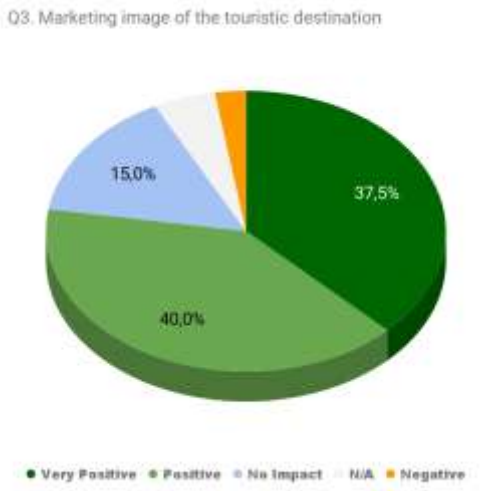
Marketing image of the touristic destination: do water efficiency measures improve or degrade the marketing of the territory as a touristic destination?

A large majority of respondents' opinion is that branding a touristic destination as sustainable is attracting a growing category of people. However some acknowledged that it could be unfavorable for some type of tourists, and more specifically mass tourism, especially as public awareness of sustainable development has not reached

the point yet when there is high demand for sustainable tourism. This could however change in view of the increasing attention given to sustainability in the policy context (see 4.1.)

Here also it is interesting to compare these responses with the responses given in the PESTEL analysis especially in 4.3.6 Touristic image of the territory, where only half of the respondents thought that the image of their territory was favorable to water efficiency measures and some very cautious comments were given on the non attractiveness of water scarce areas.

Figure 48 Impact on marketing image of the touristic destination

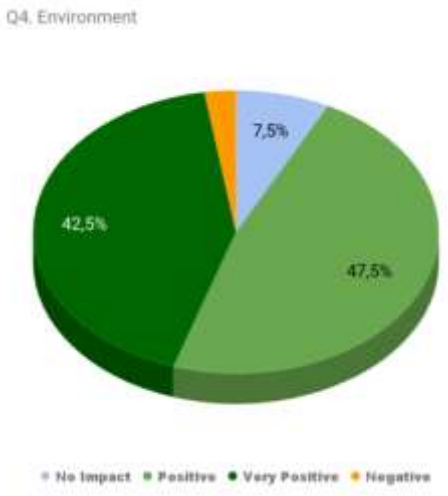


Environment: do water efficiency measures have an impact on the environment (ecosystems)?

A very large majority of responses acknowledged the positive impacts of water efficiency measures on the environment. The only negative assessment was not commented. The benefits of preserving groundwater resources, which are critical to support many ecosystems were mentioned in several responses. Most of comments had no doubts about the importance of preserving water for the environment.

As seen in the PESTEL analysis, fresh water resources in the Mediterranean coastal environment are indeed very vulnerable, with many valuable ecosystems depending on them. For this reason preserving the resource through a more efficient use is a key element of all water and sustainable development policies.

Figure 49 Impact on environment



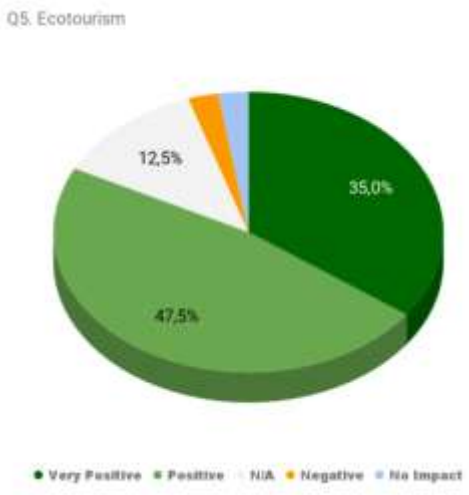
Ecotourism: do water efficiency measures have an impact on the development of ecotourism on the territory?

Most respondents acknowledged that water efficiency is part of a step toward ecotourism and therefore supports its development.

Some respondents reminded that ecotourism is a niche and concerns those who are mindful of the energy saving and sustainable use of ALL resources (wind, water, air quality …), not with particular focus on water. As discussed previously also, up to now ecotourism is normally being developed in rural areas where the water supply is less compared to urban areas. Coastal urbanized touristic areas are much less concerned therefore.

No additional data was found through the desk research on this issue.

Figure 50 Impact on ecotourism



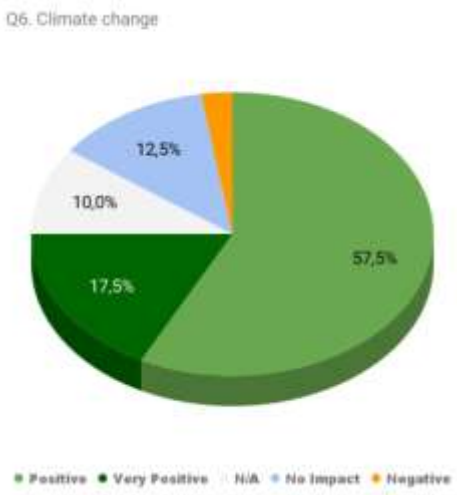
Climate change: do water efficiency measures have an impact on climate change (CO2 emissions)?

A large share of respondents indicates that reducing water consumption (and hot water consumption) also reduces energy consumption and therefore CO2 emissions. Water efficiency has therefore a positive impact on climate change.

The linkages between water efficiency and energy saving (the "water-energy nexus") are well known and documented. There are lots of opportunities to reduce the amount of wasted energy that is related to water, in the water supply and wastewater sectors, as well as in homes and businesses[6].

[6] http://aceee.org/blog/2016/08/how-increasing-efficiency-can-stem

Figure 51 Impact on Climate change



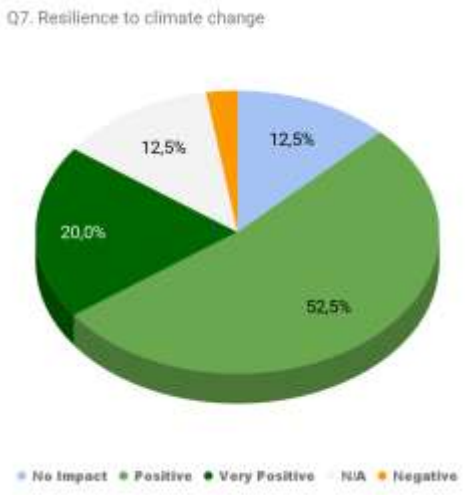
Resilience to climate change: do water efficiency measures have an impact on the territorial resilience to climate change?

The response to the impacts on the resilience to climate change were very similar to the previous question, with a large majority of respondents thinking that water efficiency measures will definitely increase the territories resilience to climate change effects. For some people water efficiency measures will be of utmost importance in order for the most affected territories to manage to address increased drought situations adequately. Another opinion (though positive) says that it is very difficult to determine precisely to what extent water efficient measures have an impact on territorial resilience to climate change.

The issue of adaptation to climate change through water efficiency is also increasingly documented in publications. Measures that reduce the water demand are important for moderating water demand, when climate change may push demand upwards or alter supply. The European Platform on Climate Change Adaptation "Climate Adapt" shares information on adaptation throughout Europe, and had a dedicated page to

water management. (http://climate-adapt.eea.europa.eu/eu-adaptation-policy/sector-policies/water-management)

Figure 52 Impact on resilience to climate change



Innovation: do water efficiency measures have an impact on innovation in the territory?

Most respondents see a good potential for innovation through the development of water efficiency measures. Some of them observed a growing number of stat up businesses or SME offering innovative water efficiency solutions being developed.

Others mentioned a great potential for innovations in the field of water recycling, and assessed the need for water efficient technologies as a driver of innovation.

Specific "sustainable water resource tourism product" is currently innovative because there is little focus on these issue and therefore becomes a distinctive feature for SME.

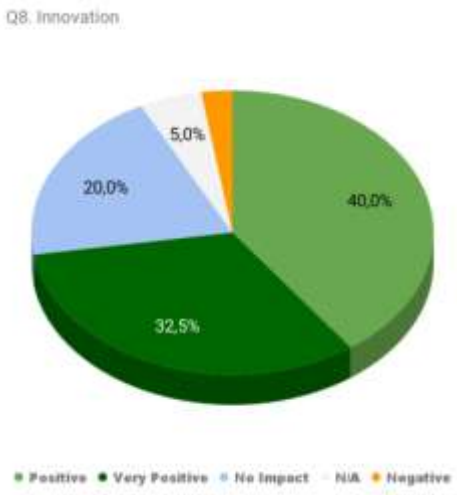
In Murcia region it is considered that the technology for the saving, efficiency and reuse of water has an important impact in the investigation and innovations for the territory. This innovation benefit, as a result of water research, is expressly provided for in the Estrategia de investigación e innovación para la especialización inteligente de

la Región de Murcia, (RIS-3 MUR) Research and innovation strategy for intelligent specialization in the Region of Murcia

The document published by the EU Science for Environment Policy "Innovation in the European water sector" (Feb 2015) reminds us that innovation is not only a technological issue but also touches upon management issues as stated in the excerpts below:

When it comes to water, it is obvious innovation matters: there is tremendous potential to meet the urgent need for change with new combinations of new and old technologies, and by improving recycling and re-use systems. However, it is clear that innovation should not be confined to technological measures alone, and finding the best technology does not pose the most significant challenge, although resources need to be made available at a local scale to determine those which are most appropriate. The main issues lie in the co-ordination and decision making between interest groups, and in the gap between the development of innovative technologies, and their rollout on a scale that will improve water use.

Figure 53 Impact on innovation



Green growth: do water efficiency measures have an impact on green growth on the territory?

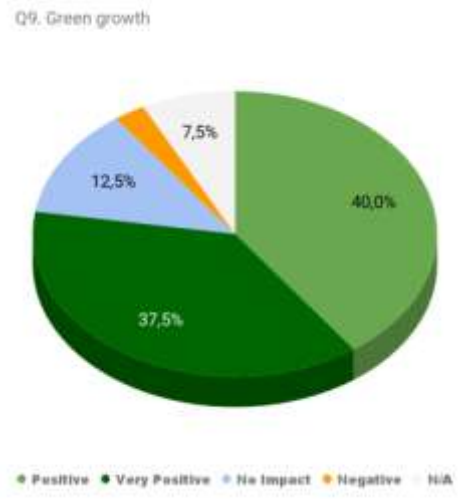
Replies to this impact are very similar to the previous one. Water efficiency measures are very much in line and contribute to the over arching objectives of green growth.

Additional energy-saving measures are however needed in order to promote green growth.

Water efficiency measures will have a significant impact to the green growth providing incentives to businesses to invest in green technologies and/or provide green services.

Indeed Green Growth indicators selected by the OECD[7] include the following indicators related to water: 1) Total freshwater abstraction per capita, 2) Water stress: total freshwater abstraction as % total available renewable resources and 3) Water stress: total freshwater abstraction as % total internal renewable resources. Clearly improved water efficiency can have an impact on these indicators.

Figure 54 Impact on green growth



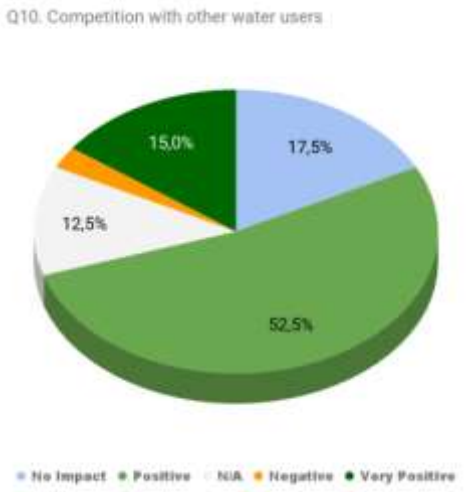
[7] http://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH

Competition with other water users: do water efficiency measures have an impact on the dialogue with other sectors of water users?

The respondents' main opinion is that the application of water efficiency measure has a positive impact on the dialogue with other sectors of water use. While this dialogue may not always be easy, showing that the tourism sector is making efforts may be a motivational factor for others and may help to justify the demand for additional resources when needed.

This issue was also discussed in the PESTEL analysis (see 4.1.1 water governance). The water governance factor was assessed as favorable to water efficiency measures by the respondents in a similar proportion as here. The importance of the dialogue between water users was stressed as a critical aspect of water governance for an improved efficiency policy.

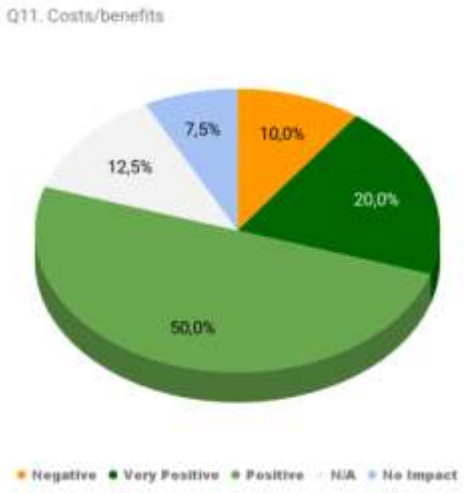
Figure 55 Impact on competition with other water users



Costs/benefits: how do you assess the global costs/benefits of water efficiency measures?

A majority of respondents see a positive global costs/benefits ration to water efficiency measures. In regions where water price is high, as in Murcia for example the cost-benefit ratio is significant in such a way that the implementation of WEM implies an automatic reduction of the consumption by the tourist industry that can be valued in savings of up to 50% in the water bill. In other places the purely financial return on investment may be longer, but then other factors should be taken into account. "The benefits are worth the costs considering the significance of fresh water availability and access for human life and civilization."

Figure 56 Cost benefits of water efficiency measures



Other impacts of water efficiency measures?

Respondents indicated the following comments in this section

The above analysis covers practically all the impacts that we can attribute to water efficiency measures. In the case of the region of Murcia, it may be possible to emphasize, in a special way, that the establishment of water efficiency measures is part of the strategic project of the region as a whole, since being an area of scarcity, drought and water stress, is part of the daily task of all the institutions and companies, the fact of implanting and thinking about new measures of efficiency in the management of the water

Services provided by local businesses/importers of water saving fittings/hardware would be promoted indirectly through the implementation of such measures

You direct scare economic resources towards the most efficient use of water and thus have the optimum result for the national economy

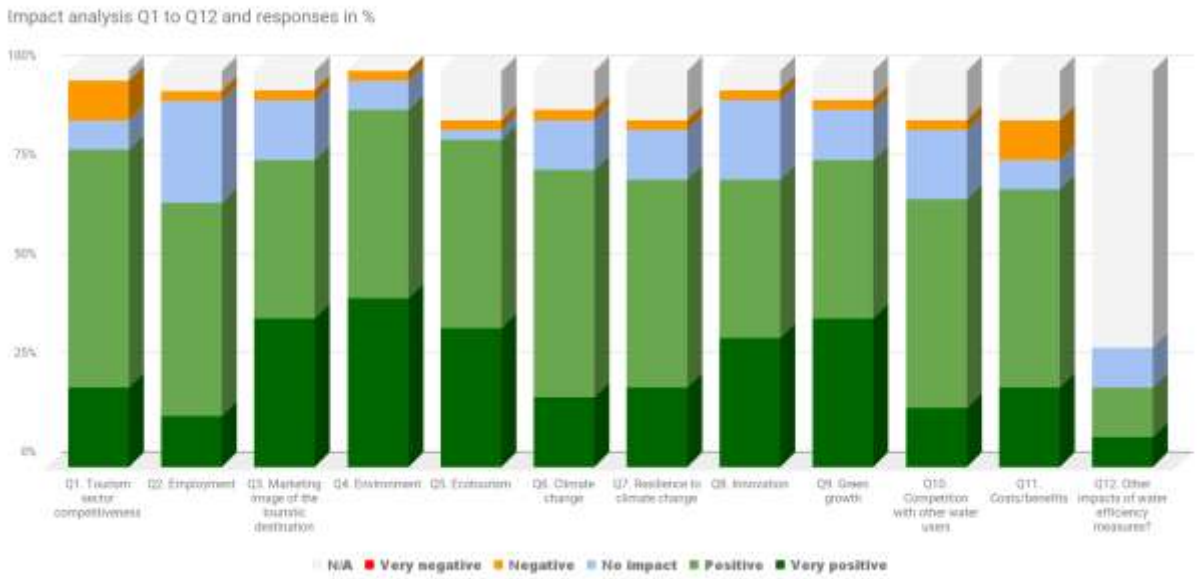
Apparent impacts on the landscape (protected areas), Effects on other ecosystems and Improvement of development potential area and Economic Efficiency

Improvement of technics of green interior design for accommodation and private houses

SUMMARY of replies of impacts of water efficiency measures

Though this impact study may remain subjective, as based on the replies from the respondents, following conclusions can be outlined.

- The impact of water efficiency measures is mainly assessed as positive for all aspects.
- Positive impacts for the environment and for the development of ecotourism are the strongest according to this assessment.
- On the other hand, though globally positive, more respondents saw some negative impacts on the tourism sector competitiveness.
- Also though globally positively assessed, the overall cost/benefit of water efficiency measures raised some not negligible negative assessments.



7 Conclusions and recommendations

The report presented a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) of the territorial context in the Med coastal areas for the development of water efficiency measures on one side and an impact assessment of water efficiency measures on the MED coastal areas socio-economic and environmental issues on the other side. This analysis was based on 40 responses from CASTWATER project partners from 10 Mediterranean coastal areas, to an online input form. As an important share of the responses was not justified by explanatory comments, and seemed to reflect subjective individual opinions, the analysis was completed when necessary by expert's views in available literature placing the study in a larger context. The conclusions presented below reflect this double approach.

The main conclusions from the analysis, following the PESTEL structure were the following:

Political context: most of the political context factors seemed favorable to water efficiency measures, however among them local policies and water governance are seen as a most important factors,

Economic context: In comparison with the political context, the economic context is much less favourable to water efficiency measures. Water prices and especially special water prices targeted to water scarcity are among the most important factors to support or not the decisions on efficiency measures. Water efficiency is very low ranking in competitiveness strategies.

Socio-cultural context: knowledge is among the most important and favourable factor to water efficiency measure provided it is well disseminated. The touristic image of the territory as a sustainable destination is clearly not seen as a priority for most respondents, which is linked probably with an insufficient awareness level of the tourists attracted to these places.

Technological context: generally the level of water infrastructures, water metering and availability of water saving devices technologies in the region supports water efficiency, though some improvement can be made. The availability of alternative water resources reduces the needs for water efficiency measures. Rainwater recovery and water reuse is not widely developed but for some exceptions and need more development.

Environmental context: the environmental context with its increasing water scarcity and vulnerability is globally favourable to water efficiency measures.

Legal context: the assessment of the favourable effect of the legal context on water efficiency measures was more uncertain pointing to some issues that need to be investigated at national level such as restrictive regulations on water re-use, and insufficient control of the regulations..

The SWOT matrix based on the finding from the PESTEL analysis, suggests the following recommendations:

The development of Water efficiency measures should **rely on the Strengths** identified in the territories.

This applies notably to water efficiency oriented local policies, which are an essential key of the success of such measures.

Though setting a water price is a complex issue which depends on many factors (not only linked to the territory), its level and structure can be an asset for successful water efficiency through its incentive function.

The level of knowledge about the water resources and their use on the territory, the traditional value given to this scarce resource and the water sharing local culture contribute to a good potential awareness level among the policy makers, tourism business and tourists that is needed to accompany the measures.

Though water distribution networks sometimes need renewal, they cover well the territory, and are usually equipped with water metering devices that allow to monitor the supply. The technology for water reducing consumption devices is easily available on the market.

Some **Weaknesses** were identified that **would request a special attention**.

The support to the growing demand for higher quality tourism standards (more water consuming) in the continuation of the 3S mass tourism model is a trend that contradicts sustainable tourism development objectives. In a competitive tourism business there is some reluctance to sell the touristic image of a water scarce destination, as tourists might chose to go to another place with more water (see Threats).

The incentive function of the water price is not fully attained and could be improved in some territories, taking into consideration all the complexity of this issue.

Awareness may also be an issue, especially in areas where water is still perceived as an unlimited resource. The acceptance of new efficiency measures is linked to an improved awareness.

In some regions still important efforts are necessary on the renewal of the leaking distribution network, as it will save important water resources but also as an example for the efficiency efforts requested from the tourism business.

Attention should be given to the fact that alternative resources of water supply (groundwater, desalination) may act as a demotivator for efficient water use. In the case of groundwater, a better control of its use would limit its increased use when water prices grow.

Rainwater harvesting technology is still poorly developed in Mediterranean climate.

Cultural reluctance to water re-use technology is one of the challenges met by this promising solution.

Advantage should be taken from opportunities that are beyond the level of the territories. This applies in particular to international and national sustainable development strategies and policies, as well as sustainable tourism development policies increasingly developed in the last years. Water efficiency is naturally part of the sustainability concept and fully supported by these policies. Integrated water resources management as defined in the EC Water Framework Directive is another strong policy document, especially (but not only) through the model of water governance that is proposed with the participation of water users. This governance enables an increased awareness and acceptance of water efficient policies by the users.

From the tourism market side, there is increasing possibilities to certify a sustainable business activity through different certification programmes. Also large tourism businesses increasingly develop corporate policies that include sustainable development objectives.

The business of water saving devices is a growing market, presenting technological solutions with a rather reasonable return on investment (depending of the water price).

The Mediterranean environment itself with its climate, scarce water resources and increased vulnerability to climate change represents a challenge to future tourism development, where water efficiency measures will be vital.

The last section of the SWOT analysis concerns **threats that have to be mitigated** when developing water efficiency measures. The first threat is the competition with touristic destination with more water supply, that may attract those tourists that do not want to adapt to water use restrictions. A rethinking of the current tourism model is part of the strategy to be designed to keep it attractive even when climate change forecasts are pessimistic.

The lack of coordination between water planning and other land use planning (such as urban development) is another issue that needs mitigating solutions.

Possible legal barriers to the development of water re-use technologies set limits to possible efficiency solutions.

Finally a generally recognized weak enforcement of water use related regulations are a serious threat to water efficiency policies that need to be tackled at national level.

Overall conclusions from the studies may be summarized as follow:

Most of the contextual factors were globally assessed as favorable to water efficient measures, though the analysis showed that the situation may be more complex locally. This is encouraging for future water efficiency efforts.

Sustainable tourism development is only at its beginnings in the Mediterranean region, as mass tourism based on the 3S model with a water intensive image is still predominant. There is even a certain concern that water efficiency measures would provoke a leak of the tourist flow to other regions.

The results of the assessment of water efficiency measure impacts on the socio economic aspects of the territories showed a large majority of positive impacts (though again a concern for tourism sector competitiveness was expressed)

Water pricing and awareness raising are cross cutting issues that are essential for a successful water efficiency policy.

The role of local policies is the most important in the success of developing water efficiency measures. Local policies are the key to assembling together all the pieces of the puzzle that will lead to efficient use of water resources.

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9 Annex: List of respondent entities to Input Forms

Croatia:

Croatian Chamber of Economy

County of Istria, Administrative department of tourism

Municipality of Svetvinčenat

Cyprus:

Limassol Municipality

Water Board of Lemesos

Municipality of Lemesos

Limassol Chamber of Commerce

Crete

RETHYMNO MUNICIPALITY

Business Development Agency

Organization for the Development of Crete S.A. (OAK SA)

WATER - SEWERAGE MUNICIPAL COMPANY OF RETHYMNO

IGME - REGIONAL UNIT OF CRETE

REGION OF CRETE

Western Greece:

University of Patras

Δ/ΝΣΗ ΠΕΡΙΒΑΛΛΟΝΤΟΣ ΚΑΙ ΧΩΡΙΚΟΥ ΣΧΕΔΙΑΣΜΟΥ

Municipality of Patras

Region of Murcia:

Foundation IEA

General Directorate for Water (Region de Murcia - Spain)

CONFEDERACION HIDROGRAFICA DEL SEGURA

UNIVERSITY OF ALICANTE

University of Murcia, Department of Geography

Malta:

MRDDf

Energy and Water Agency

Water Services Corporation

Institute of Water Technology

Hérault Department

Irstea (2)

SMETA (2)

Chambre de Commerce et d'Industrie

Conseil Départemental

Emilie Romagna Region

EMILIA-ROMAGNA REGION

Municipality of Rimini

Unione Regionale del commercio, del turismo e dei servizi dell'Emilia Roma

Associazione Italiana Turismo Responsabile

Region of Veneto

CISET

Regione del Veneto

BASSO HOTELS & RESORTS SRL

Confindustria Veneto

Municipality of Cavallino Treporti