CRANFIELD UNIVERSITY

Francesca Xerri

# The capacity of organizations to deliver effective water management through the provisions of the Water Framework Directive: the case of Malta

School of Water, Energy and Environment

Land and water management with integrated studies

PhD

Academic Year: 2012 - 2016

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Supervisor: Professor Paul Jeffrey and Dr Heather M. Smith

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This thesis is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

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Dedicated to my parents – Patrick and Margaret – whose love and support never fails me. Thank you for your financial and moral assistance during these challenging years; we have stuck together in the highs and the lows to achieve this. I shall cherish our trip to Paris in spring 2013 for a lifetime. Thank you for everything you have done to ensure a bright future for my four siblings and me. I hope to be able to repay with presence, care and affection during your ageing years

"*It takes disciplined imagination to think about organizations*" (Hatch 2001, p.7).

## Abstract

Effective implementation of the European Water Framework Directive (WFD) is dependent on Member States' national water institutions and organizations, often designated as 'competent authorities'. Although substantial research relating to the Directive itself has been carried out, less is known about the extent to which competent authorities have the organizational capacity to deliver it. The literature notes that conceptual understanding of capacity has been hampered by lack of definitional clarity making both its management and assessment challenging. In this contribution, several conceptualizations of organizational capacity found in the literature are used to construct a set of core qualitative organizational components that encourage analysts to consider the ways in which legal authority, information and knowledge, skills, resources and leadership shape a competent authority's ability to deliver the WFD. Malta, the smallest European Member State, is the case study used to test the application of these components. Qualitative empirical data collected from policy documents, face-to-face semi-structured interviews and online news media articles, provided the evidence to thematically explore and evaluate the Maltese competent authorities' organizational capacity across the implementation of three main WFD provisions that are in focus: Article 8, 9 and 14. As a result, the core components of organizational capacity are expanded and refined to produce an organizational capacity thematic map. The results show that competent authorities experience influences across the institutional frameworks they work in as well as external factors (primarily political). The results also support the idea of the organizational capacity components being highly interlinked and the presence (or lack thereof) of one component having knock-on effects on others within an organization. The combination of these two factors highly affect management options and outcomes in the implementation of the WFD. In the small state context of Malta these highlight the need to channel support in a coordinated manner from European counterparts to the Maltese water network. In turn, the water network can have positive knock-on effects on the organizational capacity of the Maltese competent authorities, which currently struggle to perform and seize available opportunities due to low possession of human resources and time

availability. The approach and findings presented in this research provide a mechanism and evidence base that can facilitate bilateral discussions between Member States as well as with the European Commission, and help inform the WFD review process planned by end of 2019.

Keywords: European Commission; competent authorities; organizational capacity profile; organizational institutionalism, qualitative thematic mapping; water governance

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## Publications and presentations

From the research work conducted in this thesis a journal paper has been written and submitted for publication. The content is spread throughout the thesis.

Xerri, F., Jeffrey, P., and Smith, H.M., 2016. Unpacking organizational capacity in the context of the Water Framework Directive. *Journal of River Basin Management*. 14 (3), 317-327.

Moreover, the work has also been presented at two international conferences that took place in United Kingdom in 2015:

- Understanding organizational capacity for effective water management: the case of Water Framework Directive implementation in Malta. World Water Congress XV, International Water Resources Association, Edinburgh, Scotland, 25th-29th May 2015.
- Understanding organizational capacity for effective public information and consultation: the case of Water Framework Directive implementation in Malta. Royal Geographic Society, Exeter, UK, 1st-4th September 2015.

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# List of abbreviations

| | |
|---|---|
| CIS | Common Implementation Strategy |
| EU | European Union |
| eNGOs | Environmental non-government organizations |
| FAO | Food and Agricultural Organization |
| MECW | Ministry for the Environment and Conservation of Water |
| MEPA | Malta Environment and Planning Authority |
| MRA | Malta Resources Authority |
| MRRA | Ministry of Resources and Rural Affairs |
| PoMs | Programme of Measures |
| RBD | River Basin District |
| RBMP(s) | River Basin Management Plan |
| TPPI | Today Public Policy Institute |
| WCMP | Water Catchment Management Plan |
| WFD | Water Framework Directive |
| WCU | Water Conservation Unit |
| WSC | Water Service Corporation |

# 1. Introduction

## 1.1. Research context and rationale

The quality and quantity of available water resources strongly determine the state of the environment and human well-being across geographical scales. Management of water is not new. However, global trends, such as urbanization, rising human population and water stress, are presenting water management with challenges of an unprecedented scale (Bogardi *et al*. 2012). The situation is expected to intensify in the near future, requiring better understanding of how to manage water (Biswas and Tortajada 2010). One-size-fits-all water policy prescriptions are flawed when it comes to capturing the differences emanating from environmental, political, economic, social and cultural contexts experienced globally. It is therefore fair to say that water management is by no means a small task for the engineers, scientists, social scientists, planners, and policy-makers concerned.

Water management is thought to be most effective when the knowledge that informs and supports the decisions reflects a connection between theory and practice, as both contribute to addressing water related challenges in their respective ways (van Kerkhoff and Lebel 2006). One way of understanding effective water management is as a narrowing of the implementation gap – a situation where actions are aligned as closely as possible to policy objectives. Essentially, it is a measure of consistency between the performance of relevant actors and policy provisions (Lusthaus *et al*. 1995, March and Sutton 1997, Bithas 2008, Perry 2013). It is widely recognized that many contemporary challenges in water management are of an institutional and organizational nature rather than technical, commonly embodied as water governance challenges (Barriera 2006, Tropp 2007, Alaerts 2009, Moss *et al*. 2009, Knieper 2010, Pahl-Wostl *et al*. 2010, Merrey and Cook 2012). This assertion holds true for the Water Framework Directive (WFD, 2000/60/EC) implementation – a legal act of the European Union (EU) that constitutes the focus of the research presented in this thesis.

The WFD was the result of European environmental policy that shaped in the three decades before it. During that time, the EU began to recognise and place higher value

on the role that data has in improving the environment and achieving sustainable development, while also stressing the importance of making this information available to the public (Santos *et al*. 1997). The general observation is that the WFD originated from two previous waves of European legislations (Cabezas 2012, Kaika 2003). During the 1970's and 1980's there was much focus on setting common obligatory water quality standards that can guarantee the resource for different uses, such as bathing, fishing and urban supply. Throughout the 1990's the focus then shifted on understanding the causes of contamination at their origin as in the case of the nitrate contamination due to agricultural activities. The need for change heightened by the end of 1990's and the WFD followed as the result of unsatisfactory performance of previous legislation, mostly due to the fragmentation of water policy. The change over the three preceding decades can be described as a shift in focus from an emphasis on public health protection to environmental protection, and from end of pipe solutions to preventative and integrated management approaches (Kallis and Butler 2001). Indeed, the two waves of legislations occurred in the context of a shift in European environmental policy from sectoral environmental protection characterised by technical standards and emission thresholds typical of the German environmental legislation, to more integrated and compulsory environmental objectives typical of the Anglo-Scandinavian legislation (Peterson *et al*. 2009). Notably, the desired environmental status is explicitly stated in the WFD, and the key aims focus on expanding the scope of water protection to all waters, and achieving good status of these resources by a set deadline.

The origin of the WFD did not happen in a European vacuum but rather out of increasing consideration for a more global approach to water policy especially in the mid-1990s (Sozen *et al*. 2003). A major key precursor to the WFD was the Earth Summit in Rio de Janeiro in 1992, which among other environmental principles it also included the growing usage and limited supply of water. Also in 1992 the International Conference on Water and the Environment took place in Dublin, which similarly recognised the increasing scarcity of water as a result of the different conflicting uses and overuses of water. A major outcome of the Conference was the four Dublin Principles that acknowledge water as a finite and vulnerable resource, the importance of adopting a

participatory approach at all levels of water management, the role of women in water, and the declaring of water as an economic good. In 2000 the Second World Water Forum in The Hague raised key issues of privatization of water as a means to achieve water security, charging the full cost of water, the right to access water and participation. This was followed by the World Summit of 2002 in Johannesburg, which reaffirmed the commitment towards the Rio Principles, the implementation of Agenda 21 (a voluntary action plan of the United Nations on sustainable development), and focused on integrating water resources management. Indeed, these international developments in environmental and water policy highly shaped the WFD.

The lobbying process that led to a final agreement on the Directive took five whole years and involved a lot of confrontations and substantive disagreements between the European Parliament, the European Commission and the Council of Ministers (Kaika and Page 2003). Since coming into force in 2000, the WFD has prescribed a framework – from European agreement to local implementation – for the management of all water bodies (inland surface, ground, coastal and transitional) to European Member States (currently twenty-eight) who have been obliged to transpose the Directive into their national law (Chave 2001, Kaika 2003, Hatton-Ellis 2008, Cabezas 2012). It has been formulated with the intention of replacing or complementing earlier European legislation which lacked coherence and appropriate coverage of some major water issues (e.g. Shellfish Directive (79/923/EEC), Freshwater Fish Directive (78/659/EEC) and the Dangerous Substances Directive (67/548/EEC) were repealed in 2013). The success of the WFD depends on the combination of "*close cooperation and coherent action at Community, Member State and local level as well as on information, consultation and involvement of the public users*" (European Commission 2000, p.2). Owing to the principle of subsidiarity (established in Article 5 of the Treaty of European Union), the WFD sets the environmental objectives, leaving most of the implementation decisions to Member States. For this reason, it is regarded as setting an exemplary balance of the Member States' subsidiarity to the uniform standards of the EU, and also provides a model for water policy to the global water management community (Kallis and Butler 2001). Its global popularity stems from the fact that it constitutes the most important

European initiative within the water field (Mostert 2003). In fact, for the coming decade it will be the main international water law for European countries.

The implementation of the WFD relies on Member States' national water institutions and organizations. Article 3 of the WFD – "*Coordination of administrative arrangements within river basin districts*" – means that each Member State must identify one or more competent authority to carry out the principal functions of coordinating and reporting on the Directive's implementation by a set deadline. The competent authorities translate the WFD's goals into river basin management plans (RBMPs) which are updated every six years. The plans report on the status of water bodies within the river basin districts (RBD) they apply to, and through an integrated Programme of Measures (PoMs) outline the actions being taken to achieve the overall ambitions of reaching 'good ecological status' and no (further) deterioration of current status. These ambitions are captured in Article 1 of the WFD that details its purpose and are thus the most important aspects of the Directive; the other twenty-five Articles are the mechanism to achieving these ambitions. In the case of transboundary river basins, the responsibility to achieve the WFD goals is assigned to an international RBD that reflects the communal agreements of the relevant governments (e.g. Nilson *et al*. 2004). Failure to implement the WFD, signalled by infringement procedures in the European Court of Justice, renders the government responsible and not the competent authorities. Besides the WFD, there are other Directives that contribute to measures ensuring the good status of Europe's waters: Urban Waste Water Directive (91/271/EEC), Bathing Water Directive (2006/7/EC), Nitrates Directive (91/676/EEC), Drinking Water Directive (98/83/EC), Floods Directive (2007/60/EC) and Marine Strategy Framework Directive (2008/56/EC).

The effectiveness of WFD implementation can be measured in terms of the success of Member States and their competent authorities in achieving the environmental objectives and their compliance to implementation timeframes (Green and Fernandez-Bilbao 2006, Moss 2008). The given timescales of the WFD prescribe that by 2015, which marks the end of the first management cycle and issuing of second RBMPs, good status of water bodies should have been achieved with possible extension to 2027 to mark the end of the third management cycle (European Commission 2015a). While evidence

shows that the Directive has largely been adopted comprehensively and in a timely fashion (e.g. Albrecht 2013), these deadlines are proving increasingly difficult to adhere to. More time is becoming necessary for Member States to achieve good ecological status mainly due to disproportionate costs (Balana *et al*. 2011, Martin-Ortega 2012), the response time of the aquatic environment and technical feasibility issues (Hering *et al*. 2010, Phillips 2014), as well as loopholes (e.g. exemptions and delays from achieving objectives) that allow Member States to be less compliant (Kallis and Butler 2001, Breit *et al*. 2003, Katens and Newig 2007). Moreover, successful implementation has also been hindered by several difficulties associated with the interpretation of the Directive, contradictions and lack of definitions (Moss 2008, Howarth 2009). In fact, for the first planning cycle experts were prepared to see Member States with exemptions from good status as constituting "*the rule rather than the exception*" (Petersen *et al.* 2009, p.2062). To date, the European Commission (2016a) has issued four WFD implementation reports (2007, 2009, 2012 and 2015), which offer an assessment of "*the progress in the implementation of the WFD in certain intervals and to inform the European Parliament, the Council and the public about the results of its assessments*". The latest report stresses the link between the WFD and the Floods Directive, and encourages Member States to: build a solid basis for PoMs, carry out a gap analysis to identify the most cost-effective combination of measures that are needed to fill in the gap between water's current status and good status, adapt water use to the WFD environmental objectives and enforce the changes, tackle pollution, tackle quantitative aspects including the link to quality, tackle flow and physical changes to water bodies, wisely use economic instruments and incentives, coordinate implementation to reap multiple benefits, and finally seize investment opportunities such as LIFE integrated projects (European Commission 2015b).

While all Member States must work towards achieving the WFD's objectives and meet its reporting requirements, ways of doing so vary for every country and river basin (de Bruin *et al.* 2005). For this reason, the Common Implementation Strategy (CIS) (European Commission 2016b) was set-up to support the effective implementation of the WFD across the European Member States by serving as a platform for discussion and

issue resolution in challenging areas such as water monitoring (Dworak *et al.* 2005, Korkea-aho 2015). The CIS has been instrumental in the writing of thirty-four non-legally binding and practical Guidance Documents and ten technical reports that serve as reference documents for experts and stakeholders on the implementation of the WFD in a river basin. The content proposed within the Guidance Documents can be used and amended according to the context of a European river basin. The CIS therefore provides an opportunity for information flow between European Commission and Member States and among Member States. Considering its complexity, the delivery of the WFD has been described as a great challenge for competent authorities and other public organizations responsible for its implementation (Frederiksen *et al.* 2008, Petersen *et al.* 2009, Cabezas 2012; van der Heijden *et al.* 2014, Dolan *et al.* 2014, Kelly 2014).

Substantial research relating to the Directive has been carried out since 2000, especially on the application practicalities of implementing the WFD provisions. Key areas of focus have included: policy design challenges associated with harmonizing interests across geographical scales (Moren-Abat and Rodriguez-Roldan 2012), disparities between the ambitions set by Member States for fulfilment of the Directive's institutional requirements to the actual practical implementation at local levels (Liefferink *et al*. 2011), the need to use more scientifically rigorous methods to assess the status of water bodies and the associated difficulties of monitoring the implemented interventions (Hering *et al.* 2010, Birk *et al*. 2012), as well as effective ways of using obtained data to inform management options and outcomes at the European and regional level (Hering *et al*. 2010). However, less well understood is the extent to which competent authorities have the organizational capacity required to deliver the WFD ambitions. Studies of competent authorities have tended to focus on their role as mediators between stakeholders, the skills needed to manage these relationships, and the co-ordination efforts required across sectors as well as at the science-policy interface (Green and Fernandez-Bilbao 2006, Quevauviller *et al*. 2007, Junier and Mostert 2012, Lundmark and Jonsson 2014). These analyses have concluded that evidence of the required organizational capacities is challenging to expose and delineate, and call for further attempts to generate a knowledge base in this important area. While such studies

illustrate the importance of understanding the organizational capacity of competent authorities, the little research that addresses capacity issues tends to discuss specific aspects in isolation. This tendency is also reflected in organizational capacity research which draws on contexts beyond the water sector (Germann and Wilson 2004, Bryan 2011). Yet few (if any) studies have approached this topic from a holistic, systematic and theoretically rooted perspective.

In this contribution, the research adopts an institutional perspective to offer an exploration and evaluation of the organizational capacity of competent authorities, based on a set of core qualitative components derived from a critical review of relevant literature. Empirical evidence from the experience of WFD implementation in the Member State of Malta is used to further develop the components through thematic analysis. The research findings illustrate the availability, accessibility and use of capacity within the Maltese competent authorities. Unlike previous studies that have looked at aspects of capacity in isolation, the thematic components developed in this thesis allow an in-depth and holistic exploration of capacity across three selected articles of the WFD. This information is helpful to policy makers in understanding the competent authorities' organizational capacity requirements across Member States.

Furthermore, this research is timely in that a review and possible revision of the WFD are planned by 2019. This presents an opportunity for Member States to put forward ideas for improving the Directive based on their experiences. The approach and findings presented in this study provide a mechanism and evidence base which could inform this review process. This opportunity is especially significant for several Member States (such as Malta) who were not present in the original drafting of the Directive and had no say in its writing.

### 1.1.1. Malta's institutional water management context

Malta's accession into the EU in 2004 meant that Maltese legislation transposed the WFD into national legislation through the "*Water policy framework regulations*". The obligations arising from the Directive brought new impetus to water management in Malta such that nowadays the safeguarding of water resources is becoming increasingly institutionalized. This is evident in Borg's (2004) listing of seventeen pieces of legislation

relating to groundwater in Malta. The listing shows that prior to 1990s water resources in Malta were regulated through the Civil Code (Chapter 16 of the Laws of Malta) and the Code of Police Laws (Chapter 10 of the Laws of Malta) that came into force in 1886 and still apply today, as well as The Water Pumps Ordinance (Ordinance XII of 1938), The Irrigation Ordinance of 1939 (Chapter 105 of the Laws of Malta) and The Underground Water Ordinance of 1943 (Chapter 114 of the Laws of Malta) that have since been repealed by succeeding legislation. The 1990's saw the start of a new wave of legislation regulating the environment and agriculture, including water (e.g. The Water Services Corporation Act establishing the role of water operator). This coincides with Malta's formal application for EU membership in 1990 and the country's increased pace of efforts in early 2000 (following the reopening of negotiations which were halted with a brief change in government from 1996 to 1998) to join timely the EU together with other candidate countries such as Luxembourg, whose candidacy was considered more advanced (Tabone 2014).

In order to comply with the environmental acquis communautaire as required by the EU for its candidate countries seeking membership, Malta sharply increased its expenditure in the environmental sector and introduced several measures over a relatively short period of time. While acknowledging the progress Malta made in transposing the acquis, especially in the year of 1999, in 2003 the European Parliament signalled water quality and administrative capacity as particular key areas needing further efforts to successfully transpose the acquis; "*Plans adopted to enhance the administrative capacity by the end of 2002 need to be adhered to strictly*" (European Parliament 2003, p.3). Thus, public entities that work in environment experienced capacity building (with much more on-going investment required) in the form of training from renowned international experts and a one-week-long traineeship with environmental agencies in other EU Member States (MEPA 2006, Borg and Spiteri 2010), and sewage treatment plants were built to stop the practice of dumping raw sewage into the sea with significantly cleaner seas as a result (Tabone 2014).

The main difference between the older and newer wave of legislations is mostly that water became increasingly considered as an economic good rather than a natural

resource “which falls from heaven” (Borg 2004, p.14). Indeed, as discussed in Chapter 2 on the evolution of water management discourse, Malta’s joining of the EU represents a rapid local paradigm shift in water management as the sustainability of the resource and its consideration as an economic good become key principles of Maltese water policy. Such changes took place through numerous challenges associated with lack of experience and institutional unpreparedness, that still leave their mark in recent policy choices as will be discussed in Chapter 4 and 5 under the concept of ‘path dependency’.

During the early years of EU membership a series of documents were commissioned by concerned government authorities, in partnership with other organizations, to assess and understand the water situation of the country. These include the locally highly esteemed “*Malta water resources review*” that was published in 2006 by the Food and Agriculture Organization of the United Nations. While these documents acknowledge the water challenges Malta faces from a variety of perspectives, the conclusions unanimously highlight water governance as a prime issue that has over the years exacerbated the water scarcity situation and the need of its urgent addressing in order to fulfil legal obligations of the country that aim to safeguard the water environment. Another series of documents were published towards 2011 that coincide with the launching of the first RBMP. These included the long awaited “*A water policy for the Maltese Islands*” (Ministry for Resources and Rural Affairs 2012), based on an integrated water resources management study conducted by the Government, which presents various propositions but was highly criticised for its lack of coherence and timeframe within which the proposed targets were to be reached (Malta Water Association 2012). It is notable that these documents differ from those published earlier in that they go beyond the identification and analysis of the water situation in Malta and instead look more towards addressing the management of the identified water issues. Owing to the size of Malta and the concentration of competencies of government organizations, only a single river basin district was identified and the RBMP is referred to as the Water Catchment Management Plan (WCMP). This supports Baldacchino’s (2012) ‘monopoly’ characteristic typical of small states (mentioned in Section 2.6). Two key documents to be launched in 2016 are the 2$^{nd}$ WCMP and a National Water Management Plan. These

bear great influence on the management of Malta's water resources in the near future and have been greatly awaited by the water community in Malta and environmentalists at large.

## 1.2. Research aim and objectives

In accordance with the research context and rationale identified above, the aim of this research is to understand organizational capacity for effective water management in the context of WFD implementation in Malta. In this regard, the identified research objectives are as follows:

a. To identify the core qualitative components of organizational capacity from conceptualizations in literature, adopting an institutional perspective;
b. To test and illustrate the application of the set of core qualitative components for assessing competent authorities' organizational capacity in the case of the small state of Malta, and use the findings to expand and refine the core qualitative components of organizational capacity;
c. To critically examine how competent authorities' organizational capacity affects management options and outcomes in the implementation of the WFD;
d. To determine how a deeper understanding of competent authorities' organizational capacity can influence the future planning of the WFD.

## 1.3. Research structure

As shown in Figure 1.1, this thesis is divided into six chapters, which collectively offer a narrative account of how the research aim has been achieved and the contribution towards addressing the identified knowledge gap. This chapter has set out the research context and rationale for focussing on the WFD, and the aim and objectives identified to address the knowledge gap. The next chapter reviews the current understandings in the literature concerning water management, institutional theory, organizational capacity and small states context. The key outcome is its offering of a set of core qualitative components of organizational capacity. Chapter 3 details the research strategy and methodological framework employed in this thesis, including: the background about the case study of Malta, the selected WFD Articles, and the methods

used for data collection and analysis. Chapter 4 addresses the case study findings as well as their relevance in the wider European WFD context. Chapter 5 discusses the research findings in the context of the literature reviewed in Chapter 2. The conclusion (Chapter 6) reflects on how the research aim and objectives have been achieved, the main contributions of the research, and the future directions in this research field.

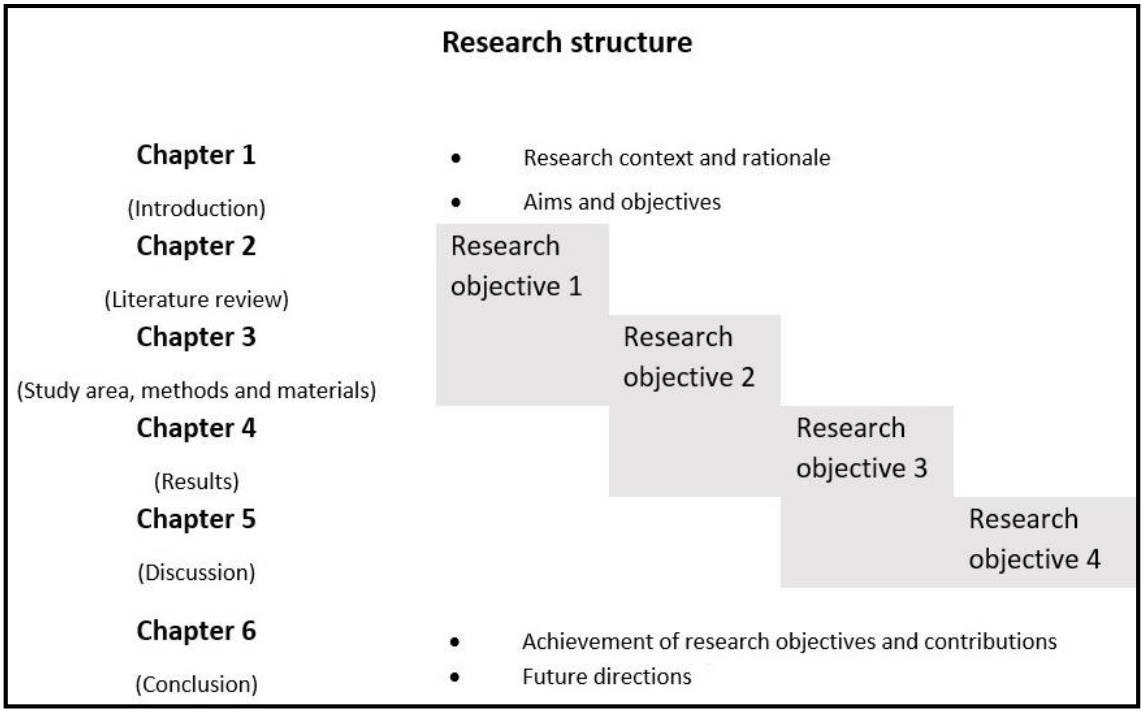


**Figure 1.1:** Relation of thesis chapters to research objectives

# 2. Literature review

## 2.1. Introduction

Chapter 1 identified a lack of research and understanding about the extent to which competent authorities have the organizational capacity to deliver the WFD, and set out research objectives to address this knowledge gap. In addressing the first objective, this Chapter begins by reviewing the major current understandings of water management in the literature that help set the wider theoretical context of the research. It then continues to review the growing focus on water governance, which lends focus to addressing the organizational capacity of WFD competent authorities from a more specific institutional perspective. This is followed by the identification of a set of core qualitative components of organizational capacity, which are constructed from conceptualizations found across existing studies adopting similar institutional perspective. Due to the particular relevance to the case study of Malta, the institutional perspective is extended to a review of the small states context in order to understand if these geographies can have implications on their water management. The chapter concludes by summarising the main understandings and sets the way forward to the continued addressing of the identified knowledge gap.

## 2.2. The quest for water management

The contemporary global environment is dominated by human activity (e.g. industry, land-use changes and combustion of fossil fuels), so much so that Crutzen and Stoermer (2000) have defined the current geologic time period as the 'Anthropocene'. In this era, scientists and engineers are continuously challenged to "*guide society toward environmentally sustainable management*" as it is increasingly recognized that nature is not separate from humans, and the activities of the latter are increasingly outcompeting the processes of the former (Crutzen 2002, p.23). This is also true in the context of water resources and their management (Meybeck 2003, Folke 2003, Vörösmarty *et al*. 2013, Bhaduri *et al*. 2014, Savenije *et al*. 2014, Rockström *et al*. 2014, Schoeman *et al*. 2014, van Loon *et al*. 2016). In this undertaking, scholars have been emphasizing the need to

understand better the relationship between society and the natural environment in order to address the major syndromes that are transforming the global water system, namely climate change, erosion, pollution and salinization (Global Water System Project).

The water management discourse has evolved over time. In a narrative on how this discourse has changed in the global North in the past couple of centuries, Allan (2003) identifies the major four paradigms of water management that shaped the direction of water policy-making. These correspond to the prominent work of other scholars in this research field (e.g. Grigg 1998, Pahl-Wostl *et al*. 2011). Firstly, the paradigm of industrial modernity started in the late nineteenth century in tandem with revolutions in science and industry and achievements in both the capitalist movement in Western societies and socialist movement in Soviet society. The paradigm marks a time of belief that water resources could be controlled and their behaviour predicted, and the harnessing of water power. The negative pressures on water resources from industrial modernity led to the development of the environment paradigm in the 1960s, a time marking higher consideration of the environment's sustainability (e.g. Carson 1962, Hardin 1968) and its inclusion into water management policies, which mostly became evident in the 1980s. The third paradigm identified by Allan (2003) is the economic one, when in the 1990s there was increasing consideration of water as an economic good with the fundamental idea that great savings of the scarce water resource could be achieved primarily with the introduction of water pricing mechanisms. This change in thinking about water led to increased popularity of managing the water demand of competing water uses (domestic, agricultural and industrial) to complement and possibly move away from conventional water supply management approaches (e.g. Savenije and van der Zaag 2002, Dziegielewski 2003, Chen *et al*. 2005, Brooks 2006, Inman and Jeffrey 2006, Araral and Wang 2013). While the environment and economic paradigms retain some descriptive and normative power, they have been supplemented by a political-institutional paradigm, which started gaining momentum around the year 2000 and is mostly significant in how it is presenting a change in thinking about water management

and practices (Ward 1995, Gleick 2000, Hooper 2005, Head 2010, Pahl-Wostl *et al*. 2011).

The political-institutional paradigm constitutes greater awareness of the complexity of socio-ecological systems and the associated degrees of uncertainty and change, often described as 'wicked problems' (Rittel and Webber 1973, Warner *et al*. 2008, Patterson *et al*. 2013). It contrasts and challenges the traditional water management assumptions and is supportive of combining structural approaches to the traditional engineering approaches (e.g. Kundzewicz 2002, Gourbesville 2008, Brown and Farrelly 2009, Arsenault *et al*. 2013). Other notable changes that have been gaining popularity in how water is perceived and managed include "*broader stakeholder involvement; integration of sectors, issues and disciplines; attention to the human dimensions of management; and wider recognition of the economic, ecological and cultural values of water*" (Schoeman *et al.* 2014, p.377). For instance, in their case study of water research in South Africa, Siebrits *et al.* (2013) evidence changes in the dominant water management paradigm using 'scientometric analysis'. The country's governmental arrangements and institutional interventions in the 1990s were accompanied by changes in water research focus, from supply side engineering towards demand side, and from fragmented management towards more integrated forms. This resulted into some keywords to be more commonly researched, while the popularity of others increasingly fade.

Together these paradigms represent the current major thinking about water management. They are generally complementary of each other, as mostly evident in the writing of Article 9 of the WFD on cost recovery for water services (detailed in Section 3.4). Reflections based on the WFD context provided in Section 1.1 show that the WFD is founded on current major thinking about water. This is evident in how the Directive clearly mentions sustainability as part of its scope, its advocacy for participation, integration of water management and use of mechanisms of cost recovery for water services. However, despite the progressiveness of the WFD, many cases do not matched with the on-the-ground situation across several Member States. For instance, there are cases such as in the Czech Republic and Poland whereby the implementation of the WFD provisions have been hampered by a prevailing techno-scientific paradigm typical of the

earlier water management thinking, which has prevented water engineers from embracing newer ways of thinking about water management (Kowalczak *et al.* 2013). Some examples of challenges mentioned in the water literature that are very much constitute of the latest political-institutional paradigm include: knowledge of the methods that can be employed to improve water management (Hooper 2005), institutional integration (van der Zaag 2005), coordination among institutional actors (Watson 2004), preparedness of decision makers and managers to fulfil their potential (Tropp 2007), investment in organizational infrastructure (Jaspers 2003, Schout *et al*. 2010, Menard and Saleth 2013), and the working together of interdisciplinary professional teams (Menard and Saleth 2013). Similarly, in the European context where water is significantly governed by the WFD, identified challenges relate to: science-policy interface, cost recovery, general economic issues, discretionary room for manoeuvre, public and stakeholder participation, democratic legitimacy, spatial fit or misfit institutional interplay (Beveridge and Monsees 2012, p.737). For instance, in Germany, there is little evidence of integration across water related sectors as this has mostly been limited to better coordination of groundwater and surface water responsibilities (Theesfeld and Schleyer 2013). The case studies of England and Wales (Fritsch and Benson 2013) and Sweden (Gooch and Baggett 2013) show that despite a history of strong legal frameworks and horizontal integration, such as coordination across several water actors, public participation remains a formality of giving information and consultation opportunity rather than the encouragement of active participation of local people and water users. In Luxembourg (Maganda 2013), transboundary river basin management, has been successfully pursued mostly thanks to the expertise of specialists within the Greater Region of the Duchy with whom waters are shared as the country lacks preparedness and expertise to implement the WFD provisions. Thus, several other WFD obligations that were novel to Luxembourg have not been successfully implemented, including: public participation and transparency of water management, and policy coherence between environmental management and WFD implementation. Path dependency tends to be a responsible factor for such spatial variation in water resources management (Moss 2004, Correjlé *et al*. 2007, Lubell and

Edelenbos 2013). This means that the water management choices of the present are highly reflective of the choices of the past, and that gradual management changes are more likely than fast radical changes.

The scope of this thesis is broadly within the context of the political-institutional paradigm, which is marked by the current widespread understanding among policy and academic spheres that current water management challenges are thought to be more of an institutional and organizational nature rather than technical, commonly embodied as water governance challenges (as noted in Chapter 1). Despite growing focus on such water governance challenges, there remains little detailed understanding of the institutional and organizational structures through which water management goals are governed and implemented (Moss *et al*. 2009, Lautze *et al*. 2011, Merrey and Cook 2012).

## 2.3. The growing focus on water governance

There is a wide body of scholarship on governance, which has contested the value-neutral concept of governance, identified multiple dimensions pertaining to it, and has mostly been case study based, i.e. specific to the academic field, place and time of any particular study (Lee 2003, van Kersbergen and van Waarden 2004, Green 2007, Ruhanen *et al*. 2010). The leading discipline in the governance debate is political science, in which Kjaer (2004) identifies five different uses of governance whose divisions are increasingly blurred given current global and local realities, including: governance in public administration and public policy, governance in international relations, European governance, governance in comparative politics, and the World Bank's advocacy for good governance in the context of development. Different divisions of governance affect and highly reflect on each other. Traditionally, the concept of governance was connoted to government, with the state as the main actor ruling with authority, but in the last three decades the concept started taking a turn by referring to something broader than government and include modes of governance, such as non-state actors, institutions, hierarchies, markets and/or networks (Kooiman 1993, Rosenau 1995, Rhodes 1997, 2007, Stoker 1998, Pierre 2000, Kjaer 2004, Jordan *et al*. 2005, Jordan 2008, Treib *et al.*

2007). In the governance debate, there are two schools of thought that capture the changing relationship between the state and society. The state-centric view regards the state as having continued importance but with a changed role and a growing emphasis on "*political accountability and public legitimacy*", while the society-centric view sees the state as being "*progressively hollowed out*" so that it is gradually becoming less powerful and less important (Jordan 2008, p.22). The latter view is said to be in parallel with the undermined credibility in the state's ability to reach social and economic goals, democratisation of society, and the increasing capability and power of the public (Peters 2000, Lee 2003). Essentially, the difference between earlier connotations of governance and more recent ones relates to the means and processes by which societal outcomes are achieved, and not the desired outcome itself, which remains the same (Stoker 1998).

While the shift in governance is noted to be real, there is not substantial evidence of the extent to which governance is actually 'overshadowing' government, and some accounts have overstated the occurring changes (Peters 2000, Jordan 2008). It is therefore more appropriate to think of governance as complementing and sometimes at competition with government (Pierre and Peters 2000, Jordan *et al*. 2005). Governance is date and place specific, and therefore the choice of policy instruments used to accompany such new ways of managing societies and their resources can give a good indication on the actual happening of the shift in governance in a given context (Stoker 1998, Pierre and Peters 2000, Jordan *et al*. 2005, Hezri and Dovers 2006). For example, experience in Europe shows that governance has not overtaken government in the case of the Common Agricultural Policy and environmental policy as the governments of Member States "*remain the key decision-makers and the policy-making process enables them to protect their interests*", whereas within gender equality or regional policy sectors it is likely that this shift has prevailed (Kassim and Le Galès 2010, p.14).

Water governance struggles with effectiveness of its implementation, making the initial expectations somewhat unrealistic (Rogers and Hall 2003, Meinzen-Dick 2007). In fact, there is now also much more prominent global consideration to the concept of water governance (Hooper 2005, Graefe 2011, Lautze *et al*. 2011). Several international organizations have been developing tools to support operationalization of the concept,

notably the United Nations Development Programme (Water Governance Facility), OECD (Programme on Water Governance), and International Water Association (Policy & governance). Water governance has been commonly understood as referring to "*the range of political, social, economic and administrative systems that are in place, which directly or indirectly affect the use, development and management of water resources and the delivery of water services at different levels of society*" (United Nations 2006, p.47). This widely accepted definition (perhaps for its elusiveness) describes the intricacy of water governance without actually prescribing the process, and considering that process is central to governance, it leaves much autonomy to implementers. The different but mutually influencing 'levels' constituting the political realities that concern and are reflective of water governance include: the local level (considers local needs and stakeholder's views), the river basin level (highlights the importance of natural water boundaries for an efficient water governance), the regional level (considers national perspectives and/or land use planning across several river basins in the region), the international level (e.g. the WFD compels several European Member States to fulfil its obligations) and the global level (long term impacts on water availability and consumption) (Batchelor 2007, Cunha 2008). It is therefore accurate to think of water governance as a particular instance of a wider body of scholarship on governance issues (e.g. local governance, global governance, corporate governance, urban governance, environmental governance), which is reflective of the different sectors and institutions that it interacts with across different political levels (Biswas and Tortajada 2010, Norman *et al*. 2012). This implies caution in transferring governance understandings across different contexts; what works in the European river basins such as the Po basin in Italy or the Tajo in Spain, may not necessarily be directly transferable to the Murray-Darling in Australia (e.g. Wallis and Ison 2011) or the Mekong in South East Asia (e.g. Hirsch 2006), and vice versa.

Governance is rooted in institutional theory, making governance and institutions intrinsically linked (Kjaer 2004, Paavola 2006, Rhodes 2007, Young 2013, Pahl-Wostl 2015). Kjaer (2004) argues that while institutionalism is often challenged with change, governance embodies change, and when human agency aspects are also considered, it

can help explain differences across the implementation of policies (e.g. Imperial 2005). While this is an important research direction that can further contribute to better understanding of effective water management, this thesis approaches the organizational capacity aspect of WFD competent authorities from an institutional perspective rather than a governance perspective as it constitutes a more specific, in-depth and rational focus. The complexity of water governance approaches requires an understanding of the capacity of organizations which have been designated with the responsibility to implement water management within defined periods and geographies, and yet their capacity to implement water management effectively remains poorly understood.

## 2.4. Institutions and organizations

Organizational capacity is a multidimensional and highly contested concept that has been extensively discussed in various differing fields of study without being rooted in any specific theory. Different contexts have different meanings of capacity (Goodman *et al.*, 1998). As a result it suffers from a lack of definitional clarity making both its management and measurement highly challenging (McNair and Vangermeersch 1998, LaFond *et al*. 2002, Harrow 2001, Flaspohler *et al*. 2008, Bryan 2011). Much of the research around capacity within the mainstream organizational literature is rooted in international development studies (e.g. Kaplan 2000). This is also true of that which relates to the water sector, encouraged by the United Nations Development Symposium held in Delft, Netherlands 1991 (Hamdy *et al*. 1998, Ivey *et al*. 2004). However, capacity is now emerging as a global concern in the field of water management, both for developed and developing countries (Timmer *et al*. 2007).

Understanding organizational capacity requires an appreciation of what constitutes an institution as well as what an organization is and does. Conventionally institutions are considered to be a form of structural mechanism created for the purpose of social order, either as a product of policy or custom (North 1990, Scott 1995, 2008, Hodgson 2006). While these two major forms of institutions are distinct, nonetheless they tend to be complementary. Institutions operate at various distinct institutional levels (from intra-

personal relations, to transnational and world system) and actors (individual, organization, organizational field, government, society) who interact and experience a relationship of mutual influence between them. Such relationship is for example very evident in organizational field, which Scott (1994, p.207-08) has defined as "*a community of organizations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside of the field*". An extensive range of institutions co-exist with numerous others, each with their own specific function, spatial coverage and associated development. An institution can be thought of as establishing the 'rules of the game' played by the institutional actors, and therefore any human action takes place within an institutional setting that is either facilitated or constrained by it (North 1990). Institutional theory has recently been gaining prominence within organisational analysis (Walsh *et al*. 2006). This is partly due to the concern that earlier studies may have little relevance to today's organizations (Greenwood *et al*. 2014). The theory of 'organizational institutionalism' captures this current institutional thinking and much has been detailed in Greenwood *et al*. (2008). The interests of institutional theory that has traditionally focussed on the impact of institutional influences on organizations (notably the organizational field aspect) from a top-down approach, are merged with those of organization studies that focus on understanding the internal aspects of organizations (e.g. structure) and typically regard the environment as an external component. Organizational institutionalism therefore presents a shift in focus as it seeks to understand the organization as the level of analysis (King *et al*. 2010, Suddaby 2010, Suddaby *et al*. 2010, Greenwood *et al*. 2014). The vision Greenwood *et al*. (2008) have for organizational institutionalism is thus described as "*dynamic, open and expansive…allow*[ing] *richer, stronger and more interesting theorizing about organizations and about the world in which we and they live*" (Cloutier and Langley 2010, p.143).

An organization is understood to be an established entity consisting of a group of people working towards the same goal, which cannot otherwise be achieved by an individual (Hatch 2011, Haynes *et al*. 2014). The behaviour of the organization is delineated by the institutional frameworks established in policy (North 1990, Hodgson 2006, 2007).

Organizational performance refers to what an organization actually does and can therefore be understood as the extent to which an organization achieves its goals or objectives. In contrast, organizational capacity is "*an organizational trait*" (Barman and McIndoe 2012), a set of attributes describing what an organization possesses as well as its "*potential to perform – its ability to successfully apply its skills and resources to accomplish its goals and satisfy its stakeholders' expectations*" (Horton *et al*. 2003, p.19). Organizational capacity is shaped by a variety of factors including: capability (the knowledge, skills, attitudes and competence both of the individuals working within the organization and the organization as a whole), size of task, resources needed to perform tasks (including time, finances, technology and information) and organizational relations (Franks 1999). The varying capacity of organizations explains heterogeneity across organizations, yet they still share numerous characteristics (Barman and MacIndoe 2012, Greenwood *et al*. 2014). While it is acknowledged that individuals within an organization have different forms of capacity, such as those possessed by the technocrats and sociocrats described by Tropp (2007), organizational capacity is not merely the assembly of multiple individuals' capacity. This is because the organization "*has a life in addition to its members'* making the organizational whole greater than the assembly of individuals' capacity as "*additional properties of the whole stem from the structured relations and causal interactions between the individuals involved*" (Hodgson 2007, p.111).

While organizational performance and capacity are interdependent, they are not synonymous, meaning that performance is not necessarily indicative of capacity and vice versa (Eisinger 2002, Meyer *et al*. 2012, Kayaga *et al*. 2013). An organization does not act in isolation, but rather it forms part of an institutional context and environment with symbolic/cultural influences as well as regulatory ones (Meyer and Rowan 1977, Greenwood *et al*. 2008, Hatch 2011). It may therefore be the case that an organization has the necessary capacity but does not adequately perform the target activity, or that it performs effectively despite having limited or unsuitable capacity. Where organizations have a prescribed role in policy implementation (such as in the case of the WFD competent authorities), their capacity can determine the level and quality of that

implementation, making it imperative for policy makers to be sensitive to capacity issues when setting out policy objectives (Ting 2011, Leidel *et al*. 2012). An understanding of organizational capacity constitutes valuable information for policy makers as it can be used to guide realisable interventions, as well as provide information relating to their impact (Lessik and Messik 2000). Indeed, such institutional research that goes beyond the reporting of institutional observations has been a recommended research agenda in water resources management (Ingram *et al*. 1984, Blomquist *et al*. 2004).

## 2.5. Unpacking organizational capacity

In the literature on organizational capacity several attempts have been made across various institutional contexts to grasp this dynamic and abstract concept. The most common approach has been to develop conceptualizations and indicators that seek to unpack and measure the major components of capacity (Barman and McIndoe 2012). While these vary in the number of components identified, they also exhibit common features. In fact, Flaspohler *et al*. (2008) note that much literature concerning the unpacking of organizational capacity components has identified human resources, interactions within and outside the organization, leadership, technical resources and fiscal resources as being of significance. There are studies that have used previously published sets of organizational capacity because they closely match their research needs (e.g. Sharpe 2006, Misener and Doherty 2009, Mustapa *et al*. 2014). In turn, these studies have continued to describe and, largely, validate existing conceptualizations of organizational capacity.

Following an extensive and critical review of the literature, a number of studies that demonstrate formal unpacking of organizational capacity from public health sector (e.g. Meyer *et al*. 2012), international development (e.g. Lusthaus *et al*. 2002) and non-profit service organizations (e.g. Hall *et al*. 2003) were considered (refer to first column of Table 2.1). Their selection was based on the fact that they originate from a largely similar institutional approach to that of this research, as opposed to for example business studies that are founded on different theoretical understandings. Selection was also informed by the difference between ‘organization’ and ‘organizing’ as explained by

Hatch (2011). Thus, only studies approaching the capacity of an organization (i.e. an outcome) at a certain point in time and space were included, rather than those approaching capacity of an organization that is changing its capacity (i.e. the process of organizing e.g. capacity building, capacity development, and capacity adaptation). This does not mean that the studies considered did not develop a set of capacity components with the intention to provide an assessment of capacity to improve performance. Indeed, the selected studies are very much performance driven.

Notwithstanding these considerations, it was concluded impractical to choose one of the existing studies that qualified the selection criteria and directly transfer their conceptualizations of organizational capacity to the intended exploration of WFD competent authorities of this research. Reasons for such impracticality included: 1) different organizations have different functions and capacity requirements across varying institutional contexts, 2) their unpacking of the concept has mostly been based on theoretical connotations and not informed from practice within their respective fields of study, 3) the components identified in these studies tend to reflect a very narrow understanding of capacity that do not permit a holistic exploration of what an organization possesses (e.g. Hall *et al*. (2003) - whose framework has been adopted in other studies - identifies three components of capacity: structural, financial and human resources), and 4) terminology used is not as simple and user friendly as desired (e.g. different disciplines have different understanding of the term technology).

For these reasons and as shown in Table 2.1, these existing conceptualizations of organizational capacity were considered collectively to construct a set of five core components of organizational capacity: *legal authority*, *information and knowledge*, *skills*, *resources*, and *leadership*. Since the meaning assigned to an indicator can lose its accuracy when applied to a different research context (MacDonald 1996), the identification of the components considered the meaning rather than the labelling. The identified components use simple terminology, are holistically representative of the organizational capacity of competent authorities' function, and their breadth reflects several fundamental characteristics of the WFD, such as complexity and flexibility of implementation of its provisions, while also reflecting the competent authorities'

mandate. Moreover, the five components are exhaustive of all the components identified from the reviewed existing studies, and being few they are effective as they are easy to remember and organize abstract ideas (i.e. offer a quick mental audit of organizational capacity) both in formal assessments and informal discussions.

Based on the institutional understandings discussed above (Section 2.4), these five components of organizational capacity (Figure 2.1) are interrelated and influence each other, especially in terms of their availability, accessibility and use. A capacity component is defined as available when the competent authority is in its possession (i.e. internal organizational capacity), and accessible when it either could be made available or supplemented to the competent authority from the range of opportunities existing within its surrounding institutional environment (i.e. via external organizational capacity). In other academic circles similar (though arguably less simple) terminology is used to refer to these two aspects of capacity. For example, Ting (2009) uses 'endogenous' and 'exogenous', but the meaning these convey is the same. Use of capacity refers to an organization's actual deployment of available and accessible components. Literature has referred to lack of deployment of capacity as 'latent capacity' (Eisinger 2002) or 'theoretical capacity' (McNair 1998), inferring a situation that signifies a capacity problem. Therefore, an organizational capacity component could be available or accessible (and presumably also both) and used or unused in either case. Organizational capacity is dynamic and these situations are therefore both sensitive and change over time.

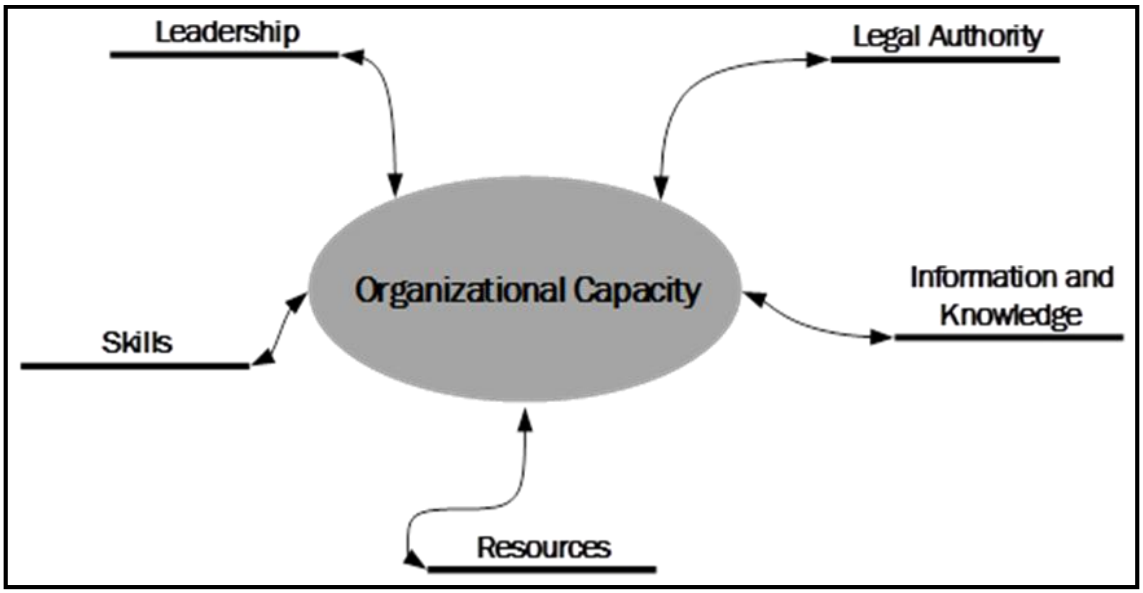


**Figure 2.1:** The identified set of core qualitative organizational capacity components

**Table 2.1:** Unpacking organizational capacity

| Literature source | Components of organizational capacity reported | Identified organizational capacity component | Definition of organizational capacity component |
|---|---|---|---|
| Meyer *et al*. 2012 | System boundaries and size, governance and decision making structure | Legal authority | Refers to the specification in national law of the roles and responsibilities an organization has as part of its mission and mandate. |
| Ting 2011 | Allocation of personnel | | |
| McKinsey & Company 2001 | Organizational structure | | |
| Lusthaus *et al*. 2002 | Organizational structure | | |
| Brown 2012 | Board of directors and governance | | |
| LaFond *et al*. 2002 | Organizational structure | | |
| Meyer *et al*. 2012 | Data and informational resources | Information and knowledge | An organization's ability to (i) create knowledge from the understanding of collective information carrying some meaning or purpose that has been formulated from aggregate data, (ii) retain knowledge as part of its memory and with a system in place for easy retrieval, (iii) and transfer of knowledge so that lessons learned from its own experiences as well as that of others are used to inform not only its present and future work but also that of other organizations. |
| Ting 2011 | Research | | |
| Brody *et al.* 2010 | Technical expertise, data | | |
| Bryan 2011 | Knowledge | | |
| Ting 2011 | Training, data collection, development of technology | Skills | Refers to the specific individual and communal understandings and competencies an organization possesses which enable it to perform tasks. An organization's skillset is strongest when it reflects the organization's responsibilities and objectives. |
| McKinsey & Company 2001 | Organizational skills | | |
| Brody *et al*. 2010 | Communication and information sharing | | |
| Brown 2012 | Evaluation | | |
| Meyer *et al*. 2012 | Fiscal and economic, workforce and human resources, physical infrastructure | Resources | Refers to the capital, time, workforce and materials needed for an organization to fulfil |

| | | | |
|---|---|---|---|
| McKinsey & Company 2001 | Human resources, systems and infrastructure | | its mandate. Lack of resources tends to be the key critical factor hindering an organization from achieving its objectives. |
| Brody *et al*. 2010 | Financial resources, staffing | | |
| Fredericksen and London 2000 | Fiscal planning and practice, operational support | | |
| Hall *et al*. 2003 | Financial and human resources | | |
| Bryan 2011 | Human resources, financial resources, information technology | | |
| Lusthaus *et al*. 2002 | Organizational infrastructure, financial management | | |
| Brown 2012 | Resources | | |
| LaFond *et al*. 2002 | Finances, supplies, infrastructure, human resources | | |
| Meyer *et al*. 2012 | Inter-organizational relationships, organizational culture | Leadership | An organization's ability to understand its mandate, where it is heading and how to get there with consideration of the other capacity components. It therefore incorporates the organization's vision and direction including coordination, management and planning of the organization's work, and a strategy for fulfilling the assigned responsibilities. |
| McKinsey & Company 2001 | Aspirations, strategy, culture | | |
| Brody *et al*. 2010 | Leadership, commitment, teamwork, planning | | |
| Fredericksen and London 2000 | Leadership and vision, management and planning | | |
| Hall *et al*. 2003 | Structural (relationship and network, infrastructure and process, planning and development) | | |
| Bryan 2011 | Stakeholder commitment, collaboration | | |
| Lusthaus *et al*. 2002 | Strategic leadership, programme and service management, process management, inter-organizational linkages | | |
| Brown 2012 | Management and operations, key allies, program planning and implementation | | |
| LaFond *et al*. 2002 | Mission, leadership, history and culture | | |

## 2.6. The small states context

Water governance is not 'immune' to the larger governance system and its structures (Biswas and Tortajada 2010). The literature on small states provides insights that enrich existing political-institutional discussions across academic and policy circles as it exposes aspects that help explain variations in universals that are otherwise kept hidden (e.g. Thorhallsson 2000, Irving 2011, Panke 2012, Veenendaal and Corbett 2015). Indeed, the implications of the political-institutional aspects of small states on water management is an uncommon combination in the literature.

The law does not distinguish between small and bigger sovereign states, however, such objectiveness is not equally manifest in politics, international relations, institutional and socio-cultural realities (Thorhallsson and Wivel 2006, Steinmetz and Wivel 2010, Baldacchino 2012, Veenendaal and Corbett 2015). Without prejudice to their ability to prosper and be resilient, vulnerability (to external shocks e.g. economic or environmental), comparative resource scarcity and lack of capabilities emerge as central themes that distinguish small states from bigger ones (Katzenstein 2003, Briguglio *et al*. 2009, Sutton 2011). Towards the end of the twentieth century, these differences increasingly gained the attention of international organizations such as the Commonwealth Secretariat, the World Bank and World Trade Organization, who argued for special recognition and possibly differential treatment of small states (Crowards 2002). However, despite concerns over the impact of globalization on small states and fears of their marginalization in the world economy, the Development Committee of the World Bank did not support the recognition of small states as a category requiring such special and differential treatment similar to that granted to the least developed countries (Sutton 2011). Indeed, from an economic perspective, Easterly and Kraay (2000, p.2013) (working at the World Bank) state: "*small states are no different from large states, and so should receive the same policy advice that large states do*". Yet, the international visibility of small states continues at present, most evident in diplomatic negotiations on climate change (Baldacchino 2012). As the recent climate change discussions held in Paris have highlighted, the effects of the Anthropocene are most

intensely experienced in small island states due to their distinct vulnerabilities (United Nations conference on climate change 2015).

The consensus is that small states share some common characteristics that may carry both positive and negative connotations, although these are not clearly understood and tend to be highly fragmented across the literature. Smaller states are relatively more likely to have limited human capital and experience much higher rates of 'brain drain' (i.e. emigration of skilled people who choose to reside outside their country of origin), which can also result in "*remittances, increased trade, transfer of knowledge and behavioural modes*" (Docquier and Schiff 2008, p.2). Baldacchino (2012, p.17) characterises the smallness of small states as a dynamic interplay of 'monopoly' (the free market is challenged as there are only one of most things, such as hospital and university), 'totality' (strong state presence) and 'intimacy' (low privacy threshold and high chances of role multiplicity and overlap). Similarly, from studies in the Caribbean region, Sutton (2006, p.13-15) characterizes the performance of the public sector in small states as having: 1) 'exaggerated personalism' to refer to the strong influences of government representatives who tend to use their power to control appointments; 2) 'limited resources' that push civil servants to perform multiple roles and responsibilities even though these may not fit with their specialization and they were not adequately trained to perform them; 3) 'inadequate service delivery' due to general inability of reaching economies of scale; and 4) 'relatively high degree of dependence on foreign management consultants' who may promote and apply practices that do not necessarily suit the small state context.

Continental small states are thought to benefit from territorial cohesion while island states are disadvantaged by their physical remoteness (peripheral location) from continental economic hubs (Briguglio 1997). Indeed, as was mentioned above (Section 2.2), the small landlocked state of Luxembourg was able to fulfil some of the WFD obligations thanks to the stronger capacities of neighbouring countries. A further distinction exists between small island states and small islands without statehood status, such as metropolitan France (islands in the Atlantic Ocean, English Channel, and

Mediterranean Sea) and overseas France (islands located outside Europe), as they are neither accountable to a mainland nor have its support and therefore have greater autonomy and institutional freedoms (Sutton 2011, Moncada *et al*. 2009). The concepts of 'subnational island jurisdiction' (Baldacchino and Milne 2006) and 'para-diplomacy' (Bartmann 2006) capture the distinct political situation of these two types of islands in terms of their jurisdictional functionality (Sutton 2011).

The smallness of states is elsewhere contemplated to be more of a social construction rather than factual, its meaning arises from the context in which it is characterized relative to others (Baldacchino 2012, Panke 2012). For instance, the Commonwealth (2016) and the World Bank (2016), which have contributed largely in recognizing the development challenges of small states, define small states in terms of population of 1.5 million or less. Thus, the definition of 'small state' remains highly contested and vague, allowing for numerous qualitative (e.g. self-perception or that of others outside the state) and quantitative (e.g. territory, population, gross domestic product or military capacity) interpretations of what constitutes being a small state, and making comparisons across studies difficult (Crowards 2002, Knudsen 2002, Maass 2009, Sutton 2011, Veenendaal and Corbett 2015). Such lack of definitional agreement on what constitutes small state is rooted in the lack of established theories in small states literature, which instead is mostly rich with descriptive and ethnocentric studies emanating from development studies and interests in European integration (Knudsen 2002, Nuemann and Gstöhl 2004). These studies tend to originate from academics of small states, possible due to their advantaged knowledge of the context and the demand for this type of knowledge, which is generally lacking in social science research, international relations and policy making (Knudsen 2002, Nuemann and Gstöhl 2004, Baldacchino 2012). The Islands and Small States Institute hosted in the University of Malta constitutes a prime example.

Most studies discussing European small states consider several other states as small. For example, Panke (2010, p.9) classifies nineteen out of the (then) twenty seven European Member States as small based on their voting power in the Council of Ministers, and

describes small states as having: "*less economic and political power, smaller administrations, fewer experts and smaller delegations with higher workloads per person".* These characteristics of small states impact their approach in the EU as they set priorities, focus and consolidate on narrower range of interests in certain policy areas, systematically build-up relevant capacities and take initiatives in accordance with common EU interests (Thorhallsson 2000, 2015, Panke 2010, 2012). For example, in the Common Agricultural Policy and Regional Policy small states "*use the special characteristics of their administrations, such as informality, flexible decision-making, greater room of manoeuvre for their officials, guidelines given to negotiators rather than instructions, and the greater role of Permanent Representatives in domestic policy-making to ease their workload and to operate within the decision-making process*" (Thorhallsson 2000, p.218). In the case of EU foreign policy, small states have the capacity to voice their projection preference and national interests, however their success tends to be more of policy modifications rather than actually defining policy (Pastore 2013). Through the concept of 'small state smart strategy' Grøn and Wivel (2011) describe the opportunity small European states have in transforming their weaknesses into a resource of influence by adopting a combination of coexisting, overlapping and mutually reinforcing strategies that see the state as a lobbyist, a self-interested mediator and a norm entrepreneur. This is feasible as larger European states see the size of small states as non-threatening and perceive them as neutral on various EU issues. Different to small states, bigger Member States are thought to be more likely to use their political capacity to deter enforcement from the European Commission and its opening of infringement proceedings against them (Börzel 2002).

Using the criterion of 1.5 million population as an indicator of smallness, the small states that are located in the European continent include: Andorra, Cyprus, Estonia, Iceland, Malta, Monaco, Montenegro, Liechtenstein, Luxembourg, Vatican City and San Marino. There are apparent political differences among these ten small states, both in their statehood and their agreements with the EU. Even among the four European small Member States there are manifest differences across the criteria of population (an

indicator of human capital), size (an indicator of natural resources variety and abundance), geography (an indicator of location and climate) and income (an indicator of the size of the economy) (Table 2.2). Notably, Malta is the smallest state across all criteria, Luxembourg is distinguished by its high gross domestic product and Estonia has the largest territory. When further criteria are added to these, such as domestic politics, strategic position and administrative capacity, more information about the states' domestic and international vulnerability and capacity to take action in the EU can help attest their smallness (Thorhallsson 2006). In contrast to its counterparts, Luxembourg has been using its experience and administration coordination practices to actively influence the EU negotiations (Panke 2012). As latecomers into the EU, Cyprus, Estonia and Malta, are thought to be 'double disadvantaged' than earlier members because of their lack of political ('fragmentation' i.e. veto player, 'resources' i.e. votes in the Council and EU budget contribution, and 'legitimacy' i.e. support for European integration, issue-salience and trust in political institutions) and administrative capacity (fragmentation of competencies, human and financial resources, and administrative legitimacy i.e. perceived corruption) to shape EU policies, and thus as policy takers they "*bear the highest implementation burden since they have to adapt their domestic policies and institutions"* more than the policy shapers (Börzel 2002, p.5). Indeed, these three late comers were not part of the shaping of the WFD, which (arguably) is particularly problematic for Cyprus and Malta since the Directive is described as being "*biased towards better known continental systems*" (Hugh and Malmqvist 2005, p.289).

Notwithstanding the various political-institutional peculiarities of being small state that the above review conveys, a knowledge gap is uncovered in the recent systematic review conducted by Boeuf and Fritsch (2016) as they find no study on WFD implementation in Cyprus, Estonia and Malta, and only one for Luxembourg (the study reported earlier in Section 2.2). While across the literature there are studies on water management in Cyprus and Malta, these tend to reflect earlier paradigms of water management (e.g. issues of water supply, demand and augmentation, due to high water scarcity and stress, high impact from tourism, and climate change concerns) and not the

political-institutional paradigm with which this research identifies. While Cyprus and Malta are Commonwealth countries, the island state fora it offers tend to be oriented towards developing island states. There is therefore very limited crossover to the distinct governance structures of these two developed states. Such statement is highly reflective to the one mentioned earlier that there needs to be caution in transferring governance understandings across different contexts. Furthermore, contrary to Estonia and Luxembourg, Cyprus and Malta are not OECD members and therefore do not benefit from the growing Water Governance Initiative it advocates, which includes advise to government, a technical platform, and assistance on the implementation of OECD Principles of Water Governance.

**Table 2.2:** Differences across the four small EU Member States. Source: European Union (2016)

| EU small states (year of entry) | Population (2015) | Area ($Km^2$) | Geographical location | Gross domestic product (billions, 2014) |
|---|---|---|---|---|
| Cyprus (2004) | 847 008 | 9 251 | (East) Mediterranean island | €17.506 |
| Estonia (2004) | 1 313 271 | 45 227 | Baltic Region bordering Latvia (EU state) and Russia (non-EU state) | €19.525 |
| Luxembourg (1958) | 562 958 | 2 586 | Landlocked in central continental Europe, bordering Belgium, France and Germany (EU states) | €49.428 |
| Malta (2004) | 429 344 | 316 | (Central) Mediterranean island | €7.912 |

## 2.7. Conclusion

This Chapter has contributed towards the achievement of the first research objective by reviewing a number of discourses central to the understanding of organizational capacity and effective water management. An important highlight gathered from these discourses is that water management implementation is sensitive to geographical, institutional and political contexts, and these are as such intrinsic components of the enabling (or lack thereof) environment determining effective water implementation. One of the major outcomes of this Chapter is its offering of a set of core components of organizational capacity that can be used to assess the organizational capacity profile of WFD competent authorities. The next Chapter develops a methodology to test this outcome in the case study of Malta.

# 3. Study area, methods and materials

## 3.1. Introduction

This chapter provides details of the methodological approach (see Figure 3.1) taken to achieve the second research objective identified in Chapter 1, i.e. to test and illustrate the application of the set of core organizational capacity components developed in Chapter 2 to the case of the Maltese WFD competent authorities. It begins by providing details about the study area in terms of its hydro-geographical background, and continues by outlining the research strategy that guides the methodological framework. The areas of focus of the WFD are then presented along with descriptions of the methods chosen for data collection and the thematic analysis approach adopted to guide data interpretation. Finally, the reflections and limitations of the research, along with concluding remarks on how the methodological framework contributes to the achievement of the research aim are presented.

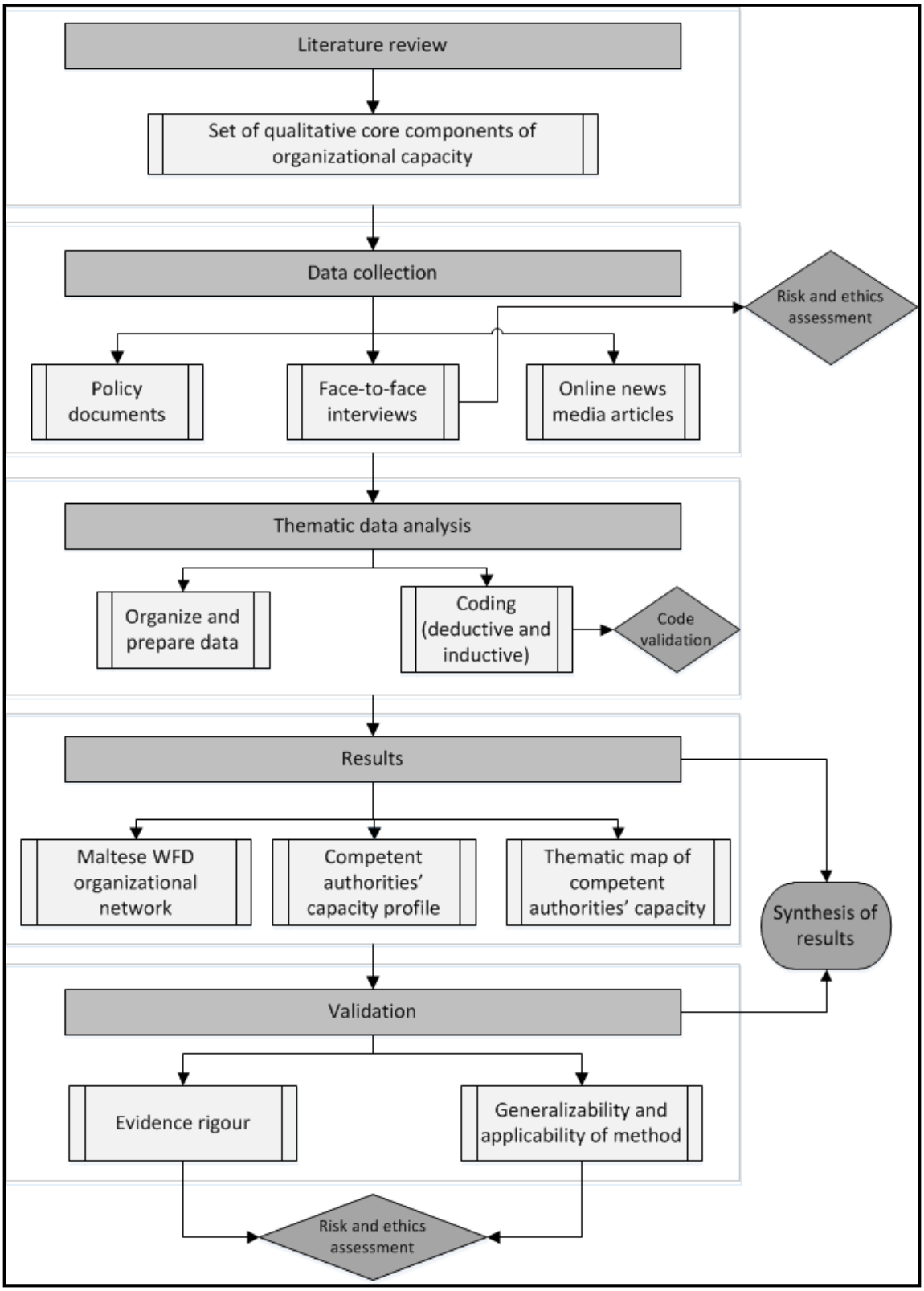


**Figure 3.1:** Methodological approach

## 3.2. Study area

The use of Malta as the case study means that the research is founded "*on a system bounded in space and time, and embedded in a particular physical and sociocultural context*" (Silverman 2011, p.16). More information on this context is therefore necessary to understand the research focus of this thesis. The choice of Malta as the case study reflects a combination of several factors, including: 1) the requirements of the research funding body, 2) the familiarity of the researcher with the context meant better focus, appreciation and understanding of the findings, ease to carryout fieldwork and better communication with respondents, 3) the country's small size and experience of implementing the WFD allow more control over the abstract phenomenon understudy and more opportunity to get representative findings.

### 3.2.1. Malta's hydro-geographical context

Malta is located in the heart of the Mediterranean basin, 93 kilometres south of the Italian island of Sicily and 290 kilometres north of Libya. It is the smallest European Member State both in terms of its area of 316 $Km^2$ and population of 425,384 inhabitants (National Statistics Office 2014). Freshwater is one of Malta's "*few strategic natural resources*" (National Environment Policy 2012, p.47). However, it is the European country with the lowest recorded amount of freshwater available per capita (190 $m^3$ per inhabitant per annum) (Eurostat 2015). An observable upward trend has been experienced in Malta's water exploitation index between 2005 and 2014, from 34.7% to 46.5%, which indicates that the water resources have shifted from a stressed to a severely stressed situation (MEPA 2015).

Malta's water situation has long been described as critical. In their analysis of "*The Evolution of Water Culture in Malta*", Sapiano *et al.* (2008) state that water scarcity has been a persistent national problem from the Arab and Medieval period, all the way through the Order of the Knights of St. John, then under the British rule and more so post-independence (from 1960's) to present times. In fact, cisterns are a historical feature of Maltese buildings (Blouet 2007, Forney *et al*. 2011) and to date they are required by law to collect and maintain prolonged access to water supply (MEPA 2015).

The highlight of water shortages in Malta is recalled by Bonnici and Cassar (2004) when in the times of 1981 the water supply was rationed from each locality once a week. This pushed Malta to increase its water capacity through investments in the set-up of desalinisation plants in 1980s. Between the years of 2004 and 2013, the production of public water by the Water Services Corporation (WSC) averaged over 17 million $m^3$ of water produced from three reverse osmosis plants (approximately 56%) and over 13 million $m^3$ of water was withdrawn from the ground (approximately 44%) (National Statistics Office 2014). However, desalinisation presents Malta with an expensive burden and the technology's dependence on electricity usage is a detriment to the environment. The country also imports around ten times the total amount of water it consumes from local sources as virtual water (The Today Public Policy Institute 2015). Investments have been made in rainwater harvesting and treated sewage effluent (mainly out of obligations derived from the Urban Wastewater Directive), however their potential contribution to the total water supply of the country remains far from exploited.

There are three principal factors that contribute to Malta's water shortage situation. Firstly, owing to its size and population Malta has the highest population density in the EU as there are 1,346 inhabitants for every $km^2$ (National Statistics Office 2014). Secondly, Malta is characterised by a semi-arid climate "*with heavy and intense rainfall over a short span of time followed by long spells of dry weather*" (Micallef and Schembri 2002, p.149). The winter period monthly mean air temperature is 12.4°C, while in the summer period this rises to 26.3°C (Malta Airport MetOffice 2012). The annual average rainfall stands at 476 mm per year (National Statistics Office 2014). The distribution of rainfall over the year results in water stress during the dry summer months, when both water losses through evaporation and demand for water are highest. Furthermore, the country has to supply water to the many tourists that more than double the country's population during this dry season. Thirdly, the country has a relatively small water catchment area with no exploitable surface water. The natural lack of freshwater supply is exacerbated by anthropogenic influences. Out of the eighteen groundwater bodies

(forming part of either the mean sea-level aquifers or perched aquifers) only two remain not threatened by over abstraction, high salinity levels and other pollutants such as nitrates whose source is traced in agricultural practices as well as sewage systems (Heaton *et al*. 2012, EU LIFE+ 2014). Moreover, as a result of several socio-economic factors the country has transformed into a highly dense urban pattern such that thirty-three per cent land cover is recorded to be urbanised - making it the most built-up country in the EU (Eurostat 2013). This has greatly intensified the effects of flooding from stormwater as less land area is available for rain water to infiltrate the ground and percolate its way to replenish the aquifers. When compared to other countries the combination of these three factors have magnified Malta's "*problem out of proportion*" (Camilleri 1979, p.335). In light of the hydro-geographical context of Malta, Easton (2008) – a British hydro-geologist, argues that the country can become a model for water management if it manages to solve its water challenges through innovation, regulation, good governance and cooperation.

## 3.3. Theoretical underpinnings

As stated in Chapter 1, this research aims to offer an understanding of organizational capacity for effective water management in the context of the WFD implementation in Malta. A qualitative approach (Denzin and Lincoln 1994, Ritchie and Lewis 2003, Patton 2005) has been adopted to reflect the interest this research has in generating "*insight, discovery and interpretation rather than hypothesis testing*" of the organizational capacity phenomenon and its context (Merriam 1998, p.6). Therefore, the interest is to observe patterns in and across qualitative datasets, and not to compute frequencies for statistical testing as commonly done in quantitative data analysis (Strijbos *et al*. 2006). To this end, the rich narrative that is offered in Chapters 4 to 6 provides results, discussion and conclusions about three kinds of interconnected knowledge, namely: knowledge about water management in Malta, knowledge about organizational capacity and knowledge about the wider experience of implementing the WFD.

There are various methodologies associated with qualitative research that have been commonly used, developed and proven to be strong strategies, namely: ethnography,

phenomenology, biography/narrative, grounded theory, and case study (Brown 2008, Petty *et al*. 2012). This research adopts the qualitative case study approach as it serves the purpose of focussing on a particular aspect of an organization (Stake 1995, Noor 2008), and uses a single instrumental case (Malta) to test and illustrate that aspect (Creswell *et al.* 2007, Baxter and Jack 2008). Contrary to other options, the case study sets boundaries on the research system and delimits what is included in the study (Stake 1995, Merriam 1998, Brown 2008). Furthermore, it allows the exploration of the research subject as several unknown issues in the early stages are progressively understood and addressed (Diefenbach 2009). Despite attracting criticism for lacking precision, reliability, objectivity, scientific rigour and generalizability (Brown 2008, Noor 2008), case study research is still considered to be the most appropriate research strategy for "*appreciating the complexity of organizational phenomena*" (Yin 1984, p.xv). This is because it allows rich, in-depth and holistic understandings of complex experiences (Noor 2008, Brown 2008) with narratives that strongly benefit practitioners and policymakers (Stake 1995, Flyvberg 2006). It does so by offering more than just descriptions, delivering specific insights obtained under specific circumstances (Diefenbach 2009). When case studies are theoretically rooted (as is the case of this research), they provide the basis for generalisations, explanations, or predictions (as detailed in Chapter 5 on the use of the set of organizational capacity components) that can be tested as an extension of that experience (Stake 1995, Diefenbach 2009). Collectively, these characteristics of case study bring to this research an appropriate methodology for achieving the research aim.

Following this foundational setting of the research strategy, as well as the influences originating from the institutional literature reviewed in Chapter 2, this research is rooted in pragmatism which advocates the use of mixed methods and Morgan (1994, p.1051) refers to as offering a foundation for social research in how it highlights "*the importance of joining beliefs and actions in a process of inquiry that underlies any search for knowledge*". Further to this, Powell (2011) notes that a key feature of pragmatism is that it accepts that reality exists, however, the search for an enduring reality is destined to

fail as it is continuously changing due to the actions of the constituents of that reality. Moreover, pragmatism helps explain that different and conflicting worldviews of the constituents of reality are due to their different lived experiences/backgrounds. Following these pragmatic roots, the research is conceptualized using a largely constructivist worldview with a relativist ontology and a subjective epistemology as this perspective provides the best insight into the data to answer the research aim and objectives, which fits with pragmatic approach. This means that meaning from data is explored and uncovered using constructivism rather than seeking to find solutions to a problem. In this, the relativist ontology means that the reality of the meaning uncovered is socially constructed overtime, and that the researcher has a role in how and what meaning is uncovered due to their experience and understanding of reality. The unpacking of the organizational capacity concept and construction of five components of organizational capacity (Section 2.5) constitute a prime example of how this constructivism influences the research. Indeed, the constructed components also informed the formulation of pre-constructed interview guide used for the semi-structured interviews detailed further below (Section 3.4.3). Moreover, the contribution of the research towards the addressing of the identified knowledge gap is a construction of the understandings from the literature, the data collected about the case study, and researcher's interpretation. Knowledge is therefore "*created in interaction among investigator and respondents*" (Guba and Lincoln 1994, p.111) and does not happen independently of the environment, but rather the "*claims and their evaluation take place within a conceptual framework through which the world is described and explained*" (Schwandt 2000, p.197). This worldview is combined with that of postpositivists who similarly seek to holistically explore and capture ambiguous, variable and multiple realities (O'Leary 2004, Mackenzie and Knipe 2006). However, the use of postpositivism is regarded in this thesis as complementing and bringing added value to seeing the world from a constructivist lens as in this paradigm multiple "*rigorous methods and systematic forms of inquiry*" are adopted that also seeks to "*actively employ validity using specific protocols*" (Creswell and Miller 2000, p.125). This is evident in the application of various validity measures (details provided in Section 3.6) to the

data collected using three methods, which are further detailed in Section 3.4. In this sense, the combination of a largely constructivist worldview with postpositivist aspects allows the systematic interpretation of information and the construction of knowledge. This effort aimed at remaining as "*authentically objective as possible*" (Lincoln and Guba 2013, p.38) largely enriches the employed research strategy. This aspect is important as the researcher is recognized to have a significant role in qualitative inquiry and case study research, especially in terms of their capacity as an interpreter of the features inside the case study boundaries and the analysis drawn from the evidence (Stake 1995, Patton 1990). In fact, the quality of the research is seen as ultimately depending on the researcher's understanding of the case and its place in the research process (Brown 2008).

## 3.4. The three selected WFD responsibilities

As Malta is an island state, shared international river basin management aspects of the WFD are omitted from the study. The full breadth of WFD requirements would make for an unwieldy and superficial analysis. Thus, the third implementation report issued by the European Commission (2012a) (with the help of appointed consultancies), detailing its assessment of Malta's adherence to the WFD implementation on the basis of the first WCMP, was used to provide a measure of each Article's implementation status. This status is categorized as high, moderate or low based on the conformity to the requirements of the WFD. A high implementation status reflects full conformity to the requirements of the WFD, while moderate reflects lower levels of conformity and low reflects substantial lack of conformity. Three specific provisions within the Directive were selected as the focus for analysis, and each chosen responsibility represents a different category. Such focus enables in-depth exploration of the different aspects of capacity associated with each one. The obligations selected for study were: Article 8 – monitoring of surface water status, groundwater status and protected areas; Article 9 – recovery of costs for water services; and Article 14 – public information and consultation. The selected responsibilities are broadly representative of the WFD text and have limited significant overlaps. Appendix A provides details of each chosen Article.

The success of the WFD as a "*powerful management tool*" is seen as heavily dependent on "*monitoring data* [that] *are of reliable and comparable quality*" (Dworak *et al*. 2005, p.301). The CIS (2002) document number 7 on monitoring proposes a methodological approach to the implementation of the requirements of Article 8 based on criteria in Annex V of the WFD. In this document (p.5), Article 8 is described as a "*cross-cutting activity*" sharing "*important interrelationships with other Articles and Annexes of the Directive*". The most significant of these is with Article 5 (characteristics of the RBD, review of the environmental impact of human activity and economic analysis of water use). Different types of monitoring are required for different water sources. For instance, surveillance, operational and investigative monitoring are required for surface waters, whilst for groundwater the assessment of quantitative status is established from a water level monitoring network and chemical status is established from surveillance and operational monitoring. The extensive character of the responsibility makes it complex and the implementation status is highly reflective of that of others. Moreover, the responsibility also has implications on the implementation of other Directives. For these reasons, the CIS has dedicated several of its Guidance Documents and Technical Notes on specific aspects of monitoring, such as document number 15 on groundwater and document number 19 on surface water chemical monitoring (European Commission online).

Article 9 has been described as "*a unique provision in the history of European environmental law*" (Unnerstall and Messner 2007, p.347). The CIS (2004) document number 1 on economics and the environment highlights the distinction the Directive makes between water services and water use, which in Article 2 of the WFD (European Commission 2000, p.7-8) are defined as:

> *"Water services means all services which provide, for households, public institutions or any economic activity: (a) abstraction, impoundment, storage, treatment and distribution of surface water or groundwater, (b) waste-water collection and treatment facilities which subsequently discharge into surface water. "Water use means water services together with any other activity*

*identified under Article 5 and Annex II having a significant impact on the status of water. This concept applies for the purposes of Article 1 and of the economic analysis carried out according to Article 5 and Annex III, point (b)".*

The CIS document notes that the two terms are combined in Article 9 in the statement: "*Member States shall ensure an adequate contribution of the different water uses…to the recovery of the costs of water services*". This means that "*a full costs of water services in accordance with the polluter pays principle can potentially inform consumers of the water services about the complete costs of their consumption, and the water users about the costs of their activities such as discharge of wastewater that deteriorate the quality of water*" (Unnerstall 2007, p.29). In contrast to Articles 8 and 14, Article 9 does not oblige Member States to take action (in this instance to carry-out recovery of costs for all water-use activities) but it does require reporting and justification of any exemptions made. It is worth noting that a recent judgment by the European Court of Justice makes it more difficult for the European Commission to enforce cost recovery due to a failure by a Member State over Article 9 (Case C525/2 2014).

The Aarhus Convention (United Nations Economic Commission for Europe 1998) establishes a number of rights that the public have with regards to the environment (the right of everyone to receive environmental information that is held by public authorities, the right to participate in environmental decision-making and the right to review procedures to challenge public decisions) and for which the signatory Parties are required to make the necessary provisions so that public authorities contribute to these rights to become effective. More specifically, the CIS (2003) document number 8 on public participation is designed to support experts involved in the successful implementation of Article 14 in river basins. It serves as a reference document and not an implementation blueprint. Notably, the WFD text does not use the term public participation. The various assumed benefits of successful implementation of Article 14 that the CIS document lists are shown in Figure 3.6. The participants of reference in this responsibility vary from professionals, non-professionals and local groups, individual citizens, farmers, and private sector. As shown in Figure 3.2, there is a spectrum of

participation whereby each form builds on one another rather than mutually exclusive. The minimum implementation requirements Member States have to conform to the responsibility include information supply and consultation, with written information consultation being the minimum requirement and oral consultation the best practice. Member States are expected to encourage active involvement, which can take the form of participation and co-operation, shared decision making and/or self-determination, however it is not a requirement of the WFD.

- *"**Increasing public awareness** of environmental issues as well as the environmental situation in the related river basin district and local catchment;*
- *Making use of **knowledge**, experience and initiatives of the different stakeholders and thus improving the quality of plans, measures and river basin management;*
- ***Public acceptance**, commitment and support with regard to decision taking processes;*
- *More **transparent** and more **creative** decision making;*
- ***Less litigation**, misunderstandings, **fewer delays** and more **effective implementation**;*
- ***Social learning** and experience – if participation results in constructive dialogue with all relevant parties involved then the various publics, government and experts can learn from each other's "water awareness"".*

**Figure 3.2:** Assumed benefits of doing public participation (CIS 2003, p.14). Author's bold to emphasize keywords

The implementation of Article 14 is classified as high as the responsibility has been recognised as fully conforming to the requirements of the WFD. The implementation of Article 8 is classified as moderate as it did not reach the full requirements of the WFD, particularly with regards to surface water monitoring although following a court ruling (Case C-351/09 2010) Malta corrected its position: "*Malta has not established monitoring of rivers, lakes and transitional waters in the first RBMP cycle, these activities started only after the 2010 court ruling*" (European Commission 2012, p.8). This classification of the implementation of three specific WFD obligations serves as a benchmark that sets the context for understanding the organizational capacity of the competent authorities, as well as an avenue to explore any consistencies or lack thereof.

## 3.5. Research methods

Several research methods can be employed within qualitative case study research. Different methods of data collection have different strengths and weaknesses

associated with them. For this reason, it is common to adopt a mixed method approach whereby the corroboration of multiple techniques enhances validity and reliability of research findings. This is usually associated with combining qualitative and quantitative methods (Brannen 2008), but it can also refer to using more than one qualitative or quantitative method, such as interviews and observation (Bryman 2009, Ritchie and Lewis 2003). This research collected empirical evidence from six publically available Maltese water policy documents, eighteen face-to-face semi-structured interviews and sixty-eight online news media articles. The three qualitative methods provide complementary evidence and comparisons allowing a greater degree of confidence in the overall findings and construction of knowledge following analysis. The sample sizes reflect the fact that the overall potential pool of documents and key informants is limited and highly specialised. However, the use of the three methods provide a volume of data that permit a representative study of the Maltese competent authorities' organizational capacity in terms of facts, perceptions and framing of issues. Such broad representation of the organizational capacity phenomenon would not have been possible with the adoption of a single research method. Phrases in the results using double quote marks indicate that they are sourced from documents or online media articles, while phrases using single quote marks are sourced from interviews' data. Further detail on how these three methods of data collection were employed in the research is presented below.

Other methods were initially considered, namely: shadowing (MacDonald 2005, Gill 2011), direct observation (Taylor-Powell and Steele 1996) and focus groups (Powell and Single 1996, Freeman 2006). The chosen methods were preferred over these as the data generated has higher methodological and in content quality that is necessary to answer the research aim and objectives (Diefanbach 2009). For instance, shadowing and direct observation methods generate volumes of detailed data on a participant's role and behaviour but these are aspects that fall outside the scope of the research. These methods would require research to be conducted over more extensive periods of time with limited control over the data collection schedule. Moreover, both methods are

sensitive to the 'Hawthorne effect' (McCambridge *et al*. 2014) meaning that the presence of the researcher may alter the behaviour of the participant. Direct observation involving the researcher sitting in intra- and/or inter-organizational meetings or public participation events would have given limited (if any) opportunity to probe on issues of interest or make clarifications. Moreover, direct observation tends to generate highly subjective data (Merriam 1998). One-to-one interviews were preferred over focus groups as the purpose was to "*pursue the respondent's subjective interpretation of a subject*" which respondents may not disclose in a group setting (Powell and Single 1996, p.502). This is especially true considering the small size of Malta and that most of the research respondents hold high ranking organizational positions, which could make them uncomfortable discussing organizational capacity matters with peers from other organizations.

### 3.5.1. Describing the Maltese WFD organizational network

The identification of the Maltese organizations with WFD-related responsibilities was initially informed by formal email communication with the Ministry responsible for water management in Malta at the time and government websites. Emails were the preferred method of communication as these allow more room for politeness and thorough requests (Duthler 2006). Moreover, any information asked under the Freedom of Information Act (LN426/2012) has to be in writing. The understanding of the Maltese WFD organizational framework continued throughout the research as clarifications and new information became available from the data collection methods used (Chapter 4, Figure 4.1).

### 3.5.2. Policy documents

Documentary research (Mogalakwe 2006, Bowen 2009, Ahmed 2010) involves the selection of facts from the written text of public, private or personal documents following a research protocol. The method is particularly useful during initial research phases as it helps to foster a retrospective understanding of the phenomena being studied. The use of documents as a research method is cost and time effective to both researcher and key informants that would have otherwise been recruited using other

methods, as facts are documented, and both time consuming activities of organization and fieldwork are spared (Cauley 1983).

The documents used in this research are shown in Table 3.1. These were selected from an initial inventory of the available Maltese water policy documents that was created from online searches, and which represents the sampling frame from which the sample of documents for this research method was formed. Creation of the inventory was an essential task to determine the feasibility of using the method and assess the need for any further documents to be included in the research. All of the documents used in this research are publicly available online and therefore it was not necessary to make any formal requests to access the documents. Despite the considerable size of the inventory, six documents were selected to constitute the policy documents sample. The decision of which documents to include was made on the basis of the relevance of the document's content to the WFD implementation in Malta, inferred from title and executive summary. For instance, documents that were not included in the sample include those on annual financial reporting of government organizations with water related responsibilities, on the preliminary flood risk assessments of the Floods Directive, and on sustainable development that merely mention water, as well as others that cover the Mediterranean region in general and communications from the European Commission on sustainable water management. This decision was made following a brief screening of their content which concluded that the information in these documents do not answer the research objectives in that they are more suited to providing further general context in terms of what surrounds the WFD and work that happens in parallel to it, rather than specific information on WFD implementation in Malta. Selection of the documents that constitute the sample was also based on a timeframe that was used to make sure that the documents dated to Malta's post-EU membership. Thus, only documents published from 2004 were considered. This cut-off period ensured datedness of the documents used and their relevance to the research focus.

Most of the preparation and execution of this method took place between October 2013

and January 2014. Any relevant additional documents that became available over the course of the research were reviewed and added to the sample. Knowledge of other documents that needed reviewing was gained from continued online searches, following of online media (including news and social networks) and informal communication with interview participants.

**Table 3.1:** Evidence sourced from Maltese water policy documents

| Document name | № of pages | Author(s) | Year |
|---|---|---|---|
| Quantifying water consumption as a basis for determining its impact on groundwater resources in the Maltese Islands | 31 | Gatt | 2004 |
| Water resources review | 83 | Food and Agricultural Organization of the United Nations (FAO) | 2006 |
| The Water Catchment Management Plan for the Maltese Islands | 147 | Malta Environment and Planning Authority (MEPA) | 2011 |
| A water policy for the Maltese Islands | 66 | Ministry for Resources and Rural Affairs (MRRA) | 2012 |
| Safeguarding Malta's groundwater | 87 | National Audit Office (NAO) | 2012 |
| Why Malta's national water plan requires an analytical policy framework | 64 | The Today Public Policy Institute (TPPI) | 2015 |

### 3.5.3. Face-to-face semi-structured interviews

Qualitative interviews are conducted on "*the assumption that the perspective of others is meaningful and knowable and can be made explicit*" (Patton 2014, p.426). Their purpose is to capture the perspective of the person being interviewed. Such perspectives cannot be captured using other methods such as observations or surveys. Evidence from qualitative interviewing can be collected either in-person, by telephone or on the internet, but only face-to-face interviews offer "*synchronous communication in time and place*" (Opdenakker 2006). Thus, although face-to-face interviews incur higher costs and time, the response rate tends to be higher and this synchronous communication gives more possibility to create a good interview ambience and respondent-interviewer rapport (Carley-Baxter 2008). These are important aspects of conducting interviews as the aim of the researcher is to "*encourage the interviewee to share as much information as possible, unselfconsciously*" (DiCicco-Bloom and Crabtree 2006, p.316).

Semi-structured interviews were preferred over unstructured interviews because of

their higher consistency but still sufficient flexibility to approach participants differently while covering the same areas of data collection (Noor 2008). In semi-structured interviews the researcher follows an interview structure containing a set of major pre-constructed questions, but the openness of the questions allows for a series of follow-up/probing questions when the topic of discussion is of interest to the research (Bruton and Ahlstrom 2003, Wengraf 2004). This entails a certain degree of improvisation as the interviewee may introduce further points of interest (Alvesson 2011). For this reason, preparedness for each interview was secured by doing prior online research on each person being interviewed and the organization they represent. The generic interview schedule that was used in this research is presented in Appendix B. This schedule was amended to the different participants according to their role in WFD implementation in Malta and the information sought from each in this regard. Generally, the research interest was addressed in five main areas of the schedule: 1) the WFD experience, 2) the Maltese water organizational framework, 3) the core five areas of organizational capacity, 4) the three selected responsibilities and 5) performance and future expectations. Although, the order of the questions varied from one interview to another, the interview always followed an introductory, intermediate and ending structure, characterised by transitions from one phase to another. This structure reflects the four stages of rapport between the interviewer and the interviewee suggested by DiCiccio-Bloom and Crabtree (2006, p.317), which very much reflect how meaning is co-constructed between interviewer and interviewee. These stages describe the interview trajectory from 'apprehension', which introduces the interviewee to the nature of the research using open-ended and non-threatening questions, followed by 'exploration' in which the interviewee becomes engaged in an in-depth discussion, to 'co-operation' which is characterized by being comfortable and satisfied in the interview process, and finally the rapport reaches its peak by 'participation' as the "*interviewee takes on the role of guiding and teaching the interviewer*".

The interviews were conducted in Malta in May-June 2014 and October-November 2014, with three types of key informants representing organizations from: the two

competent authorities, major government stakeholders such as research and non-government organizations with an agenda relating to water, and water service users. The first set of interviews were mostly conducted with the first two types of key informants. The gap between the two time periods allowed the analysis of the data and the pre-construction of further questions for the second set of interviews that mostly covered the water service users. As will be discussed in Chapter 5, differences in perceptions are not attributed to whether an interview was carried out in the first set or the second, but to the type of organization that is interviewed and its relationship with the competent authorities. The schedule prepared for the interviews was piloted in April 2014 with representatives of organizations based in England that correspond to the three types of key informants sought in Malta. Two pilot interviews were done over the phone and another one in-person, each lasting thirty minutes. The pilot study (van Teijlingen and Hundley 2001) served as an orientation mechanism for the researcher to increase their confidence and familiarity with the context of the research subject, helped identify any difficulties with how the questions are understood and the type of responses received. For instance, it emerged that questions on cost recovery for water services needed clearer wording as respondents were unfamiliar with this responsibility and the range of issues it covers.

A purposive sample (Teddlie and Yu 2007, Palys 2008) was preferred over other types of sampling as the interviews sought to capture evidence from key informants that are representative of identified organizations involved in the implementation of the WFD in Malta. Therefore, rich information gathered from a small sample of key informants using in-depth face-to-face interviewing was preferred over a larger but random sample. The purposive sample was gradually constructed through a recruitment process that was partly advised by the development of the Maltese WFD organizational framework, which identified the organizations that needed to be included in the study. Indeed, in Section 4.2 the multiple organizations that are involved in WFD implementation in Malta are discussed and described at length and depicted in Figure 4.1. The sampling frame for the interviews constitutes a respondent (and in some cases more than one) from

each identified component of the Maltese WFD organizational framework. It is important to note that being a purposive sample the research interest was to engage with key informants and therefore organizations included in the sampling frame were those that have a key role in WFD implementation. For instance, NGO with an agenda of protecting birds were not included as water does not constitute their main work focus and the surface waters in the reserve where birds rest and feed are specifically covered by other European directives. Similarly, marine and fisheries sector was not included in the sampling frame as this is regulated through the Marine Strategy Framework Directive. However, considering that water is not a clear cut subject, these aspects were still covered in the interview with participants working closely to such fields.

The development of the purposive sample was further supported by the use of a snowball technique, which involves interview participants giving referrals of people from their social knowledge that could give further evidence in support of the research needs (Biernacki and Waldorf 1981, Noy 2008, Handcock and Gile 2011). The starting point was getting in contact with the competent authority that hosts the head of water policy in Malta and is the major key informant on the implementation of the WFD. During the interview several potential interview participants were suggested, and with more interviews carried out more suggestions were made. With the exception of household water users, one or more representative from each of the water organizational network constituents was interviewed. Lack of primary data about household water users was compensated with data from the six policy documents that specifically target households, such as the FAO (2004) reporting on willingness-to-pay of Maltese households, and the inclusion of the online news media articles, whereby household water users have the opportunity to comment on news articles. Email recruitment of participants that the researcher was already aware of their role in the implementation of the WFD in Malta took place approximately one month in advance of the interviews to increase the chances of the availability of potential interviewees (especially when they occupy high profile jobs), provide further information about the research when this was asked for, and ensure good time management of the fieldwork

(Patel *et al*. 2003). Some potential interviewees were sent reminder emails and six replied to confirm their unwillingness to participate or make referral to other key informants that could substitute (including the Minister responsible for water in Malta). In these cases other key informants were contacted. The length of the interviews varied and depended on the time availability of the interviewee, the specific information sought from the interviewee as well as the pace of the interview. Most of the interviews took place at the interviewees' office or in public spaces. They were conducted in Maltese and voice recorded (notes were also taken as a precaution against possible failures in recording), and totalled nine hours' worth of dialogue. Approximately 70 hours were dedicated for transcription and translation to English (allowing the researcher to familiarise herself with the data). One of the interviews had two participants representing the same organization, the interview still ran smoothly as both participants were comfortable with each other's opinion and provided their personal experiences.

Two key issues to particularly note about the interview experience relate to the language used in communicating perspectives and the use of recording equipment. In Malta people tend to dialogue in three languages interchangeably, whereby Maltese is the mother tongue that predominates colloquial conversations, English is the language used at school and in formal communication in the workplace (e.g. writing of documents and emails), and Italian is used to a much lesser extent mostly by over twenty year olds to phrase specific expressions. No difficulties were encountered in translating the interviews in English as the researcher is fluent across the three languages and accustomed to such language interchanges when communicating with fellow Maltese people, and more importantly education in Malta is in English and as a result most key concepts relating to water management are commonly known and expressed in English. This implies that interviewees were able to communicate in the interview as they would normally do in their everyday life, an advantage that would have not been possible if a non-Maltese researcher were to conduct the research. With regards to the use of recording equipment, this method was preferred because it preserves the context in

which interviewees' opinions were expressed (Lee 2004). However, the use of recording equipment can result in reactivity, which refers to the potential change in behaviour of the interview respondent due to the obtrusive awareness of recording. Other methods such as having an additional person to take notes can still be regarded as obtrusive and present the same issues relating to reactivity of interviewees because their important views are still being recorded (Hardy and Bryman 2009). Such obtrusiveness was mitigated by briefing the respondents about the research and the ethical considerations followed, which are detailed below in Section 3.9 that offer confidence in how the data is used and to what purposes.

In late November and early December 2015 three more interviews were carried out. One interview was conducted in Malta with the key informant of the competent authorities and two interviews were conducted with two persons working in the Clean Water Unit of the Directorate General Environment of the European Commission in Brussels. It is important to note that the latter hold the position of 'Seconded National Expert' and therefore are not bestowed with the right to officially represent the European Commission. Rather, their views are based on their knowledge and experience of working at the Commission as well as their country of origin. The three interviews were conducted for data validation purposes (see Section 3.7) and to collect evidence about the wider European WFD context. More specifically, these interviews were conducted to provide the data with evidence rigour and assess the generalizability and applicability of the method. Contrary to previous interviews, the participants of these interviews were emailed a two-page research summary two weeks in advance. This ensured that their participation was highly informed given that they had time to reflect on their work within the organization they represent.

### 3.5.4. Online news media articles

The media has the potential of keeping the public informed on current, past and future issues (Wang *et al.* 2014). Media and communication have indeed been instrumental "*in defining 'the environment' and in defining it as an issue or problem for public and political concern*", and in recent decades have increasingly attracted researchers to their

study (Hansen and Cox 2015). Given this role, analysing the media portrayal of water issues is of particular interest to this research. The feasibility of doing a news media analysis in Malta stems from the fact that "*relative to its population Malta has an extraordinary diverse media landscape...there are fourteen daily and weekly newspapers, seven national television channels, more than a dozen radio stations and several online portals*" (Euro Topics 2016, online).

Drawing on the new media paradigm, which embodies the digital productions on webpages and computer-mediated communication (Herring 2004), online news sites were the medium used to provide complementary evidence to that previously collected from policy documents and interviews. The use of online news as a method of data collection is preferred over traditional news for a variety of reasons. Firstly, the availability of more space and time on the web make editorial procedures less strict and as a result online news has higher thematic variety (Sjøvaag and Stavelin 2012). Secondly, online news sites (as is the case for other forms of new media) offer digital platforms that facilitate civic involvement in reaction to the information published (Turnšek 2007), and therefore allow the inclusion of readers' comments in the empirical analysis of the news. Thirdly, there has been a migration of readers from the traditional print media to new avenues of receiving news, particularly in developed countries with reliable internet access (Mitchell *et al.* 2012, Beckett and Kyrke-Smith 2007, Domingo *et al*. 2008). This is also true for Malta as reports show increases in using the internet for reading/downloading online newspapers/news magazines from 14% in 2004 to 52% in 2012, putting Malta on a par with other European countries such as United Kingdom and Spain (Eurostat 2012). In 2014, 80.7% of Maltese households had access to the internet and 74.1% of these internet users read online news sites/papers/news magazines (National Statistics Office 2015). Given this increased readership of online news media, the analysis of its products is timely.

The crafting of the media analysis was guided from a combination of literature from varying disciplines that used electronic newspapers as a source of evidence (Gould and Company 2004, Dimitrova and Connolly-Ahern 2007, Shih *et al.* 2008, Xu 2011, Porter

and Hulme 2013, Bohensky and Leitch 2014, Wang *et al*. 2014, Maniou 2015). The first step involved the identification of online sources of news media in Malta in order to develop the sampling frame. This was compiled from information available on the official Government of Malta website (2014), which lists eleven media organizations in Malta, and onlinewspapers.com which lists twenty online Maltese newspapers. The online newspapers dedicated to sports, finance and leisure were omitted from the study. The remaining sources were searched using five identified search terms: 'water policy', 'water management', 'water framework directive', 'water', and 'ilma' (Maltese word for water). The search terms were selected on the basis of their relevance to the research subject. Some difficulties were encountered and led to the omitting of more sources from the study. For example, two newspaper published in Maltese did not have advanced search options and gave thousands of result pages. After searching the first ten pages which contained no relevant news articles, the sources were omitted. A timeframe from 01/08/2010 to 01/08/2014 was used to keep the sample manageable and timely. The chosen four years represent one year before the publishing of the first WCMP and the start date of collecting the articles. In total four hundred sixty-seven online news articles were retrieved using the five search terms. This meant that further refining of the sample was needed to ensure its manageability.

The online news articles were categorized according to their relevance to three topics which embody the research interest: WFD, water policy and water management. High relevance refers to articles that are about and explicitly mention the WFD, water policy or water management; medium relevance refers to articles that mention the WFD, water policy or water management in Malta but do not constitute the topic of discussion; and low relevance refers to articles that mention aspects with relevance to the WFD, water policy or water management in Malta but do not constitute the topic of discussion and the three keywords were only mentioned in passing. Other articles were discarded completely as a closer read proved that these were not relevant to the research and did not fit into one of the categories. Finally, the five news sources with the highest number of high relevance articles were included in the study (see Table 3.2).

These initially amounted to a total of ninety-eight articles but were reduced to sixty-eight (approximately fifty-six thousand words) during the analysis phase as some were confirmed to belong to medium or low relevance categories. The sample constitutes the body of text of each article, as well as transcripts of videos, figure labelling, and readers' comments. A total of two hundred and twelve readers' comments were present in thirty-six of the sixty-eight articles. di-ve, Gozo News and iNews are completely web-based news portals. Times of Malta and MaltaToday have the print edition and enjoy higher online readership as evident by the number of social media followers.

**Table 3.2:** Evidence sourced from an online Maltese news media sample

| **Online news media sample** | | | | | |
|---|---|---|---|---|---|
| Online news source | Times of Malta | MaltaToday | di-ve | Gozo News | iNews |
| Number of articles (68 in total = approx. 56,000 words) | 28 | 21 | 6 | 10 | 3 |
| Number of readers' comments (212 comments in 36 articles) | 134 | 62 | N/A | 8 | 8 |
| Social media followers (source) as recorded on 3 February 2016 | 125,783 (Facebook) | 96,699 (Facebook) | 6,982 (Facebook) | 1,187 (Twitter) | 22,577 (Facebook) |

## 3.6. Thematic analysis approach

Qualitative data analysis is a meaning making process of research evidence that has been systematically recorded and managed (Merriam 1998). The approach to thematic analysis adopted in this research was guided by established methods and relied on mixing deductive and inductive insights (Joffe and Yardley 2004, Fereday and Muir-Cochrane 2006, Braun and Clark 2006, Guest *et al*. 2011, Alhojailan 2012). Thematic analysis is similar to content analysis, but it focuses more on the qualitative aspects of the evidence rather than deriving numerical descriptions (Joffe and Yardley 2004). However, numerical descriptions were derived for the online news media analysis to give additional context to the evidence surrounding organizational capacity in the articles in terms of coverage of topics, spokesperson, and general tone of the article.

The five core components of organizational capacity developed in Chapter 2 were used as themes to organize the data corpus deductively. This was done manually and entailed

two main steps: 1) a first reading of the three datasets was done so as to become familiar with the data, 2) fifteen *Word* files were created i.e. each dataset has five files corresponding to the five capacity themes. These files contain tables with three columns labelled as: 'source reference', 'text' from the dataset that was cut and pasted, and 'notes' to record some initial analysis from the data collection and organizing process, for example: similarities in data, contradictions, and points requiring further data collection. This same process was followed for hard copies of the dataset that serve as backup and facilitate quick reference to the context of the evidence when analysing the data. Thus, different coloured highlighters were used to colour evidence pertaining to the five capacity themes across the three WFD Articles. Throughout the coding process, the definition of each capacity theme helped in the organizing of data into different themes. Once the evidence was organized into the five capacity themes for each the three WFD Articles, each theme was looked closer to identify sub-themes. The European Commission (2012a) document was used as a pilot to increase the researchers' confidence in sensing of themes. While computer assisted qualitative data analysis (CAQDAS) tools (for details and reviews of the various CAQDAS tools that are available see: http://www.surrey.ac.uk/sociology/research/researchcentres/caqdas/support/choosing/) can be of great help in the managing of research data, these are not seen as central to the analysis process of this research. With reference to the popular NVivo software, Welsh (2002) claims that "*in terms of searching through the thematic ideas themselves in order to gain a deep understanding of the data, NVivo is less useful simply because of the type of searching it is capable of doing*". This indeed is a key factor explaining the suitability of manual management of data for this research rather than CAQDAS. It allowed closer contact and higher control of the data corpus whose size was manageable, and contributed to the in-depth understanding of organizational capacity. More importantly, these factors make manual data management in accordance with the philosophical paradigms that guide this research and the associated epistemological frameworks – a practice that is commended by MacMillan and Koenig (2004).

The analysis allowed the exploration of each capacity component and the inductive development of capacity sub-themes. This led to the development of an organizational capacity thematic map that is reflective of the case of Malta. The capacity thematic map is therefore a representation of all the themes and sub-themes that were found across the three datasets. Useful knowledge across the evidence was found in the identification of patterns and story lines that offer an understanding of the WFD implementation in Malta. Chapter 4 offers some detail of the organizational capacity patterns observed in the three datasets, but given that the main purpose of using mixed methods was to provide complementary evidence, the thematic map (in Chapter 4, Figure 4.3) is reflective of the construction of meaning from the data corpus in its entirety and thus there was no weighting of the evidence according to the source. This is with the exception of situations where certain interview questions were purposely asked to clarify issues. No distinction is made between the two Maltese competent authorities of the WFD because of their small size, close cooperation and shared function in the implementation of the Directive. Data analysis happened concurrently with data collection. This was important as the three datasets constitute a voluminous (following organization and data reduction these became manageable) data corpus formulated over a prolonged period of time. Moreover, this allowed the emerging of initial understanding about the research aim and objectives, and identified issues and gaps needing clarification and addressing in consequent data collection phases. For example, skills and resources capacity were addressed more directly in the interviews as these were difficult to infer from policy documents. More importantly, this iterative process of data collection and analysis informed saturation as it led to a point in the data collection where no new sub-themes were identified i.e. thematic exhaustion was achieved (DiCicco-Bloom and Crabtree 2006, Bowen 2008). This means that more data would have added the volume of the data corpus but not necessarily the exploration of capacity issues.

Following the exploration of each capacity component, an assessment of the extent to which these were available, accessible and used within the competent authorities was

done. Organizational capacity was characterized according to the possible scenarios of the three states of capacity (mentioned in Chapter 2, Section 2.5) into high, moderate and low, which were determined with substantiated evidence from the data set and not merely subject to the interpretation of the researcher. High indicates that capacity is available, accessible and used, moderate indicates the lack of use of capacity that is available and/or accessible, and low indicates that capacity is neither available nor accessible. For instance, meaning extracted from the raw dataset on resources capacity component was constructed as low across the three WFD Articles in focus because there was unanimous agreement across the three data sources that resources are lacking. Cases of disagreement on possession of capacity, such as the availability of information and knowledge to implement Article 8, more weight was given to the data collected from the organization responsible of implementing the responsibility rather than the perception of others. This was supported by verification questions during interviews with the competent authorities and other government organizations to determine the validity of the assigned capacity status. The overall organizational capacity status of each WFD Article was then determined according to the average statuses of the sub-themes.

## 3.7. Data validation

Different theoretical underpinnings generate different criteria for judging quality and credibility of research (Patton 1999). For example, Lincoln and Guba (1985) posited that trustworthiness (the overall confidence of findings generated from qualitative inquiry) can be asserted through credibility (truth), transferability (applicability), dependability (consistency and repeatability of findings) and confirmability (neutrality of findings without evidence of researcher's bias) constitute criteria for qualitative research. In consideration of the theoretical underpinnings discussed in Section 3.2, the choice of the validity procedures for this research were informed by Creswell and Miller's (2000) two dimensional framework, which advances on the paradigm assumptions of Guba and Lincoln (1994). In contrast to other literature discussing validity in qualitative research, their framework considers both the assessor of the study's credibility as well as the researcher's philosophical underpinnings (See Table 3.3). Since there are different ways

of how these different validity procedures can be achieved, more detail of how this research achieved validity is necessary. In this regard, other literature specific to certain aspects of validity has also been consulted to improve the understanding of the procedure, namely: Patton (1999) and Miles and Huberman (1994).

**Table 3.3:** Validity procedures within qualitative inquiry (Adapted from: Creswell and Miller (2000, p.126))

| **Paradigm assumption/Lens** | **Constructivist paradigm** | **Postpositivist paradigm** |
|---|---|---|
| Lens of the researcher | Disconfirming evidence | Triangulation |
| Lens of the study participants | Prolonged engagement in the field | Member checking |
| Lens of people external to the study | Thick, rich description | The audit trail |

The presentation of the results in Chapter 4 is highly reflective of the 'lens of the researcher' and the integrity efforts undertaken in the analysis of the evidence. Throughout the analysis of the data there was a continuous search for 'disconfirming evidence' that could challenge the overall statuses determined for the performance of the three selected WFD responsibilities in Malta and the organizational capacity of competent authorities to implement them. Failure to find disconfirming evidence increases the confidence in their assigned statutes, and the clear statements that attest to these statuses have been extracted from the data corpus and presented in tables to highlight the evidence base. This procedure is highly linked to 'triangulation', which has been achieved through the testing of consistency both across and within the three sources of evidence. Their resultant complementarity increased the confidence in the overall findings.

The 'lens of the study participants' was achieved by spending a 'prolonged engagement in the field' as four months were spent in Malta for the purpose of collecting interview data in-person. Water-related stakeholder meetings organized by government organizations to provide information and consultation of ongoing projects were also attended. Although these did not contribute to the evidence base of this thesis, they were useful to keep close contact with the water management life in Malta and capture a better understanding of the context surrounding the research evidence. It also helped to reinforce the researcher's personal position of an outsider, which contributed to maintaining objective perspective of the research subject. 'Member checking' was

achieved by returning to the competent authority hosting the most informative representative on WFD implementation in Malta to discuss the information elicited from the results including the constructed thematic map of organizational capacity of WFD competent authorities. In most cases the interview provided support to the evidence previously collected, it also offered updates to situations that had since changed and further insight/reaction on areas where is did not agree with perceptions expressed by others. This was particularly the case on the issue of transparency of the competent authorities who insisted that a lot was being done to be as transparent as possible.

Chapter 4 also offers 'thick, rich description' of the organizational capacity pathways undertaken in Malta throughout the implementation of the WFD. These are "*deep, dense, detailed accounts*" (Denzin 1989, p.83) of how the combination of available, accessible and/or use of the various components and sub-components of organizational capacity result into implementation of the three selected WFD provisions. These in-depth and holistic understandings of organizational capacity "*produce for the readers the feeling that they have experienced, or could experience, the events being described*" in the study (Creswell and Miller 2000, p.129). The 'lens of people external to the study' was conducted for the validation of themes and sub-themes in order to "*build reliability in themes analysis coding*" (Hosmer 2008, p.52). A researcher without any involvement in this research was briefed about the research and asked to code an interview transcript. Notes were then compared and discussed to test if the identified themes are compatible and reflect on the feedback.

## 3.8. Reflections and limitations

Personal reflection on the research suggest that there are a number of limitations in terms of generalizability to consider, namely:

- Shared RBD aspects and hydropower (and the influences from this powerful stakeholder in Europe) were not covered in this research as they do not have relevance to the case of Malta. However, some similarities in the development of sub-components of organizational capacity are foreseen to match those developed

for the case of Malta. Similarly, the research focussed to three Articles of the WFD, which although representative of the main WFD text much is not covered.

- Several concepts used in this research are highly contested, for example: institutions, organizations, governance, capacity, and small state. These tend to be interpreted according to the background of the people using them. However, dealing with complex concepts is standard practice in social sciences.
- In understanding effective water management as fulfilling policy objectives, it means that sustainability can be achieved if it is actually reflected in the policy objectives, otherwise theoretically there is no link between the two concepts. Effective water management is therefore understood to be more of a performance benchmark rather than an indicator environmental condition.
- The assumption is made that those wishing to use the method proposed in the research possess the capacity to engage in rigorous institutional analysis.
- The learnings offered in this research are date and place specific, thus considering how dynamic organizations are, the research has an element of retrospective. The situation at present in Malta may have evolved since data collection period. The construction of knowledge in the thesis is based on: 1) existing literature on water management, institutions and organizations, organizational capacity conceptualizations and small state context, 2) three data sources on water management and implementation of the WFD in Malta, 3) the researcher's interpretation and meaning of these two major holders of knowledge. Confidence in results is based on the complementarity of the data, which may not necessarily be an actual representation of reality. Indeed, several inconsistencies were encountered in earlier documents, but interviews gave the opportunity to address these issues more in-depth. There is therefore an element of uncertainty. As common in social science approaches, there is also potential bias in the selection and interpretation of qualitative data. Selection and identification of capacity components are based on researcher value judgement, with the possibility of misinterpretation. However, validation measures described in Chapter 3 (Section 3.6) ensured that subjectivity elements were minimized as much as possible.

Another important aspect is that the researcher is herself Maltese. This means that the familiarity to the research context allowed appreciation and (and less time consuming) understanding of the findings, ease to carryout fieldwork and better communication with respondents. The researcher's personal commitment to the water environment, lack of employment in water industry in Malta and exclusion from Maltese political life (both as a choice and due to living abroad) ensured subjectivity were kept to a minimum.

- In adopting an institutional perspective to the research, it means that change aspects that are more common of governance approaches are not the focus of the study. This thesis focuses on institutions as these constitute a more specific and rational focus. This is merely making the cut of the research as interest was in understanding organizational capacity of an organization and not the changing capacity of an organizing organization.
- In Chapter 4 it transpires that the water organizations in Malta, especially government ones, experience certain characteristics that are consistent with small states literature, such as protectionism and insularity. For this reason, there is the possibility that these outlooks have tainted the interviews or produced 'group think' which in turn distorts perspectives.

## 3.9. Risks, practicalities and ethical issues

Organizational research is inseparable from issues of ethics (Bell and Wray-Bliss 2009). The interviews conducted as part of this thesis consulted guidelines on risks and ethical practices offered by Cranfield University and the Association for Research Ethics. Moreover, a short course offered by University of Oxford on how to conduct interviews was carried out in 2013. The fieldwork has been approved by Cranfield University Research Ethics Committee as a low risk proposal and is based on the following ethical principles:

- Voluntary and informed participation - at the start of every interview the participants were briefed about the research project, their rights and the general ethical research practices. This included: 1) providing a brief research background

and explaining the planned used of research data, 2) providing the participants with the right to refuse to answer questions and withdraw from the research within an agreed time period.

- Protecting anonymity, confidentiality and data storage - the practical level of confidentiality and protection of their identity was explained to participants. Measures to protect anonymity included: 1) assigning a number to each participant instead of using named in transcripts, 2) password secured storage of the data in accordance with the Data Protection Act, 3) only the researcher and her two supervisors had access to the data. Both the interview recordings and transcripts are destroyed upon research completion to avoid misuse of the data by third parties.
- Obtaining informed consent - following the debriefing, each participant was asked to sign a consent form (refer to Appendix C) and given a copy containing the researcher's personal contact. All participants signed the consent forms and accepted to be recorded.
- Follow-up and appreciation of participants' contributions – participants were asked if they wanted to receive a copy of the interview transcript and make additional comments following the interview. The participants who expressed an interest in research results were noted for the dissemination of knowledge at the post-thesis completion stage.

## 3.10. Conclusion

Building on the main outcome of Chapter 2 (the core components of organizational capacity), this Chapter has contributed towards the achievement of the second research objective by providing details about the research strategy and methodological framework developed in this research. The adopted methodological process for understanding the organizational capacity of competent authorities in Malta is not linear, rather it follows an iterative approach to data collection and analysis from three complementary methods. The three methods offer volume of data that allows the testing and illustration of the application of the five core components of organizational capacity in terms of documented statements and perceptions. The choice of adopting a

mix method approach reduces systematic bias in the data and offers validity and reliability of the findings. The remaining chapters report on how the empirical findings specific to the case of Malta inform the achievement of objective three and four.

# 4. Results

## 4.1. Introduction

Following the review of major understandings of water management, the development of the core components of organizational capacity (Chapter 2), and the establishment of the research strategy and methodological framework (Chapter 3), this chapter details the study findings. The chapter continues the addressing of the second research objective that was partially achieved in Chapter 2 by providing an overview of the Maltese WFD competent authorities and describing the characteristic features of the organizational network they are responsible for coordinating. It then continues to offer results relating to the organizational capacity of the competent authorities to implement the three selected WFD provisions (Article 8, 9 and 14). This narrative account is supported with data tables (see Appendix D) providing evidence from the dataset that confirm the possession (or lack thereof) of the assigned organizational capacities. The Chapter then initiates the addressing of the third research objective with a discussion of the results that provide insight on situating Malta's experience within the wider European institutional perspective.

## 4.2. Maltese WFD organizational network

The pre-existing institutional arrangements for water management in Malta mean that policy-making and relevant decision functions are the direct responsibility of central government. Since Malta's accession to the EU and the transposition of the WFD there have been several changes in the country's WFD organizational framework, reflecting the dynamic organizational environment paradigmatic of water management. A significant change in institutional arrangements took place in 2013 when a new government was elected. This institutional change is reflected in some documents that reference previous organizations with water related responsibilities and in some responses of interviewees who had the opportunity to work under the previous as well as the current public administration. Other changes have also taken place during the course of this research (e.g. cabinet reshuffles and renaming of one of the competent

authorities), however, their significance is limited as the people (i.e. their capabilities) working in government organizations with water responsibilities tend to remain unchanged. In fact, most of the water related organizations in Malta tend to be composed of people that have occupied a variety of roles across different organizations, noticeably in government organizations.

At the time of the closing of data collection period (November 2015), the WFD responsibilities lie within the Office of the Prime Minister and Ministry for Energy and Health, who host the two competent authorities for Malta: Malta Environment and Planning Authority (MEPA) and Water Conservation Unit (WCU). The former is responsible for the coordination and implementation of the WFD for coastal waters, as well as some protected inland surface waters. In 2013, the role and responsibilities previously occupied by the Malta Resources Authority (MRA) were transferred to WCU, such that the MRA now holds the role of water regulator. The remit of the WCU includes groundwaters and all other inland surface waters that do not fall under the responsibility of MEPA. The main role of the WCU is the co-ordination of water policy in Malta including the development and implementation of a National Water Management Plan which reflects and builds on the objectives of the WFD as well as other European directives (Sustainable Energy and Water Conservation Unit Order 2014). The strong links between the two responsibilities have made the WFD a priority of the WCU. Given the shorter timeframe of the WCMP, the WCU aimed to publish the two documents in parallel so that implementation of the WFD feeds into the longer ten-year timeframe of the National Water Management Plan and stretches to the third WCMP. However, this was eventually not realised, mostly due to the more demanding WFD timings and increasing pressure from the European Commission for Malta to publish the second WCMP in line with the Directive's requirements (as some other Member States had already done so). Indeed, the European Commission (2012a) had specifically noted Malta's lateness in publishing and adopting the first WCMP. The NAO (2012, p.31) mentions similar experience whereby "*the lack of availability of appropriate resources constrained Government to prioritise the drafting of the WCMP*" over that of the MRRA

(2012). Being separate entities with distinct responsibilities, the two competent authorities do not compete for resources. Several non-government respondents criticise the relatively large sized MEPA that despite having an 'all-encompassing competency' it has historically given precedence to its planning directorate rather than the environment one, which is mostly evident in the allocation of resources that create an imbalance in the organization's effort to be integrative across its working areas. In fact, at the time of data collection there was only one person working on the WFD in MEPA (greatly limiting accessible opportunities such as twinning projects) and those many respondents aware of the then forthcoming plans for a reorganization of MEPA expressed strong expectations for the resolution of this shortcoming.

WCU hosts the head of water policy (more commonly referred to as 'Water Director' in the European Commission context) and continuously engages with relevant sections of MEPA and several identified WFD (and general water) stakeholders to together achieve the WFD objectives. This includes for example collaboration with the Ministry of Transport and Infrastructure to launch a programme of rehabilitation of public water reservoirs (Ministry of Finance 2015). The first WCMP (2011, p.14) clearly states that its success "*depends fully on the cooperation of several different stakeholders and the public itself*". Three major groups responsible for implementing the plan are identified in the WCMP: 1) 'primary stakeholders' (including government agencies and regulatory authorities with a leading role in implementation of measures), 2) 'secondary stakeholders' (involved and/or influenced by the implementation of measures), and 3) 'representatives of the general public and opinion leaders' (key players for dissemination of information and raising awareness of general public). The multiple organizations that are involved in WFD implementation in Malta, hereafter referred to as the organizational water network, are shown in Figure 4.1. The coverage of these organizations in representing different members of society constitute what the European Commission (2012, p.3) has described as "*a national approach in Malta in RBM planning*". Figure 4.2 (scoped during the validation interview with WCU) presents a simpler version of Figure 4.1, whereby the water network is categorized into five

hierarchal levels with a cascading effect on function: policy organizations, regulation organizations, operating organizations, user organizations, and research and training organizations throughout. Competent authorities are constituent parts of the regulating entities whose function is to follow the decided government's direction.

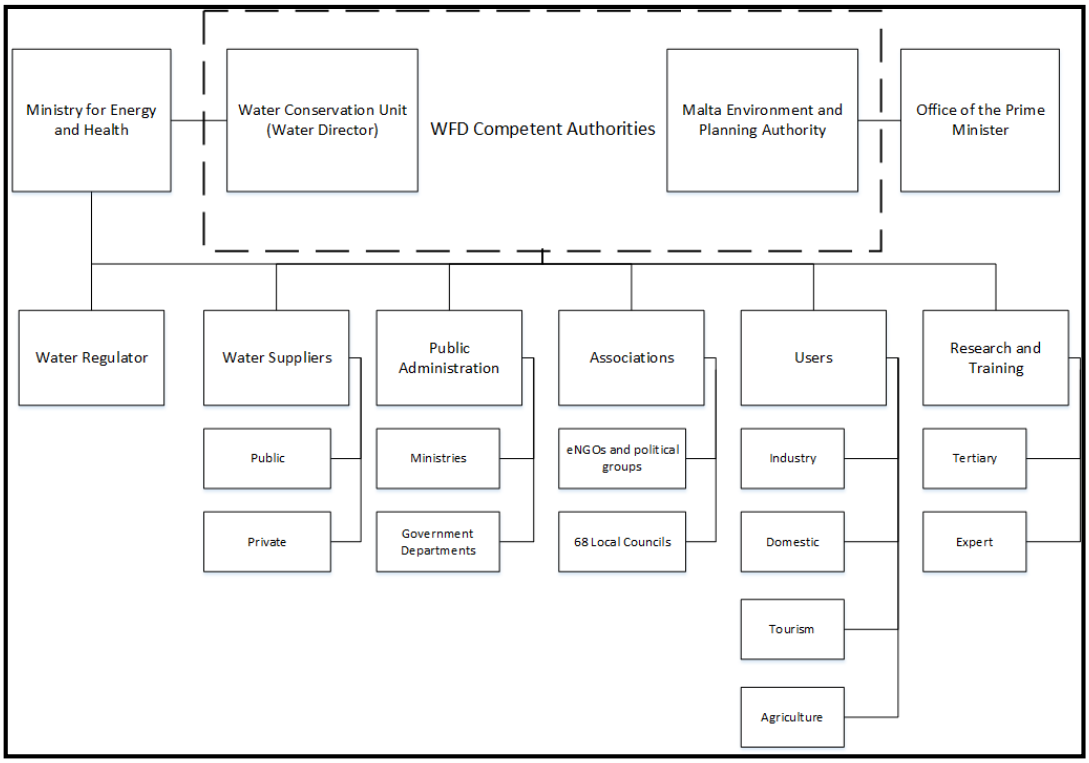


**Figure 4.1:** The Maltese WFD organizational network

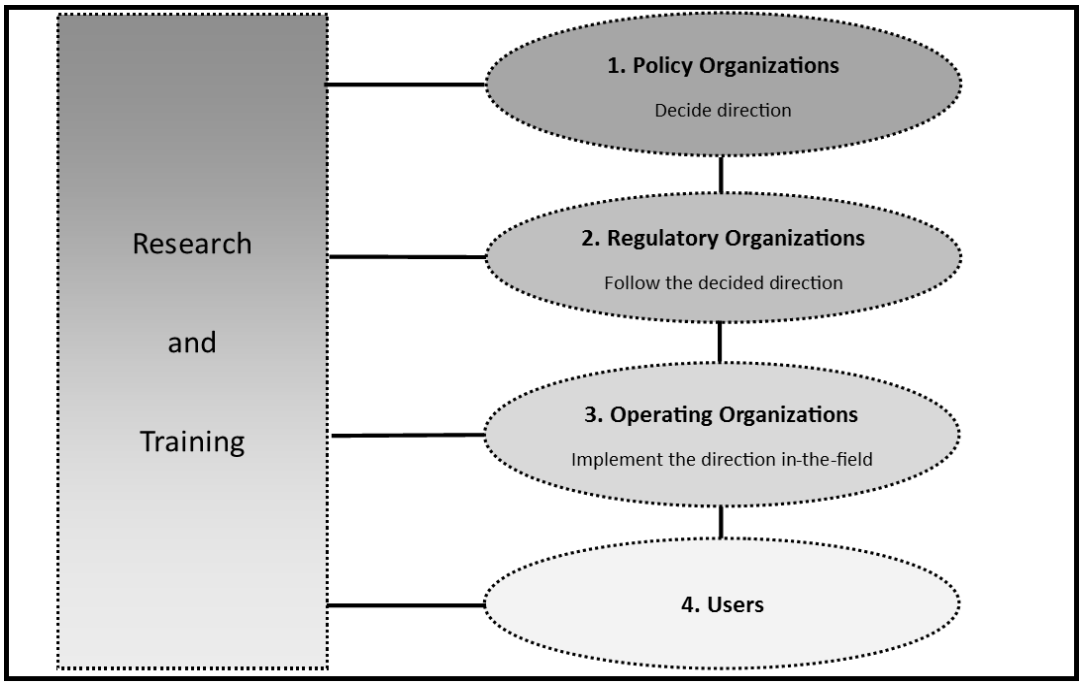


**Figure 4.2:** The major Maltese institutional actors in WFD implementation

Evidence from Malta describes the water network as compact, relatively simple, highly fragmented, skilled, but with gaps and actively changing (Table 4.1). In some cases, these label descriptors reflect the same wording used in the evidence, which quite interestingly was fairly consistent across the dataset. This implies that these characteristics are not new but have been used (quite possibly) repeatedly akin to buzzwords. In other cases, the descriptor captures the pattern in the meaning that is collectively expressed in the evidence. Therefore, the descriptors are the result of an inductive process rather than inductive. These features are highly interdependent of one another, and they not only provide context to the results given in subsequent sections but also have a bearing on them. 'Compact' refers to the fact that water roles in Malta are stretched to cover the range of responsibilities across the institutional framework. Considering the crosscutting aspect of water this means that not everyone working on the WFD has relevant training or expertise; 'understanding of the WFD is taken more from its reading, I was never given training on it and to be honest I do not know its nitty-gritty details' (Water supplier: public). Moreover, the limited human resources capacity puts a strain on the workforce as time to perform the volume of tasks (e.g. reports, meetings and attend exchanges in EU) is restricted and skills (that would be available with additional personnel) are also limited. On the positive side, this characteristic provides the water network with valuable knowledge about the organizations and individuals that form part of the network, and helps foster a climate of high inter-organizational cooperation. For instance, the WCU has access to informal interaction and feedback from people with whom its personnel became friends due to limited and overlapping water career pathways (most of whom are engineers) in Malta, and that nowadays are colleagues working in other government organizations with expert knowledge on water management. Indeed, most people currently working on water in government organizations have occupied different roles across different organizations such that they have experience of how other organizations work. The competent authorities stress compactness as a characteristic that highly differentiates Malta from other Member States in European meetings, such as those held as part of the CIS; 'if WCU has a problem it calls MEPA and solves it quickly as within five minutes they can

meet each other. Other member states do not have this advantage and meetings have to be planned in advance and plan a day for it' (Competent authority). While it can have its strengths and drawbacks, a compact institutional water network also means that policy-making and decision-making is in the hands of the few.

Despite being compact, the small geographical size of Malta relative to other European Member States means that the organizational configuration is also 'relatively simple'. This is because the number of organizations engaged with water management issues is reflective of the size of the single RBD; 'Malta has a simple administration when compared to for example Germany or Italy that have different authorities for its several river basins that cut across state regions. Other countries have representatives attending CIS groups as for them it is impossible to have the presence of their water directors all in one sitting' (competent authority). Yet the roles and responsibilities of organizations constituting the Maltese water network remain unclear for several of its members. Lack of clarity carries implications such as lack of transparency and limited understanding of many water related initiatives especially evident in disagreements between government and non-government organizations that tend to be interpreted as lack of leadership capacity of decision-makers. The National Floods Relief Project, with a cost of fifty six million euro (Maltatoday 7 October 2011), is a prime example of this, whereby many non-government organizations cannot configure the government's position of speeding the course of rainwater to sea (which has to be pumped and desalinized again for the production of drinking water) rather than capturing and diverting much more volume of water to replenish the aquifers and help meet WFD objectives regarding quantitative status of groundwater; 'had the project been addressed appropriately other issues could have been addressed as well such as encouraging people to use the accumulated water, reduce the problem of civil protection, and reduce the overload in the sewage system' (Association: eNGO).

This lack of clarity on roles and responsibilities of the water institutional network components is mostly rooted in the 'highly fragmented' institutional network. This means that competence and capacity are spread and stretched across different

organizations who are responsible for different types of water bodies and aspects, thereby increasing the likelihood that accountability for long-term water management responsibilities may be undermined. Some respondents argue that fragmentation is partly due to the absence of a ministerial portfolio dedicated to water, while others contend that the small size of Malta does not permit such a ministerial configuration. Opinions stand divided on the desirability of the WCU. While several respondents and statements in media articles highly commend the founding of a nationally unprecedented organization entirely dedicated to water with the potential to increase the visibility of water in political circles, others see it as reinforcing the continued fragmentation of the water organizational network. In recognition of this characteristic, competent authorities have attested their leadership capacity through the set-up of an inter-ministerial committee to give direction to the development of the first WCMP across government ministries. Both the competent authorities and the various ministries sharing water responsibilities became more informed about the work undertaken by each other, and as a result they were able to identify gaps, overlaps and improve the alignment of policies. For instance, one of the stakeholders is the Ministry of Finance, which needs to be aware of certain priorities and needs for budgeting purposes in order to better facilitate the WCMP. Governance and capacity building measures included in the second WCMP (2016) will seek to review the legislation of the government entities involved in water management, directly or indirectly, to make sure their legal status and resources match the work they are required to do. Such tackling of existing grey areas on roles and responsibilities is regarded of utmost importance; 'in my opinion, of the second WCMP, this will be exactly the do or die measure' (competent authority). The inconsistencies evident across the descriptors are consistent with protectionism and insularity typical of small states where for example people working in government offices tend to be few and carry a lot of responsibility across different areas in their work, as was mentioned in Section 2.6.

Evidence from Malta strongly suggests that the water network is 'talented' with most of the skills and expertise perceived as needed to implement the WFD being nationally

available and/or accessible; 'technical people in government are up to standard as they know what there is, what is needed and how to implement' (research and training: expert). Yet, the competent authorities recognise the challenge of accessing talented individuals working closely on the WFD as these ideally possess interdisciplinary skills ranging from hydrology, hydrogeology, public engagement, data management (ideally statisticians with a background in chemistry), and economics. Rather, engineering skills largely dominate most talents. The stakeholder involvement throughout the first WCMP largely facilitated the availability of a pool of knowledge, whose contribution was especially significant in the development of PoMs including the identification of measures, making sure they both coherent and cost effective. Associations, Users and Research organizations also contribute their talents through the production of documents, creation of projects and eco-innovation. However, as will be evidenced further below for the three selected WFD provisions, the network is heavily challenged by an inability to effectively deploy the potential it possesses, most notably in the allocation of resources. For instance, the government's estimate of €200 million in capital investment for addressing the WFD obligations (Maltatoday 7 October 2011) is regarded as a heavy under-estimation in TPPI (2015), reinforcing earlier comments on lack of transparency as well as trust in Maltese Government. The importance of allocation of resources is highlighted in the NAO (2012) report warning that satisfaction of EU targets can be unsuccessful due to Malta having insufficient administrative capacity at different departmental levels and lack of adequate management information systems, which in turn result in compromises to the quality of enforcement of the implemented measures.

Notwithstanding that the institutional water network is perceived as talented, there are several opportunities which if explored can supplement the existing water network with other organizations that can fill in the missing 'gaps' (i.e. roles and responsibilities), such as an independent policy institute informing the future of water policy options. Addressing these organizational gaps is important because, for example, while consultancy firms can supplement the competent authorities' organizational capacity in

terms of gaps in knowledge, skills, and resources, the data indicates that consultancies lack the organizational capacity that government authorities are ideally designed to have; "*they seldom contain either the economic or sector analytical skills required. They have not been established and staffed to meet such requirements, even if they are reluctant to admit that*" (TPPI 2015, p.47).

The roles and responsibilities of some of the organizations within the water network are 'actively changing', notably: (i) the relatively recent set-up of the WCU, (ii) an expected re-organization of MEPA, (iii) local councils becoming more actively engaged with water issues as representatives of their communities, (iv) the lower influence the public water service provider has on policy, (v) the indication of possible phasing out of private water supply (water-tanker operators) due to declining economies of scale and profits, (vi) the setting-up of a water and training centre to enrich the water network with skilled individuals, and (vii) the private sector's increased commitment to include water aspects in their corporate social responsibility efforts (with benefits in profits and social standing).

**Table 4.1:** Describing the Maltese WFD organizational water network

| Descriptor | Reference | Statement |
|---|---|---|
| Compact | EC (2012, p.3) | *"The fact that the relevant authorities and stakeholders involved in the implementation of WCMP and decisions in other sectors such as industrial installations are the same could ensure that these are in line with the environmental objectives in practice".* |
| | TPPI (2015, p.46) | *"Due to its size and limited revenues, Malta's government is small, and stretched to cover even its most basic responsibilities of legislating, and managing public investment programmes. In most ministries, the number of staff with sector technical and analytical skills is very limited and they invariably have to perform a large number of administrative duties".* |
| | Competent authority | 'The good thing about Malta is that the institutions are small and most of the times people know each other, so intra-institutional interaction and consultation is much easier'. |
| | Competent authority | 'If WCU has a problem it calls MEPA and solves it, within five minutes they can meet each other. Other member states do not have this advantage and meetings have to be planned in advance and plan a day for it' |
| | Public administration: government department | 'We have strong communication with WFD competent authorities and regulator, in many cases only a phone call away without the need to set an official meeting'. |
| | Water regulator | 'Considering that the WCU is in the same building, it is easy to refer to each other. The background of most people working here comes from WSC so there is some affinity towards water. WSC do not like this because they come to us with a proposal but we know the tricks of the trade'. |
| Relatively simple (but not clear) | EC (2012, p.3) | *"The co-ordination mechanisms that were in place during the preparation of the river basin management plan (RBMP) between the two main competent authorities are unclear as well as any co-ordination with other Ministerial departments".* |
| | Competent authority | 'Malta has a simple administration when compared to for example Germany that has different authorities for its several river basins. Other countries have representatives attending CIS groups as for them it is impossible to have the presence of their water directors all in one sitting'. |
| | Competent authority | 'There is the need for clarification of roles as certain grey areas need to be addressed'. |
| | Public administration: government department | 'Entities involved in projects get confused as to who should have the responsibility to do certain tasks. This is a challenge for the entities involved, let alone for outsiders'. |
| | Research and training: expert | 'When you ask for information from an entity they reply saying that it is not their responsibility, and so forth'. |
| Highly fragmented | FAO (2006, p.65) | *"There is scope for improvement in all aspects of water governance. Decision-making is fragmented and policies that affect water supply and demand are poorly aligned".* |
| | TPPI (2015, p.46) | *"The talent is not collected within discrete institutions which have a long-term responsibility, not just to carry out the initial analysis, but to support progress within a sector by continual impact evaluations, targeted research, and an updated information base".* |

| | | |
|---|---|---|
| | WCMP 2011, p.98 | *"There is also a need to move away from the current sector based practices and move towards integrated management of water resources. An integrated approach to water management will set up clear processes and mechanisms to enhance cooperation among all entities and ensure synergies between sectoral measures. Integration is also crucial to the financing and successful implementation of these* [WFD] *measures".* |
| | WCMP (2011, p.8) | "*The implementation of the Water Catchment Management Plan for Malta has achieved a new level of integration of water policy through: i) providing a single framework for the management of different water categories (surface and groundwaters), ii) integration of water policy across sectors, and iii) promoting stakeholder and public participation dialogue throughout the development and implementation of the management measures*". |
| | Competent authority | *'Biggest achievement and challenge of implementing the WFD was to bring everyone around the same table as water basically touches everything and has several departments involved and to develop the RBMP everyone had to meet'.* |
| | Competent authorities | [On success of interministerial committee] 'ownership of measures does not depend on MEPA, WCU and MRA, but depends on a joint effort of all the government stakeholders'. |
| | Water regulator | 'The set-up of WCU means that it has taken resources and expertise that use to belong to MRA's, leaving it somewhat challenged'. |
| | Associations: eNGOs | 'The Maltese water organizational framework is fragmented by design, the separation of management of surface water from groundwater removes a physical link, and it is evident when for example an authority responsible for water treatment plants ensures the treatment of the water it receives but does not control what people put in the system because that is not their responsibility. The set-up of the WCU breaks the organizational framework even further and takes away certain authority from the Regulator'. |
| | Associations: eNGOs | 'The difficulty is the fragmentation of organizations and responsibilities, which result into fragmentation of resources. The larger the ministerial remit, the less opportunity to address water'. |
| | Research and training: tertiary | 'Aquifer management should be established by national policy, the initial water policy was not really well developed. Right now we are talking about a water plan that is being developed and not completed yet, so you won't find one completed policy document. The early policy document was very weak in my opinion'. |
| | Research and training: tertiary | 'Integration as in the sense of 'integrated water resources management' should be the priority of the demerger planned for MEPA to overcome fragmentation of responsibilities within the organization itself'. |
| | Times of Malta (24 June 2012) | *"In the light of such a scenario we need to avoid fragmentation and duplication when addressing such daunting tasks. I am saying this because although the main regulator remains the Malta Resources Authority, we have had input from various sources which risk stepping on each other's toes – the WSC, the MRA, the Malta Environment and Planning Authority as well as the Climate Adaptation Report".* |
| | Maltatoday (1 December 2012) | *"It is pointed out by the EU report that both the MRA and MEPA have responsibilities relative to different aspects of water policy… The report implies that this fragmentation is an underlying factor in an unsatisfactory co-ordination with other authorities, Ministries and Departments relative to water policy issues".* |
| Talented | TPPI (2015, p.11) | *"Creation and management of a long-term Water Plan requires a level of analysis and information generation for which the Government does not currently possess the capacity".* |
| | TPPI (2015, p.46) | *"Malta is not deficient in talent, but it is deficient in the utilisation and management of that talent. In addition, the talent is not collected within discrete institutions which have a long-term responsibility, not just to carry out the initial analysis, but to support progress within a sector by continual impact evaluations, targeted research, and an updated information base".* |

| | | |
|---|---|---|
| | WCMP (2011, p.99) | *"To get the expected results, public authorities will need to give enforcement a priority in terms of organisation, training and when needed, allocation or reallocation of human and financial resources".* |
| | Competent authority | 'WCU are 3 people so they have more human resources than MEPA, they have more opportunity to get involved in projects, such as twinning projects…The lack of human resources leads to minimal attendance of CIS working groups and it also means less participation in projects as these would require a project leader to deal with preparations and paper work which can be quite exhaustive…Resources issue is in the pipeline to be addressed with the planning of demerger, calls for environmental officer have just been issued' |
| | Competent authority | 'It is more an issue of lack of resources rather than skills deficiency. In the new WCU and new Ministry water portfolio there will be capacity building as it is one of the important things that were discussed in the beginning'. |
| | Water regulator | 'The competent authorities are heavily understaffed'. |
| | Water suppliers: government | 'We have the skills necessary to do our work, the issue is more to do with financial resources'. |
| | Associations: political group | 'MEPA's resources are primarily located in the planning directorate not in the environment directorate. Therefore, the environment directorate suffers from a lack of human resources. Coordination remains a key challenge for the competent authorities'. |
| | Research and training: tertiary | 'There are very good people in government organizations. If we implement what they have produced I think we can make a difference. The University of Malta has produced the current key players of WSC and MRA, including the engineers who have made the WSC successful and made Malta a leader in desalinisation, a water distribution system with high coverage and the sewage treatment plant'. |
| | Research and training: tertiary | 'If with what we have with administrative resources today we can implement that which is possible, we would already have done a big step, because most of them are in favour of the government – in favour of the state, from a financial point of view'. |
| | Research and training: expert | 'Government officials and technical people are up to standard as they know what there is, what is needed and how. Given their heavy workload, their WFD expertise may be somewhat limited, and thus more support and attention needs to be given to these understaffed organizations'. |
| | Times of Malta (30 March 2014) | *"After years of mismanagement, the island's water supply is in crisis".* |
| | Times of Malta (24 February 2014) | *"The announcement that the Minister for Energy and Water Conservation, Konrad Mizzi, has set up an interministerial committee to coordinate efforts for a long-term strategy for the preservation of water resources is a significant watershed in public policy on water conservation".* |
| | Times of Malta (24 June 2012) | *"The minister not only conceded that the EU targets for the implementation of a water catchment plan for groundwater will not all be met by 2015, but he also attributed this to the failure to ensure that all the necessary structures will be in place on time".* |
| | Maltatoday (28 October 2010) | *"There was "no budgetary allocation to beefing up the Water Directorate – the entity responsible for controlling 8,000+ private boreholes, and WSC (and its massive infrastructural projects and operations), introducing much-needed water laws, enforcing those same laws and regulations, and meeting Malta's obligations with regards to the all-encompassing EU Water Framework Directive"".* |
| | Maltatoday (5 February 2009) | *"They highlighted the need for more financial and human resources for the development of the plan, as well as more education to water users. They also appealed for political consensus on the direction of the water management plan, since the plan's timeframes will necessary span across a number of political administrations".* |
| Gaps | NAO (2011, p.11) | *"Opportunities to undertake joint-research studies on groundwater and the impact of climate change in collaboration with international institutes are to be explored".* |

| | | |
|---|---|---|
| | TPPI (2015, p.46-48) | *"In the long-term, it is imperative for Malta to establish at least one policy and research institute able to develop policy frameworks for target sectors. In the absence of such an institute, to develop a policy framework for water…Malta will have to engage assistance from outside…It is further proposed that a post-graduate course in Policy Analysis (with a diploma version for working specialists in industry and government) be offered by the Department of Economics at the University. The Master's course in Hydrology and Water Studies, started in 1995 but discontinued in 1997, should be re-introduced".* |
| | Times of Malta (6 May 2013) | *"Malta's lack of a water policy institute makes it "highly vulnerable to bad advice" about the scarce resource from political and commercial interests, local experts have warned".* |
| Actively changing | FAO (2006, p.60) | *"Tourism demand should not increase appreciably in the near future as it has become cheaper for hotels…to install private RO units rather than buy water from hawkers or the WSC…Moreover, the RO unit is a more reliable form of supply of better-quality water. Therefore, any increases in tourism demand are expected to be met by private RO production, with the dependence of the sector on private groundwater sources gradually decreasing".* |
| | WCMP (2011, p.99) | *"An administrative framework is required to ensure the effective and timely implementation of the WCMP. The Interministerial Water Committee will oversee the implementation of each measure together with the leading authority and responsible entities during the life time of this plan".* |
| | Competent authority | 'The role of policy from the Regulator has been separated – this has its own advantages. The competent authority change from MRA to WCU has not had any effect on the work of MEPA because the people remained the same. Certain functions have been retained by MRA such as tariff mechanisms. So MRA is now more of an economic regulator in the water sector. More of an impact were the recent losses of people from MEPA, however, this will be addressed in the demerger and the setting of an environmental directorate'. |
| | Water regulator | 'The establishing of the WCU was an important move from the government's side as WFD will be given more importance and even more so the protection of groundwater – I think it was a step forward'. |
| | Water suppliers: private | 'The business of water tanker operators use to be more profitable because the price of diesel needed to transport water was not as high. The competition between the bowser businesses kept the price of water the same for the past 15-20 years, but the price of diesel continues to increase. Eight trips per day cost approximately 120 euro diesel, plus the wear and tear factor of the tanker. The situation keeps worsening for this business as expenses continue to increase. If the price of water increases more, it might be the case that the business will have to close'. |
| | Associations: eNGOs | 'The government's current proposal is to demerge, but a situation of less fragmentation would be preferable so that functions of the current three directorates of MEPA (planning, environment and resources) become environment centric. This would also fulfil the scope of having higher coordination mechanisms'. |
| | Associations: local council | 'The role of local councils is changing. Until recently, the role focussed on road maintenance, rubbish collection, street lights and cleaning. Today it is developing to become a key government stakeholder with the responsibility to protect citizen's rights and purport the voice of its residents'. |
| | Research and training: tertiary | 'For the first time there is a clear stratification between the policy, the regulatory and the operational functions. Malta has evolved from having a ministry responsible for water, but without the policy responsibilities or policy functions so that policy was formed by the most powerful (well resourced) stakeholder i.e. the WSC, to the creation of MRA, where we stayed with the misnomer that the regulator does the policy. But now from the administration we have a clear break on policy function, which is becoming centralised'. |
| | Research and training: tertiary | 'MCAST has set-up a water and training centre to address skilling needs of Malta. In the past WSC had the Institute of Water Technology, which has now disintegrated. There has not been any organization providing this type of skilling at a professional level to those who need it'. |

## 4.3. Organizational capacity profile of Maltese competent authorities

The description of a capacity profile of the Maltese competent authorities in their implementation of three selected WFD responsibilities is generated from empirical data collected from policy documents, semi-structured interviews and online news media articles about the case study. As was detailed in Chapter 3 (Section 3.6), the organizational capacity status is reflective of the competent authorities' combination of the availability, accessibility and use of the five core components of organizational capacity to implement each specific WFD Article. The implementation status of each WFD Article and the corresponding capacity profile are summarized in Table 4.2.

**Table 4.2:** Capacity profile of the Maltese competent authorities in implementing three WFD responsibilities.

| WFD Responsibilities | Implementation status | Capacity component | Capacity status | Overall organizational capacity status |
|---|---|---|---|---|
| **Article 8** Monitoring of surface water status, groundwater status and protected areas | Moderate | Legal authority | Moderate | Moderate |
| | | Information and knowledge | High | |
| | | Skills | Low | |
| | | Resources | Moderate to low | |
| | | Leadership | Moderate | |
| **Article 9** Recovering costs of water services | Low | Legal authority | Moderate | Moderate |
| | | Information and knowledge | High | |
| | | Skills | Moderate | |
| | | Resources | Low | |
| | | Leadership | High | |
| **Article 14** Public information and consultation | High | Legal authority | Moderate | Moderate |
| | | Information and knowledge | Moderate | |
| | | Skills | Moderate to low | |
| | | Resources | Low | |
| | | Leadership | High | |

Various overlaps exist across the data gathered from the three methods. Indeed, a great proportion of the policy documents and news articles were written by organizations and/or make reference to people that were interviewed as well as each other, such as the National Audit Office (2012) report and MRRA (2012). This very much relates to the small size of Malta and its characteristic 'compact' water network. For this reason, the

documents and the news articles provide an extended and at times more factual account than the descriptions and perspectives gathered from the interviews. As the statistics generated from the news media articles sample show (Appendix D), leadership capacity prevails across the articles followed closely by information and knowledge. The remaining components far less constitute the general argument reported. Interestingly, the general tone of most articles is moderate and negative, and the major topics covered concern: groundwater sustainability, water pricing and consumption, compliance with EU law and mismanagement. The top three articles recording the highest amount of readers' comments are on water pricing ("*Charge more to conserve more*", Times of Malta 26 June 2012), with the comments showing strong objections to increasing water price as suggested by a former chairman of the public water supplier, and groundwater sustainability ("*Malta can never run out of water – WSC – There is no need to buy bottled water. We can all drink tap water – minister*", Times of Malta 6 June 2012; "*Efforts to ensure groundwater sustainability must be stepped up – Auditor General*" Times of Malta 20 February 2012), with very critical comments of the opinion of those managing water in the country, as one reader comments: "*Malta can never run out of water – the most frightening statement of the year*". Thus, concern for groundwater is met by the general public's unwillingness-to-pay for water, as is also noted in FAO (2006, p.62). On the other hand, 'comment' type of articles, that tend to be critical of water management in Malta, share the same general tone to that of the readers' comments, indicating the possibility that the article generally represents the readers' views.

The detailed results relating to the three selected WFD Articles that are presented below, provide a synthesis of the three datasets. The narrative of the results for each Article is structured such that firstly an overview of the implementation status is provided, followed by the corresponding organizational capacity profile, and insights into the contribution that the institutional water network has in providing accessibility (or lack thereof) of capacity to the competent authorities. Despite presenting the evidence for each Article separately, as noted in the recommendations made by the

European Commission for Malta's WFD implementation, the three Articles are strongly related and their successful implementation is interdependent:

> "*To deliver successful water management requires linking these different steps. Information on **pressures** and risks should feed into the development of **monitoring programmes**, information from the monitoring programmes and the **economic analysis** should lead to the identification of **cost effective programmes of measures** and justifications for exemptions. **Transparency** on this whole process within a clear governance structure will encourage **public participation** in both the development and delivery of necessary measures to deliver sustainable water management*" (European Commission 2012, p.30).

### 4.3.1. Implementation of Article 8

Evidence around the implementation of Article 8 highlights the widely held view that safeguarding Malta's water resources is a priority for the natural water scarce country and the WFD is regarded as a tool facilitating the achievement of this endeavour by making it a legal obligation. The European Commission when talking about Article 8 reads:

> [While] "*Malta has established surveillance and operational monitoring of groundwater and there is also a specific monitoring programme for drinking water protected areas"* (European Commission 2012a, p.8).
>
> *"Private groundwater abstraction as a major pressure on groundwater bodies is not monitored adequately*" (European Commission 2012a, p12).
>
> [Moreover] "*river basin specific pollutants will need to be identified, with clear information on how pollutants were selected, how and where they were monitored, where there are exceedances and how such exceedances have been taken into account in assessment of ecological status. It is important that there is an ambitious approach to combatting chemical pollution and that adequate measures are put in place*" (European Commission 2012a, p.31).

Groundwater in Malta has been classified as 'at risk' because of the challenges it faces both in terms of quantity and particularly quality. In the first WCMP only two of the fifteen groundwater bodies did not have poor water status. This is mainly due to over abstraction and high contamination primarily by nitrates and chlorides (National Audit Office 2012). Groundwater is also challenged by significant saline water intrusion. Despite the current groundwater status, investment in groundwater abstraction remains popular as it is approximately five times cheaper as a water source than water production from reverse osmosis. Indeed, there is a significant recorded growth in groundwater abstraction from 2003 to 2013 (Eurostat 2015). The need to protect

groundwater sources has been shadowed by 'the success of reverse osmosis, which has defeated drinking water scarcity issues and solved our water supply problems' (Association: eNGO). Several voices across the data claim that this situation has 'contributed to the perception of people that water is available' (Water regulator). However, the competent authorities note that while there are opportunities for improvement in water conservation, such as encouraging a market shift to household greywater recycling and setting of water efficiency standards of products, Maltese household water consumption is relatively lower than that of other European Member States and it is comparable to cities like Zaragoza (Spain) – 'the water saving city', which have invested heavily in household water demand management. The significant investment in reverse osmosis over the years also means that Malta is highly experienced in water supply augmentation, which 'the EU has only recently started talking about' (Competent authority). Similarly, Malta was one of the first EU countries that treats all its wastewater. Malta has applied for an extension to the established 2015 deadline to achieve good status to 2027. These achievements attest the availability of engineering skills across the water network. However, information from studies on the groundwater residence and response time indicate that achievement of this target is highly unlikely in terms of good water quality. It is established that percolation of water from the surface to the aquifers takes around forty years.

Throughout the preparation and implementation of the first WCMP, other water body types were seen as having less significance in the context of the Maltese water environment. Malta registers no surface water abstraction (Eurostat 2015). Following a court ruling on identification of surface water, the monitoring network of Malta's inland waters now covers nineteen characterised surface waters (three watercourses, two ponds, five transitional waters and nine coastal waters). This has posed the need for availability of further resources and skills capacity, and represents the bridging of a previously unknown knowledge gap. Comprehensive monitoring of quantitative and qualitative status of water according to the WFD requirements was done for the first

time in 2012 to 2013, such that presently Malta has the highest density of monitoring stations in Europe.

The classification of the implementation status of monitoring as 'moderate' correlates with the overall moderate organizational capacity of the competent authorities. This is supported by a range of clear statements extracted from the dataset, provided in Appendix D, Table D.1. Overall, Malta is compliant with the Directive's provisions and thanks to the available monitoring data and information that has become available following compliance with the WFD across all water body types there is now an improved understanding of the condition of its water resources. In many cases, the competent authorities confirm that this has corroborated the initial judgement given by experts. As a result, water management optioneering and decisions are better informed, and there is a stronger basis to support justifications for any action that may be undertaken towards the improvement of the state of water resources. This may for example include the possibility of closing some boreholes from which the volume of water abstracted poses a significant threat to the local groundwater ecological status.

Evidence shows that the competent authorities in Malta have the legal capacity to implement the responsibilities relating to monitoring. However, in order to support the work of the competent authorities in Article 8 implementation, there is the need for a more integrated water regulatory framework so that WFD measures are consolidated and extended to include climate change vulnerability and adaptation aspects. The importance of climate change impacts on water is recognised across the policy documents, with predictions of "*less average rainfall with more intense precipitation events, extended drought periods, and higher average temperatures*" (TPPI 2015, p.50). However, the many descriptions provided in Chapter 11 of the first WCMP do not offer any climate related actions to be undertaken across the Maltese RBD by organizations within the water network. Furthermore, the NAO (2012, p.74) notes that there has been partial implementation of the measure that seeks to "*strengthen the existing environmental and planning regulatory processes to cater for the objectives of the Water Framework Directive*". Government organizations responsible for implementing and

enforcing the regulatory framework need to be supplemented with other forms of capacity apart from legal status in order to overcome the current situation of weak enforcement. This is evident for example in the lack of adherence to the long established domestic cistern law, which eNGOs see as lack of foresight that made the Flood Relief Project a necessity for civil protection. For instance, there is the need for training of professionals working in regulatory organizations to improve skills as: 'some administrators are not trained and do not understand what exactly they should be doing and seeing only the end product without caring of the consequences or checking if the person enquiring about an issue is in order. The issue is training' (Associations: political group). Capacity is not the only factor identified to be responsible for weak enforcement of laws that are in place to protect Malta's water sources, some non-government voices highlight political influences as another responsible factor; 'top people are scared to enforce because of voting issues. The water situation in Malta is so grave because of lack of political will to implement sustainability measures' (Research and training: expert). The competent authorities also highlight that enforcement has largely 'failed' because it was the negative type, and more focus on using positive enforcement is necessary to overcome longstanding challenges.

Enforcement largely falls within the remit of the water regulator who has the responsibility for actual implementation and introduction of measures, and is a consulting body on planning and development stages, such as assessing the relationship between development consent of planning and water resource protection. It has been the key player throughout the process of registering and metering of private groundwater sources aimed at controlling unauthorised abstraction and volume of water abstracted from boreholes. However, while the regulator has the water regulatory competencies, 'when it comes to metering, it does not have capacity' (Association: political group), namely human resources (e.g. an enforcement inspectorate) and leadership. Metering of boreholes used for agriculture did not meet the 2010 deadline and later it transpired that a great percentage of the meters were faulty. The regulator relies on the Malta Agriculture and Rural Payments Agency, who

acts as a regulator on matters of cross-compliance in agriculture with other sectors, to provide information on monitoring controls of farmers that apply for EU subsidies such as the amount of pesticide that is applied and ensures the registration of boreholes. There is also opportunity to obtain monitoring data from private industry users who have been carrying out monitoring as part of protecting the water sources on which their business is heavily dependent; 'our company has two boreholes which have been monitored from early days, way before we ever heard of metering in Malta, because we try to be as sustainable as possible. We do a study to identify the sustainable extraction levels of our boreholes during different periods of the year, and have key monitoring parameters checked on daily basis to see at which levels they are and if they should decrease/increase the extraction rate' (User – industry). The eNGOs regard lack of enforcement to be a result of the organizational fragmentation typical of Malta's government organizations that undermine the leadership capacity of the regulator as it is often the case that it is bypassed by the operators who have direct relations with the Minister. In fact, although the regulator has had financial autonomy since 2011 and has the legal capacity to issue authorisations and licenses, it expresses the need to have a position similar to that of the National Audit Office by reporting to Parliament directly and having its board members appointed by Parliament rather than being accountable to the respective Minister of the day. This would grant the organization the independence and reputation that it currently sees as lacking compared to other European energy and water regulators.

While there is evidence of good understanding about the WFD across the documents analysed, there is also ample evidence to suggest that the competent authorities require more knowledge about the river basin district and greater investment plugging some significant knowledge gaps. As an example, it is worth noting that the assessment of the groundwater status for the first WCMP had to rely on assumptions (e.g. triangulation of modelling data) given that factual abstraction data was not available. There are several references in the data collected from the competent authorities and other closely related government organizations to plans aimed at investing more into the knowledge

base required for the implementation of Article 8 because "*additional information, beyond that which is currently available, is required for the effective implementation of the WFD*" (WCMP 2011, p.98). In fact, thanks to data showing 'the massive impact' of water reuse, there are now positive projections for the achievement of the measures aimed at good quantitative groundwater status in the second WCMP. Conversely, the major knowledge gaps on 'what goes down' to groundwater mean that while 'there is the potential to achieve good qualitative status, it now depends on how that potential is used in the coming six or seven years because so far we have lack of confidence that there will be a statistically significant trend' (Competent authority). The significance of this knowledge gap is that so far competent authorities have been limited to knowing the groundwater qualitative status, but without the ability to correct and/or devise measures aimed at improving that status. In an effort to comply further with WFD requirements, specifically the restoring of a 'heavily modified water body', financial capacity accessed from the EU Cohesion and Regional Development Funds is being deployed to recharge a degraded part of the mean sea level aquifer system with highly polished treated effluents. However, environmental conservationists' voices have emphasized the need to apply the precautionary principle due to knowledge gaps about the impact on any possibly existing flora and fauna underground.

The most prominent capacity gap facing the competent authorities in their efforts to implement Article 8 is skills. It is widely recognized across the evidence base that the competent authorities have struggled to find the skills within the workforce to overcome the challenges of a Directive that has to be applied to the context of Malta when it was 'mostly devised for water rich countries' and that is so heavily premised on the availability of scientific capacities and evidence. The competent authorities attribute the lack of skills among the workforce to the lack of specialised degree level courses in subjects such as hydrology and hydrogeology with an applied water policy background. As there may not be the employment demand for such specialised courses to take place, the future development of a link with a non-Maltese research institute presents an opportunity for improved access to this form of capacity. In fact, government

organizations including the competent authorities have been encouraged to forge collaborations with international institutions, participate in networks and follow the examples set by renowned policy institutes in other Member States as well as international ones. While establishing collaborations is a skill in itself, taking on such leadership initiatives would in turn lead to higher capacity access beyond the confines of Malta with possible positive ramifications felt throughout the organizational capacity of the competent authorities.

In response to the lack of skilling opportunities at professional level, the Malta College of Arts and Training set-up a water and training centre primarily aimed at training government employees currently working or seeking to work on water in organizations such as WSC and MEPA, and to train people such as water technicians working on water both on a commercial and industrial level. The latter cohort is especially important considering that establishments nowadays have sophisticated automated water technology such as water treatment, water reuse, and rainwater harvesting from rooftops, with increased chances of contaminations in the water system that ultimately contribute to the ecological status of Maltese waters. There are also further opportunities within the water network, for example an NGO dedicated to agriculture noted that it greatly benefits from its membership with a European community that shares similar interests and serves as a research platform that increases their access to knowledge and skills capacity. These are then shared with the relevant local farming community, but such farmers require further financial assistance from government and less complex bureaucratic procedures to implement learnt environmentally friendly agricultural practices. A respondent from industry users confided their challenge in finding people in the workforce with the skill to oversee their company's environmental and water issues, and were only successful in fulfilling the post following personal recommendation for a person that used to work in WSC. They note this as lack of vision in the country's leadership as the water competent authorities would benefit greatly with having skilled people in industry that can help companies meet environmental objectives.

To compensate for specific knowledge and skills deficiencies such as those needed to examine ecological status and implement intercalibration, the competent authorities have outsourced work to private companies with appropriate expertise. A similar strategy is also used for materials resources which are not always available locally, such as laboratories that can produce the necessary analysis of monitoring programmes. Despite these opportunities to access capacity, the capacity of the competent authorities' personnel plays a crucial role as they are required to carry out background readings on areas outside their expertise in order to monitor the progress of consultants and use the results to feed them into the overall WFD monitoring responsibility. This aspect is highlighted as important by several respondents as while consultants can have foreign expertise to that of Malta, they may understand the context of the country differently and perhaps at times incorrectly. Moreover, it is noted in the evidence base that the competent authorities have used Malta's slightly untimely (i.e. late) performance during the first WFD management cycle to their advantage. Lessons have been learnt from other European countries in terms of the information made available on what works best in the implementation of this provision. For example, Malta did not participate in the intercalibration procedure for lakes in the Mediterranean. Other countries invested heavily in this activity and concluded that lakes cannot be intercalibrated at Mediterranean level due to significant differences in local conditions; 'had Malta participated, it would have been a waste of time and resources' (Competent authority).

The capacity challenges related to the implementation of Article 8 have made it imperative for the competent authorities to adapt to these conditions in their effort to fulfil their mandate. There has been increasing effort to continue current investment levels in organizational memory and in-house capacity building, such as the strengthening of the data management system currently in place. Indeed, a structural framework is being developed whereby the information collected is fed into a centralised system, with many government organizations cooperating and thus signalling a change in mentality when it comes to sharing information across sectors.

Another strategy used to compensate for lack of human resources has been the adoption of a puzzle approach to monitoring, whereby the data requirements of the WFD are matched to the data needs of other European directives such as the Drinking Water Directive, Bathing Water Directive, Marine Strategy Framework Directive, Urban Waste Water Directive and Nitrates Directive, in order to identify overlaps and avoid duplicating work. Once information is available for other Directives from a variety of sources (such as the agriculture and fisheries department, the WSC and the National Statistics Office), the competent authorities feed this into the preparation of the next WFD cycle. For instance, a synergy between the WFD and the Drinking Water Directive relates to the protection of groundwater and for which a three hundred meter buffer zone were constructed around each public abstraction source such that it forms a continuous Groundwater Protected Zone across the Maltese Water Catchment District. Similarly, despite Malta is an archipelago, much attention in the discussions of the WFD is dedicated to the larger two inhabited islands of Malta and Gozo, but the other islands are already protected and compliant by other legislation that specifically seeks the conservation of such habitats e.g. Birds and Habitats Directive, and Natura 2000. Another potential opportunity is the encouragement of local councils to utilize their current opportunity to apply for European funds to care for the environment within their respective localities to projects that go beyond embellishment and that can make a significant contribution to improve the ecological status of water. eNGO's express some scepticism on the existence of synergies across policies relating to water due to the investment of the Flood Relief Project which cost seventeen million euros and its outcome could have greatly contributed towards the achievement of the WFD objectives on quantitative objects, but instead large amounts of water are rushed to the sea rather stored.

### 4.3.2. Implementation of Article 9

The implementation status of Article 9 is graded as 'low', as a broad range of water services are not covered, there is lack of transparency and information, and the justifications made for exemptions are not sound (European Commission 2012a). This

statement strongly contrasts with the confidence with which the WCMP (2011, p.8) describes the successful implementation of Article 9:

> *"The plan shows how the principle of recovery of cost of water services from the different water users as defined in the Water Framework Directive has been applied in Malta with due regard to social, environmental and economic effects as stipulated by the Directive. The Water Framework Directive also requires that water pricing policies provide adequate incentives for users to use water resources efficiently. These principles have been successfully applied in Malta for the provision of water services to households, industry and farmers by the water and wastewater treatment providers. The current tariff structure of the potable water supply provides for an 80% recovery for the provision of these services by the service provider. Socially disadvantaged consumers receive specific consideration and benefit from government subsidies. The relevant legal framework is also in place to apply these principles to private abstractors of groundwater".*

The data is also conflicting on the issue of incentive pricing. The European Commission (2012, p.28) is satisfied that "*incentive pricing is in place including metering and volumetric pricing*" (European Commission 2012a, p.28). However, since that assessment there has been a reduction in water prices that was widely positively received by the Maltese public, and many claimed that this electoral promise was a primary factor contributing to a change in government in 2013. Most non-government respondents (excluding those organizations whose economic activity depends heavily on the use of water resources) highly criticised this 'politically motivated initiative' as it does not comply with the target of efficient water use which should be a fundamental principle for any water scarce country like Malta. However, the competent authorities argue that the change in water prices has not resulted in an increase in water consumption; 'the pictured situation that consumption and wastage of water has gone up is not reality' (Competent authority). Non-government stakeholders insist that the current subsidies system operates to the detriment of effective economic water management as even those with the ability-to-pay for water are beneficiaries. Notwithstanding the WCMP's reference to the polluter pays principle, the current price of water is not reflective of the resource cost and the value it has to the various economic sectors, environment and society. This therefore does not satisfy the first point made in Article 9 (Appendix A) as the economic analysis requirements listed in Annex III of the WFD document are not performed.

With the exception of some cases (e.g. the annual swimming pool charge and application charges for borehole drilling and registration of users), the current cost recovery model does not differentiate how water is used. In recognition of this barrier to understanding, the second WCMP shall see improved clarity on calculation of cost recovery for water services. Further to the quote provided above from the WCMP, tourism forms part of industry water users. While this is not an issue in itself, it is important to note that tourism is a significant sector to Malta's economy and has distinctive water practices and challenges from the traditional manufacturing and production industry. Another factor exempt in the price of water is wastewater, even though it incurs a high expense for the state and it is standard practice in several other European Member States to charge for it. Consequently, successful implementation of this Article is described as 'the biggest challenge for the country' (Association: eNGOs) and it is foreseen that is will be "*the chief pressure Malta will be facing from the Commission in the future, heavy with political implications*" (TPPI 2015, p.45). However, the recent judgment by the European Court of Justice mentioned in Chapter 2 (Section 3.4) makes it unlikely that Malta will actually face significant pressure from the European Commission on water pricing issues. This also highlights that Malta is not an exception in underperforming in Article 9 and as evident across other Member States as well as the EU itself the interpretation of the Article is not a straight forward task. Indeed, Article 9 constitutes an example of institutional incapacity that spans interchangeably across knowledge and skills at the larger EU regional level, but has the prospect (possibly through clarifications from the European Court of Justice) that through experience of implementing the WFD eventually a solid interpretation can be establish.

Perhaps surprisingly, the data exposed by this study evidences a relatively high capacity amongst the competent authorities to implement obligations under Article 9. The capacity is available and has been used as evidenced by the fact that the necessary research to support implementation has been carried out. Indeed, the competent authorities confirm that there is a wider economic framework for cost recovery of water services, but its very technicality has impeded stakeholder's understanding of how for

example beneficiary and polluter pays principles are incorporated. The water regulator who is responsible of implementing Article 9, confided:

> '*Malta is still a bit behind when it comes to pricing policy because it is a very sensitive issue, the exercise was done, all the necessary studies were done, what needs to be ascertained now is a clear pricing policy that establishes whether there is going to be an increased charge on water or if it will continue to be taken almost for free, this has not yet been established*'.

This is arguably an example of how possession and application of the necessary capacity does not necessarily translate into high performance. The assigned organizational capacity status that the competent authorities have in the implementation of Article 9 is supported by clear statements from the dataset, provided in Appendix D, Table D.2.

The skills and resources required for the implementation of Article 9 are outsourced as the organizations responsible are internally challenged by a lack of economic expertise. The responsible organizations have a good understanding of what could be done to improve performance of Article 9 requirements although some non-government respondents claim that the validity of this knowledge is questionable as it is based on weak sectoral analysis, which in that case it offers further support to the comments of lack of integration across the water institutional network i.e. institutional fragmentation. However, this knowledge capacity is poorly utilised as decisions are made at higher organizational levels which they are accountable to. This is because the recovery of costs for water services is a politically sensitive WFD responsibility. The lack of transparency about water management vision, actions and plans reinforces the non-government organizations' lack of trust in the government's ability to effectively manage water issues; '*the current price of water is a political decision for the votes. It is not done in the interest of the resource or the country but in the interest of the votes politicians get. It is a lack of vision for water management of the country*' (Research and training: expert). Indeed, the competent authorities are often regarded as agents who simply justify and promote the government's agenda; '*the official professional people are embarrassed by the situation whereby the political masters gag them*' (Research and training: expert). These affirmations highlight that the public hold the government responsible for the decisions made on WFD implementation and not the people working

in competent authorities or other government organizations which are perceived as talented. In the midst of these political influences, the competent authorities therefore need to showcase their leadership capacity better by providing stronger and clearer justifications in cases where they do not follow what is commonly regarded as best practice for the water environment. This is especially evident in the relatively high number of readers' comments on news articles addressing this WFD provision, for example: "*Do tell the people WHY you [the then Resources Minister] keep being inactive as speculators steal our national water…It's VESTED INTERESTS by somebody – that's what many Maltese believe. It's also putting Political considerations before National Needs*" (Times of Malta 6 June 2012). The competent authorities have a different take on political influences on their work and leadership capacity. They argue that the politicians' role is to decide the policy direction and take decisions especially based on the democratic political mandate which the public have voted for. They argue that their objective of reaching good status has not changed since commitment to the WFD obligations in 2004, rather it is the tools and methods devised to reach the objectives that have changed overtime in line with policy decisions; 'this is reality and equating this to a heavily politicised sector can be misleading, a problem would exist if the objective changes' (Competent authority).

Both government and non-government respondents (with the exception of those for whom water constitutes an important part of their business) agree that fair and transparent decisions need to be made in terms of what level of cost recovery the country is aiming for across the water users (household, agriculture and industry) in order to safeguard its water resources and encourage more responsible use of water. Consensus on water pricing is significant as the WCMP (2011, p.98) states that "*addressing water issues will unavoidably incur costs…mainly relate*[d] *to investment in the required infrastructure and monitoring systems*". However, perceptions as to what price should be paid by water users are divided. eNGOs, the media articles and their readers are particularly critical of water users who abstract large volumes of Malta's public groundwater for their commercial activity, namely agriculture, industry and

private water tanker operators. These users are perceived as not paying an adequate price that reflects their economic return from using the natural scarce resource; "*the* [Malta Water] *association firmly believes that commercial borehole extraction should be banned, insisting that "commercial companies should not have free and unrestricted access to a public resource*"". Their argument is that higher costs would encourage responsibility of water use, support water scarcity messages and deter any wasteful usage of water. A particular 'unfair' case discussed relates to the strong disparity between organic agriculture and traditional agriculture, while the former is accepted as more environmentally friendly than the latter, organic farmers have to pay for licensing their practice while traditional farmers do not. Most government organizations are more careful in expressing their opinion on such major water users. This is because the pumping of water incurs costs to these users that are not directly reflected in the water bill, including the electricity to pump groundwater. For instance, farmers pay for the purchase and maintenance of water abstracting pumps, and water tanker operators pay for diesel and maintenance of tankers. Similarly, a respondent speaking on behalf of a beverage company operating in Malta points out the expense of maintaining several certifications and personnel working on environment related issues, water protection efforts which are not matched with support from the government. While well aware of the negative perceptions towards them, water users sectors at the heart of controversy are of the opinion that considering the value they bring to the economy and the measures they take to mitigate the impact of their economic activities on water, they are unfairly criticised and instead their contribution should be matched with further water subsidies; "*Last January Maltatoday revealed that General Soft Drinks, bottler for Coca-Cola and producer of Kristal table water – which had just been awarded a sustainability award – was extracting 51,000 cubic metres of water, the equivalent of 26 million bottles of table water every year, from the endangered water table, a practice that is unsustainable in itself*" (Maltatoday 20 September 2010). Others argue that the price of water should be standard for all sectors '*because the same volume and the same resource is pumped*' (Research and training: tertiary) and that prior to establishing higher prices the water service has to be improved and secured as for example despite

drinking water is safe to drink most people prefer bottled water – "*only 5% of the population actually drink [town water]*" (Maltatoday 19 December 2012) - and the infamous power cuts in summer 2015, which have a negative impact across all sectors not just the water dependent ones. The data strongly proposes that the first step towards improved implementation of Article 9 would involve the broadening of the current regulatory framework to establish a water act that defines water ownership and determines abstraction licenses (right of access to water). This has to happen within a broader consideration of the expected impact on livelihoods of people affected. Progress in the implementation of Article 9 would mean that the second WCMP addresses 'at least this issue of who, of how, and with the pricing policy you have how you are going to recover some of your costs' (Water regulator).

Similarly to the case of Article 8 implementation, there is strong evidence of leadership capacity in the context of Article 9 amongst some private organizations whose economic activity is highly reliant on water. Driven by their need to seek higher economic returns on their activities with the added benefit of fulfilling their corporate social responsibilities, there are examples in the data, particularly within the Maltese hospitality and beverage industries, where effective measures have been put in place to manage water consumption and encourage resource use efficiency. These users have sought expertise from their international partnerships as well as local organizations to adopt available technology and seek alternatives to groundwater use. From their findings they encourage the introduction of water standards across industry in Malta. The negative perception in Malta towards beverage industry, seen as using the public's water resource for free, meant that the project, despite its positive intentions and actions, suffered a negative backlash in the news media. In 2014, the European Commission Directorate General for the Environment awarded funding for a significant development project to the Malta Business Bureau to improve the dissemination of information about its water conservation initiatives. The original project related to identifying opportunities for water efficiency across participating enterprises mostly by learning from other enterprises and adopting the best water practices given the local

market. Although relatively less successful initiative, some hotels have also participated in obtaining eco-certification from the Malta Tourism Authority that includes water as one of the components such as harvesting of rainwater and landscaping using native and low-water consumption species. Similarly, evidence drawing from the agricultural sector shows that the farmers that invest in environmentally friendly initiatives can in return make them more favourable to access EU funding; 'the water set-up (as well as other environmentally friendly set-ups ex: wind turbine) is taken into consideration when applying to get funds for farm' (User: agriculture).

While these constitute great examples of how the water network contributes to conserving Malta's natural water resource through technology and demand management, they remain few and the evidence shows that the competent authorities need to exploit further the potential they present; 'the work that is being done at the moment will not result in as much as it could. The lessons learnt will not be adopted. Rainwater harvesting will not happen and the water standards will only happen if there is more pushing' (Public administration: government department). The competent authorities greatly appreciate such efforts from the private sector and highly commend them for their professionality, especially communication skills. For instance, the previously mentioned Malta Business Bureau project was a big success as 'project leaders represented a sector, talked the language they want to hear, and got them together to do something that makes financial sense for the sector, with added environment contributions' (Competent authority). While they would like to see more similar projects, preferably these would be in a more coordinated fashion.

### 4.3.3. Implementation of Article 14

The case of public information and consultation is interesting for the observed difference between the level of implementation of this responsibility and the competent authorities' organizational capacity. The European Commission (2012a, p.4) assessed Malta as high performing in this area:

> "Public participation was carried out extensively including the active involvement of relevant stakeholders. The public was consulted *via internet, media and an international trade fair. The draft RBMP was available through the internet and also sector specific workshops and ad-hoc*

> *meetings were held. The following sectors were consulted: agriculture, ports/navigation, water suppliers, NGOs, fisheries/aquaculture, local authorities, transport and tourism. After the consultation, changes were made regarding some specific measures and the competent authorities committed themselves to take action in the next cycle. A mentioned above, an Interministerial Committee was set up to oversee the implementation of the plan up to 2015*".

While verifying the high quality of implementation of this responsibility and the competent authorities' capacity to undertake actions in this area (boosted by a twinning project with France during 2009), the evidence base also indicates some on-going challenges. These are primarily reflected in the widespread perception that despite current government efforts to inform the public and offer much opportunity for consultation, the Maltese public remains relatively ignorant of water issues and there has been little change in culture and mentality of using the water more responsibly; "*public ignorance and complacency about the real condition of Malta's water pose a significant challenge to the prospects of a sound national water policy and plan. Malta needs a water-educated population culturally committed to more rational and efficient consumption and water conservation*" (TPPI 2015, p.35). This is significant as the WCMP (2011, p.16) is founded on the notion that: "*every citizen has a role to play in the successful implementation of this plan*". Although as mentioned in Article 8, the competent authorities disagree on perceptions surrounding water use in Malta as the household consumption figures prove otherwise. A number of clear statements extracted from the dataset about the competent authorities' organizational capacity to implement Article 14 are provided in Appendix D, Table D.3 to support the findings.

The consensus view amongst interviewees was that much more investment needs to be made in both the competent authorities and more widely in order to overcome the challenges of conveying water scarcity messages, for example a national public information campaign could contribute as a demand-side management measure. Such investments will, in turn, help raise awareness by educating citizens about the state of water resources and water management problems in Malta, and provide support to any shortcomings in implementation of Article 9. Informed participation would help improve the contribution made from the public in consultation sessions. However, as the WCMP (2011, p.98) highlights, "*the success of this plan relies a great deal on a well-informed*

*public that is* [also] *willing to contribute to its implementation*". Willingness to participate is important as currently the information and consultation sessions tend to be attended by a regular audience that consistently voices its arguments across the sessions. Indeed, the WCMP states that it is the citizens' role to become acquainted and involved in the implementation of the WCMP.

Non-government organizations and water service users argue that while improvements have been made, more can be done to foster an effective participatory environment. The current arrangements of consultation sessions are perceived as weak in their administration and dissemination of information is argued to be both repetitive and poor in terms of quality and quantity. For instance, there is a need to improve outreach and attract participation from a wide range of stakeholders including those whose role in water is only recently being explored and established (e.g. local councils). Public consultation sessions have been used as avenues to promote water use efficiency and conservation rather than to engage the public on more policy-related matters. Participation in the WFD could be more effective if competent authorities and government organizations become more transparent and provide up-to-date information on the state of implementing the WCMP and relevant measures, as well as efforts to address the "*discrepancies between water-related information held and/or published by different organizations*" (FAO 2006, p.65). Transparency is especially significant to augment the public's current lack of trust in government. Primarily, more clarification of the several government organizations with water related roles and responsibilities are needed for accountability purposes and participants' knowledge on who to ask for specific information.

As a step towards acknowledging the challenges experienced locally, the competent authorities have made use of their organizational memory by carrying out a gap analysis of the first WCMP. Indeed, evidence shows increased know-how and improved planning of consultation sessions to address specific topics of interest and reach targeted audience for the preparation of the second WCMP. In fact, the use of available and accessible capacity has become more effective as the competent authorities have

structured the topics in public information and consultation sessions to reflect the synergies that are present across the various water related responsibilities. The identification of these synergies represents an important outcome of the inter-ministerial committee and is expected to strengthen with the governance and capacity building measure mentioned previously. The move towards a centralized information management system has led to improvements in the government authorities' mentality to share information and reduce conflicting information and thus augment the reliability of that information. Some challenges remain where the competent authorities cannot influence information released by other organizations such as the National Statistics Office, which often do not provide background (e.g. method of calculation and level of uncertainty/confidence) to the information issued. The National Audit Office (2012) argues that currently the information provided to the public is limited, and in some sectors such as agriculture this can mean farmers possess less knowledge on how to comply with European legislation. Improvement in this issue is evident in the fact that for the second WCMP around thirty consultation meetings were carried out involving forty per cent of the agriculture community. Moreover, authorities have become more open to public requests for information but do make the premise that 'not everyone who asks for information wants to listen' (Competent authority). Competent authorities also engage in several one-to-one meetings with prominent non-government organizations such as the Malta Water Association and the Malta Hotels and Restaurants Association.

However, the competent authorities remain strongly challenged by a lack of human resource capacity and WFD specific skills. In the case of Article 14, this exhibits itself as a need for personnel with a background in communications and economics to support the implementation of the WFD by broadening the areas of expertise currently possessed by the competent authorities. For instance, they recognize the influence media has on people's daily life and inspired from Veolia's creation of a mobile app that gives people access to their friends' water use to see who is more efficient, they would like a similar 'Sims type game' that could put water management more into people's

lives. Such an approach is seen as potentially more impactful than full-page adverts in national newspapers. Lack of human resources also means that less time is available to develop and maintain data management systems that structure and verify data sourced from consultation sessions. This has had severe implications for the competent authorities' ability to reflect on their implementation activities and has limited the integration of learnings and understandings as part of their organizational memory. The implementation of Article 14 is expected to be better supported by a long-term national water campaign, more frequent and smaller size meetings (to avoid hijacking of discussions and increase confidentiality of what attendees say) and the setting-up of a 'Water Table' that has a broader outlook than the interministerial committee as it is intended for those stakeholders (including civil society) with a 'genuine and keen interest' in water to discuss specific principles in more tangible ways. It is expected to contribute more actively to the implementation of the WCMP, especially since it is very rare that someone proposes a new feasible measure during public information and consultation sessions.

Similar to the experiences reported above in relation to Articles 8 and 9, evidence shows that non-government and private organizations have knowingly and unknowingly supported and contributed towards the fulfilment of Article 14. These represent a supplement to the competent authorities' organizational capacity. Most efforts have concentrated on taking initiatives aimed at informing, educating and engaging the public on the water situation in Malta, as well as projects to manage water demand across the domestic and tourism sectors. Apart from providing information in traditional ways such as documents and meetings, these initiatives also tend to have a strong online presence on websites, blogs and social media circles, offering a different means for the public to access information and informally engage in discussions relating to water as well as the environment in general; 'our Facebook has over 2000 followers who frequently ask questions relating to purchase of products for organic agriculture and resolving of general issues' (Association: eNGO). The data strongly shows that these organizations do not stand in isolation, rather they cooperate with each other and some of them have

membership with larger international and European organizations that offer mutual support. Two particular respondents with expert knowledge on environmental issues both academically and through professional practice, took the initiative out of dissatisfaction with public information and consultation sessions and purposely created their own blog to offer more detailed information relating to environment and water issues; 'the blog represents my voice, my form of contribution and participation on water issues and the environment' (Research and training: expert). Certain organizations offering tertiary education also support the implementation of the WFD through their encouragement such that students undertake water related projects, which sometimes have financial support from the organization itself, research funding bodies, corporate social responsibility projects budgeted from private companies and sometimes even the EU. The added advantage of some of these projects is the level of integration and engagement with civil society which can contribute their awareness on water issues. The competent authorities confirm that they do regularly follow the work these organizations expose as well as any articles that are reported on news media (although there is a distinct absence of news sources that regularly reports on water issues), however, they do think that their outreach is specific and somewhat limited; 'Malta is much more than the same thirty people repeating the same issues' (Competent authority).

eNGOs are a good instrument for focussing on their specific issues of interest, which can often 'put the government authorities on their toes on issues which may otherwise be neglected' (Association: eNGO). A successful example of this is the Malta Water Association who were invited to meet political parties to discuss a document ("*Towards integrated water management in Malta – Recommendations to Political Parties*") they produced about the need for national water management planning in Malta and which was then referenced in political manifestos. Despite the observation that 'document was substantial and a true step towards water conservation as there was nothing before it' (Association: political group), the eNGO never received 'tangible feedback', such as the aspects that were considered for adoption. Such lack of communication is also

evident in their expression of disappointment when on 'World Water Day' they learnt that the government wanted to invite their active participation in the process of drawing up a national water plan, but that the invitation was not yet realised; 'we learned on the day itself and since then we are in wait and see' (Association: eNGO). Some eNGOs are also equipped with expertise knowledge in their field of interest, especially evident in agriculture whereby training is offered to farmers and participation in EU fora is commonplace (e.g. regional meetings with countries in Mediterranean and EU programmes). Similar to the challenges of competent authorities and government organizations, eNGOs are also strongly challenged with 'human, time and financial resources: some people cannot continue their commitment in the organization, meetings with governments is highly time and energy consuming, and our members could possibly be doing other profitable work as part of their career' (Association: eNGO).

Three particularly very successful (attested by awards and public outreach) water focussed projects were the result of multi-stakeholder partnerships involving both government and private organizations. These greatly supplemented the competent authorities' capacity to inform the public mostly across all aspects of skills and resources capacity, for example: funds were externally sourced via a multinational, financial organization and an EU programme respectively, and all three projects have invested a lot in communicating their project such as billboards, pamphlets distributed in households and documents that are publically available on their respective websites. Indeed, one respondent confided that one of the competent authorities has expressed willingness to use their project as a best practice case and write papers that can encourage other industries in Malta to follow suit.

## 4.4. Unpacking the organizational capacity components

The organizational capacity thematic components devised and defined in Chapter 2 (Table 2.3) were tested using the above reported findings (Section 4.3) that describe the capacity profile of the Maltese competent authorities in their implementation of three

selected WFD responsibilities. The analysis showed that the five components are exhaustive of the organizational capacity of competent authorities, and therefore no modification to the set of qualitative components was necessary. The components are further unpacked i.e. expanded and refined to form a thematic map for organizational capacity with particular relevance to the Maltese case (Figure 4.3). The thematic sub-components are defined in Table 4.6. As a result greater depth and breadth are added to the organizational capacity concept.

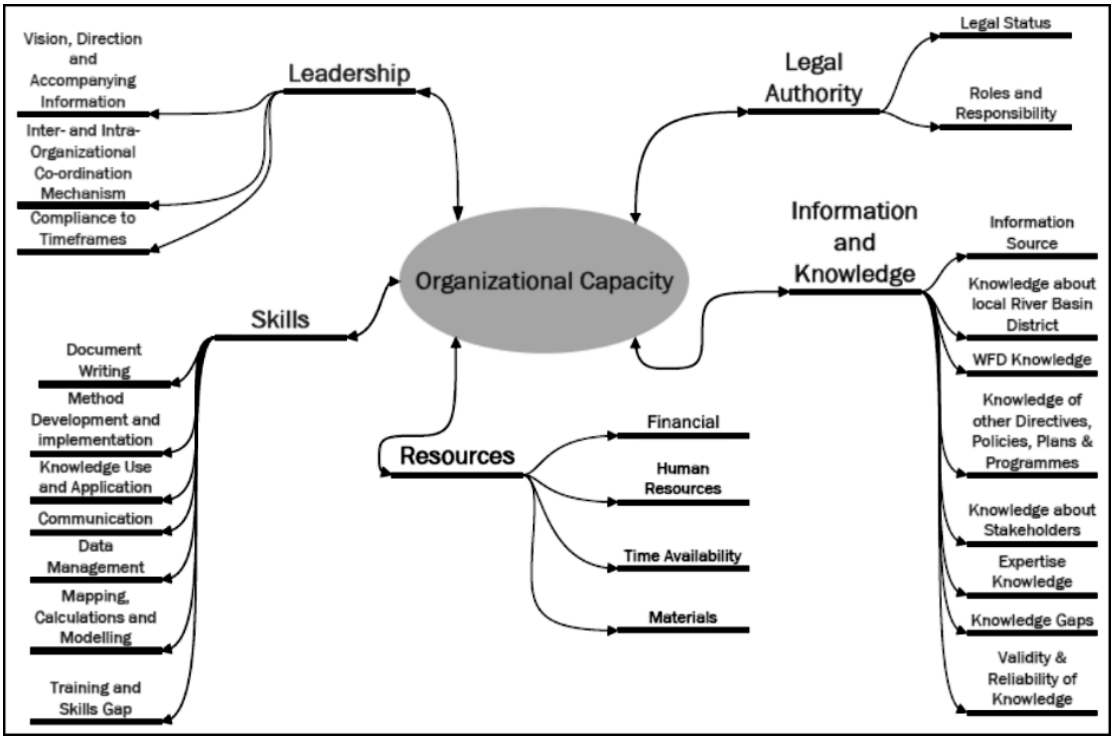


**Figure 4.3:** Thematic map of competent authorities' organizational capacity

**Table 4.3:** Definitions of the expanded and refined thematic components of competent authorities' organizational capacity

| Theme | Sub-Themes | Definition |
|---|---|---|
| Legal Authority | Legal status | The institutionalization of the organization, including its establishment, recognition, mandate, geographical coverage, and decision-making powers |
| | Roles and responsibilities | Define the organization's specific function(s) it is accountable for |
| Information and Knowledge | Information Source | The generation and sourcing of knowledge |
| | Knowledge about the local RBD | The understanding of the environmental, societal, political and economic aspects of water |
| | Knowledge about the WFD | The understanding of the WFD provisions and their interpretation at the local RBD |
| | Knowledge about other directives, policies, plans and programmes | Understanding the institutional environment with which the WFD shares a connection |
| | Knowledge about stakeholders | Understanding the institutional actors that impact and/or are impacted by water and related management options |
| | Expertise knowledge | Water knowledge that reflects experience and investment in specializing on specific aspects |
| | Knowledge gaps | The known and the unknown gaps of the organization's currently available knowledge |
| | Validity and reliability of knowledge | The quality of knowledge possessed both in terms of consistency and accuracy |
| Resources | Financial | The amount of economic capital to deliver responsibilities |
| | Human resources | The number of personnel fulfilling roles within the organization |
| | Time availability | The amount of time the organization has to fulfil their responsibilities |
| | Materials | The physical resources such as office(s), technological and non-technological equipment, and documents |
| Skills | Document writing | Ability to write documents of high calibre, including the PoMs, RBMPs, reporting to European Commission and the water network |
| | Method development and implementation | The ability to devise and operate a method appropriate to the conditions of the local RBD to obtain results |
| | Knowledge use and application | The ability to deploy knowledge in possession to different water situations |
| | Communication | A mix of communication abilities that the competent authorities use to inform the water network, either orally or in writing including presentations, meetings and website content, as well as with the European Commission |
| | Data management | A knowledge organizing system for efficient storing and retrieval of information |
| | Mapping, calculations and modelling | Specific abilities required to organize raw data and generate information |
| | Training and skills gaps | The known and unknown gaps of the organization's currently available abilities |
| Leadership | Vision, direction and accompanying information | The ability to align current actions with goals identified for the short-, medium- and long-term vision of the organization with due consideration of the direction decided by government policy |
| | Inter- and intra- organizational coordination mechanisms | The ability to manage work relations internally as well as externally across the water network and the influence that emanate from these exchanges |
| | Compliance to timeframes | The ability to manage time and meet established goals by set deadlines |

Some of the thematic organizational capacity sub-components are more prominent in the implementation of a particular WFD Article than that of others. The prominent sub-component of Article 8 is the availability of information generated from the monitoring programmes, which has enriched the competent authorities with previously unavailable 'knowledge about the local RBD'. The relative lateness of this newly acquired information capacity means that it remains to be seen how it is used to inform the formation and implementation of the second WCMP. Conversely, the combination of various capacities that are understood to be have been low throughout the implementation of Article 8 of the first WCMP, such as lack of expertise knowledge and skill, make the 'method development and implementation' of monitoring programmes for the different water bodies the prominent low sub-component of competent authorities. While throughout the implementation of Article 9 the competent authorities' accessibility and use of 'expertise knowledge' is high, their ability for 'inter- and intra- organizational co-ordination mechanism' is heavily undermined by political influences such that justifications for the decisions taken are not explicit. The implementation of Article 14 shows how the high 'knowledge of other directives, policies, plans and programmes' resulted in the strengthening of the competent authorities' 'vision, direction and accompanying information' through which synergies were identified and information and consultations sessions are now better planned. However, this effort is somewhat dissipated due to the low capacity in 'human resources' to check and verify information from sessions and invest in organizational memory.

All interview respondents confided that they had never been approached to discuss a similar topic to that of this thesis, and provided encouragement to continue pursuing the field of study as it entails a different approach to existing WFD implementation studies. When the thematic map was discussed with the competent authorities, they appreciated the contribution it can make to inform the review process of the WFD that has to end by 2019, which could particularly be useful to Member States with much more complicated governance structures than Malta:

> ‘Our main focus is something similar to what you are doing. You are the first person for me to ever discuss these issues with. It can be useful to inform that discussion [review of WFD], particularly on how the Directive is managed and applied. In Malta this is less of a problem because the RBD is small, there are only two competent authorities, and we do a meeting every six months of representatives of the CIS working groups, which is extraordinary for other Member States. This type of analysis could present a good practice scenario, it could help to at least set a benchmark and I think it is useful’ (Competent authority).

## 4.5. The WFD learning curve: Malta in the wider EU context

### 4.5.1. The case of Malta

The competent authorities dismiss the idea of the European Commission being some ‘big brother’ (Steunenberg 2010), efforts to satisfy the WFD are followed through because the provisions apply to Malta’s environmental needs. As one respondent puts it: ‘the WFD is not the Holy Grail but it still serves water protection service, organizations can adapt to its changes, it is better than not having water institutionalised’ (Association: eNGO). The Maltese competent authorities describe the WFD implementation as a ‘learning curve’, meaning that it is a learning-by-doing process, both at national level as well as at EU level. The importance of the WFD is understood in how it incorporates several policies and involves a broad range of stakeholders. For this reason, one of the competent authorities warns that ‘the WFD is not so straight forward, a mistake one can do is to equate WFD to groundwater, WFD is much much more than that’. While the evidence detailed in previous sections shows much progress in the protection of Maltese waters since entry into the EU and transposition of the WFD, still, “*there is much room for improvement in the management of Malta’s indigenous water resources*” (TPPI 2015, p.12).

A key aspect that emerges out of Malta’s experience in implementing the WFD relates to the small state context of Malta in trying to implement a Directive that started as a ‘one-size-fits-all approach’, which was particularly problematic for the Maltese competent authorities and decision-makers in the initial implementation phases. The gist of this ‘shock’ is largely captured in the perception given by a respondent (Research and training: expert):

> 'The WFD is a monster, especially for Malta being such a small Mediterranean country with problems across the whole of the policy, including surface water, groundwater which is almost accepted as second class water, and infinite coastal waters. It incorporates everything and cuts across everything, making it very difficult to define its parameters. The obligations of the WFD were such a shock that that who had to decide, i.e. politicians, did so with their eyes closed irrespective of the consequences, implications, difficulties etc. There was a deadline to meet, so let's sign!'

The shock mostly relates to the novelty that the WFD presented to Malta, including the writing of the WCMP itself; 'those who would be employed today would have a more pleasant experience as they don't have to go through the shock of change that the EU and its Directives brought' (Competent authority). The competent authorities strongly argue that the WFD was issued at a time of European harmonization, but the conditions in Europe vary and soon it became realised that harmonization in water policy is not possible. In hindsight, one competent authority respondent contends that 'it remains a mistake that Malta declared that it has surface waters, but now we have to stick to it'. They also give the example of the great difficulties that were encountered for small waters, which were then eventually addressed in the Blueprint document (European Commission 2012b) indicating that the Commission increasingly became understanding and accepting of variability across European countries. The Directive is based on average conditions of a number of Member States, particularly those of the north, and does not really account for the great variability present across the twenty-eight implementing States. Indeed, the competent authorities insist that Malta is even different from other Mediterranean islands, with Lampedusa being perhaps the most similar but still with differentiations on several aspects including the political-institutional environment. Along with some other Member States, Malta is understood to be on the extreme side of these average European conditions, making it is a very specific case; 'for example, in addressing water scarcity, the WFD speaks of prolonged drought, but in Malta it is permanent drought conditions! Similarly, when discussing reservoirs, in Malta these are totally different to the ones found behind dams of large rives in other countries' (Water regulator). This is significant as given the country's lack of experience, communication, interpretation and application of the WFD were problematic for Malta as it had to create a 'workable plan' for its specific local conditions; 'we had to start from scratch'

(Competent authority). The competent authorities express some disappointment in how the European Commission does not easily understand the specificity of Malta's conditions that sometimes pose limits to performance. The Commission insists on requiring proof of what it advises cannot be applied to Malta (albeit the competent authorities possession of expertise knowledge on what works and not), which come at the cost of the competent authorities' capacity as well as that of the implementing stakeholders; 'in the perched aquifer it is impossible to measure water level, but we tried, we told the Commission, but for nothing, the results are invalid, so we are working with WSC to develop something else and we try to measure flow because it makes sense to measure flow in the perched aquifer. However, the Commission first requires proof that measuring the level failed before we try to justify the flow. This is why I said that being on the extreme creates certain practical problems' (Competent authority).

Non-government respondents are also critical of the European Commission's assessment of the implementation of the WFD, regarded mostly as "*administrative and procedural*" (TPPI 2015, p.43) as it is based on reporting from the competent authorities (e.g. the WCMP document) with no independent on-the-ground assessment. This implies that compliance to the WFD heavily relies on the reporting abilities of the competent authorities responsible for it, and indeed, despite the several critique on efforts for protection of the water environment in Malta, especially regarding the influence of politics, one respondent highlights that 'there was not an entity that formally criticised the first WCMP, so the EU cannot know whether it is implemented fully or not as no one has said so'. The then MEP "*Scicluna calls on the European Commission to ensure Malta complies with Water Framework Directive*" (Maltatoday 2 July 2010) constitutes an exception. Malta did not seek formal assistance from the European Commission under the provision of the principle of subsidiarity. Given the above described challenges and the organizational capacity they possess, the competent authorities express pride in their work and feel that they have been doing their very best in implementing the provisions of the WFD; 'although there are issues to still be addressed, irrespective of whether there is the WFD or not, such as over abstraction,

demand management and supply augmentation, Malta is quite good at the WFD, the comments received from the European Commission on the first WCMP do not equate to failure' (Competent authority). Consultants appointed by the European Commission to carry out assessments of RBMPs may have difficulty in interpreting the water management approach of a small arid country. From their experience of the first WCMP, competent authorities also express concern as there were some sixteen consultants targeting different section of the plan, which indicate lack of 'seeing the whole picture'. Moreover, there is a lack of track record as official working in the Commission tend to change every few years, such that new recruits are not well integrated of the decisions and directions decided on previously. For the second WCMP the competent authorities have taken on board valid comments from the European Commission as these helped with better document writing.

These seeming disadvantageous conditions of being small and initial unprepared have also presented the Maltese competent authorities with advantages as it gave them ample opportunity to learn from others. They closely follow the CIS, water directors of other Member States, reporting and co-chairing of PoM with the Commission. Moreover, they are active in the Mediterranean process on issues of transferring WFD concepts in the Mediterranean as well as on research initiatives and sharing of experiences at inter-regional levels. Together with Spanish counterparts, the competent authorities regard themselves as possessing strong leadership capacity attested by their being the most vocal on difficulties encountered relating to the hydro-geographical context; 'in the Groundwater Directive, two paragraphs were changed on Malta's insistence' (Competent authority). They also give input on a number of guidance documents. Indeed, the Maltese competent authorities look forward to being further involved in the shaping of the WFD future through sharing of their experience; 'the implications of the Article on rivers and lakes are something Malta can definitely provide input for the WFD amendment in 2018' (Competent authority).

Albeit opportunities of knowledge transfer from other countries and their RBDs, the competent authorities recognize that it is imperative to invest in enhancing their own

knowledge capacity for implementing the WFD in their RBD. Along with finances, human resources are the primary capacity component limiting the potential for competent authorities' in-house capacity building, such as the addressing of knowledge gaps. This means that investments made in for example consultancies are not kept within the organization. While investing in new recruits is a form of accessible capacity, these would require time for training and the competent authorities cannot afford to put their work on hold to teach new recruits. The competent authorities contend that contrary to the energy sector, which can higher fresh engineering graduates from university with an adjustment period of approximately two weeks, recruits on water may need an adjustment period of more than a year to not only learn routines but more importantly the approach, 'which is different to what normally happens in Malta' (Competent authority). Lack of human and time resources also means that competent authorities are many times limited to following what happens beyond the confines of Malta from reading documents rather than active participation in European fora and projects, as well as augments the difficulty to meet the volume of demands of different European water (and environment related) directives. For instance, the limited competent authorities' ability to actively participate in the complex framework of the CIS that entails several expertise working group; 'at the moment there should be a person working on ecological status, chemical status, economic status or effects, on PoM, certain measures that have been identified as important such as the blueprint exercise which identified gaps and led to the development of working groups on ecological flows and water retention measures' (Competent authority). Another consequence is that training opportunities (e.g. people management) of the personnel currently working in competent authorities are 'available but desirable' and approval from senior management to use such opportunities is often not given due to other priorities. The WCU, currently composed of three people, highlights capacity building as one of its major objectives to address the interdisciplinary nature of its work. This is essential as the "*creation and management of a long-term Water Plan requires a level of analysis and information generation for which the Government does not currently possess the capacity*" (TPPI 2015, p.11). Despite the importance, as argued across most of the data,

of providing capacity, the knowledge of some respondents about the emergency state of water resources and the government's possession but lack of use of capacity puts their preference for urging government to focus on addressing water resources issues that can yield immediate worth rather than further investment in organizational capacity; 'I am more concerned from a natural resource point of view, rather than I stay worrying for now on the capacity of the organizations' (Research and training: tertiary). These perceptions reflect the fact that capacity building is a lengthy process and evidence reported above strongly shows that low availability of other forms of capacity are causing further delays on any capacity investments made. The competent authorities also make the premise that organizational capacity challenges are not only a characteristic of Malta, but also of other Member States and the European Commission itself.

A major appreciation of the WFD in Malta relates to the concept of integrated water management. The first WCMP (2011, p.8) claims its success in integration of water policy through "*i) providing a single framework for the management of different water categories (surface and groundwaters), ii) integration of water policy across sectors, and iii) promoting stakeholder and public participation dialogue throughout the development and implementation of the management measures*". The competent authorities agree that the 'biggest achievement and challenge of the WFD was to bring everyone to the same table as water basically touches everything and has several departments involved, which all had to meet to develop the RBMP' (Competent authority). Moreover, the EU deadlines mean that the competent authorities feel 'empowered to put pressure on certain entities to meet deadlines for reporting and place better organization on schedules'. Communication and coordination across government organizations have been significantly improved with the set-up of the interministerial committee, and its contribution is considered as useful by the competent authorities as 'ownership of measures does not depend on MEPA, WCU and MRA, but depends on a joint effort of all the government stakeholders' (Competent authority). This is significant as it addresses one of the major critiques that the FAO

(2006, p2-3) report placed on Malta's water governance; "*water-resource planning and management is not integrated across the relevant line departments, agencies and private-sector organizations. This is leading to situations where certain departments are pursuing policies that encourage increased water demand and use while others are attempting to regulate demand*". Despite these successes at integrating water management in Malta, evidence also shows that more coherent integration is necessary. The European Commission (2012, p.26) notes that there is "*no link is made with the Rural Development programmes and especially with the WFD specific funding mechanism under Article 38 of the Rural Development Regulation*". Another example is the water policy document of 2012 (MRRA 2012), which states that it is founded on an IWRM assessment that was carried out by Government and seeks to implement several stated measures to achieve WFD objectives. However, both respondents with expertise knowledge and the TPPI (2015, p.9) document argue that this was not the product of a thorough analysis and without a national water plan for the country the likelihood of integrating water management remains little; "*while the purpose of many of the proposed interventions is relevant, without an integrated Policy Framework, it is likely that these measures would be implemented as stand-alone ventures with inadequate consideration of priorities and options, and linkages to overall goals*". The governance and capacity building measure in the second WCMP will be addressing these shortcomings.

### 4.5.2. The wider European WFD context

The respondents working at the European Commission argue that the Commission recognizes the challenges pertinent to WFD in documents such as the '*A blueprint to safeguard Europe's water resources*' (2012b) and WFD implementation reports, which also account for the varying geographical contexts and situations in Europe that became particularly evident in the assessment of the first RBMPs. The initial phases of WFD implementation were particularly challenging for Member States as they had to 'get into this very quickly and had not consolidated their governance and skills'. As part of the cohesion policy, funding opportunities have been available for building of capacities to

implement policies (including water), which have been very popular with many Eastern European Member States benefitted for setting-up monitoring network necessary to help build a knowledge base. Some Member States built their water governance arrangements from scratch, while others adapted their existing arrangements to the WFD. Particular unwillingness to adapt to the requirements of the WFD for Article 8 was encountered as Member States argued that the inclusion of further considerations to existing ones implies costs and skills, and also raised concerns for possible loss of historical data flow as a result of changes in monitoring network. At EU level, the European Commission has been working on the alignment of regulations with an impact on the WFD. Coordination processes aimed at identifying synergies and ensure smoother implementation of the Directive have been put in place, notably: communication between different Directorate Generals, inter-service consultations, staff working documents, start guides that review all the directives and opportunities for alignment that are complemented with case studies to elaborate on difficulties and inconsistencies, workshops with all Member States Directors of water, marine and nature, and regular fitness checks to verify consistency and coherency of legislation as well as making sure it has an added value to the EU. One of the respondents gives the example of a recent workshop: 'in the workshop of last week, the water directors issued a document, which was very difficult to draft, highlighting the areas for further cooperation covering multi-benefits, synergies in monitoring programmes, assessment of pressures and statuses, in water, marine and nature'. When inconsistencies were identified for heavily modified water bodies and its support to protected ecosystems, frequently asked questions documents that details how to address the situation were provided. The CIS is also a strong enabler of policy alignment, as for example one particular working group is looking at the consistency in methodologies for monitoring and assessment of the WFD and MFSD, and another one is focusing on links between the Drinking Water Directive, Wastewater Directive and other Directorate Generals on pesticides and biocides. These are resulting into increased efficiency in time and effort otherwise required of competent authorities. Concepts such as circular economy and green economy has given increased awareness of the WFD and better understanding of

why it was brought into force, not only environmentally but also for eco-innovation. However, the Directive has also some obvious losses to certain economic sectors, primarily agriculture:

> 'While there has been a lot of progress in industry, we remain stuck in agriculture and this is true for all Member States as the private sector in this sector is very much reluctant to help the progress of achieving the objectives. This is not a matter of knowledge but more of technology and socio-political. The proposals the EU made to address these issues in CAP were voted against mostly because of fear of impacting negatively farmers, losses in international trade of agricultural goods and the social consequence of this, and the lack of the capacity of the governments to engage in tough discussions with the farmers that contrasted with strong lobbying from agriculture'.

Indeed, one of the respondent expresses big concern over the failure of the EU water related directives to encourage agriculture, hydropower and navigation to consider environmental issues more not only for the water environment but also because it is their interest. The multiple pressures associated with these sectors on water means that they shall continue to highly influence the Member States' ability to achieve good water status.

Through European legal obligation, the WFD has placed the responsibility and accountability on the government of Member States to protect their country's water resources; 'Member States have agreed and voted in favour of the text'. The European Commission has the support of private consultants (appointed through a tender) to carry out assessments on the Member States RBMPs, who follow an in-house built template that is based on the reporting guidance and the WFD itself. Assessors look for evidence of what has been included in the plan, the processes, and whether the effort can indeed lead to the effective implementation of the WFD i.e. achievement of its objectives; 'doing the effort is not enough, all Member States will say they tried hard, but that's very subjective'. These assessments create a publically available pool of knowledge with identified successes and gaps. Evidence shows that during the 2012 European Commission's assessment of the Member States' RBMPs was presided with strong communication between the two parties, mostly in the form of bilateral meetings

that are followed by exchanges and when necessary request of information in the form of EU pilots (a scheme designed to resolve compliance problems without having to resort to infringement proceedings). The thorough process gives Member States the opportunity to discuss and the European Commission to highlight issues that need clarification or further implementation. While infringement procedures can possibly trigger political will of Member States, it involves a lot of work from both parties and before as a case goes to Court of Justice there are many steps that can lead to resolving an issue more effectively. However, apart from enforcement, the role of the Court of Justice is significant on interpretation of the WFD. As the recent ruling on deterioration (Case C-461/13 2015), WFD court cases give strong orientation to both the European Commission and Member States, especially on unprecedented cases. Despite the intention of CIS being informal, the European Commission has consulted these when cases were sent to court as they are endorsed by the WFD, and the court used these document as guidance in their ruling. For this reason, Member States are now increasingly reluctant to draft guiding documents as they see that these can bind them more and have to give justification when they steer away from agreed measures. In fact, nowadays the CIS constitutes more of an important stream of activity through which MS can share experience and learn from each other in workshops, such as the collection of good practice. Significant improvements are expected in Member States' second RBMPs especially in areas such as monitoring and assessment of water status and engagement of measures for identified pressures, as well as economics and pricing due to pricing schemes that have been implemented in recent years that are supposed to bring a lot more efficiency in water use but also more funding available for measure. Initial indications show that the first compliancy issues will relate to some Member States presenting their second RBMP late, and challenges due to regaining of hydropower activity in some areas and practice of intensive agriculture. Increased awareness of the difficulty to address hydromorphology issues means that assessments in this area are expected to be balanced.

Given the principle of subsidiarity, Member States have the role to ensure that they put in place the right procedures, mechanisms and governance to implement the WFD and ensure sustainability of their water resources:

> 'The Directive is about having the Member States follow the different planning steps and to include these steps in the governance and in the law so that each step fits into the next one – it is a build up – and end up with the right and cost effective measures that will enable the achievement of the objectives. From the twenty six articles of the Directive I would say that about twenty of them are concerned about building a sustainable organization, including tools and steps that provide for sustainability in the achievement of the objective. There are these three cycles or deadlines of the WFD, but beyond this there is no deterioration. So once status is achieved there should be no way back otherwise it not compliant with the Directive. It is a framework that is not that prescriptive, but done to ensure sustainability'.

The European Commission helps competent authorities on critical WFD implementation aspects with set-ups such as strategic communications groups that meet three times a year, technical working groups, circulation of official documents and the CIS. Moreover, it is equipped with desk offices in charge of countries who monitor more closely the implementation; 'this is the way of implementing and communicating our aims to Member States'. Given that these communication means are voluntary, it is up to the Member State to use them and communicate back to the organizations working on water in their country: 'the link between the European Commission and Member States is there, it is up to Member States to use it'. In fact, communication at Member State level 'can be tricky as some Member States have administrations that hardly talk to each other'. France is indicated as exemplary for the effort it invests in communication from water agencies and NGOs to stakeholders and society in general. In some cases the European Commission learns informally about difficulties experienced in Member States which cannot be written on paper because they constitute more of a political nature, such as cuts in economic expenditure. In these cases, soft power is used because formally 'we can only see gaps when they are reported or in infringement cases or when citizens or NGOs report to us violations on EU law'. People working on water in the European Commission are also kept informed of what the media in different Member

States report: ‘we have a newsletter that is compiling different articles that come from any sources of newspaper in Member States so that we know what is being put in the newspaper about water’.

While there is no formal communication on the organizational capacity of competent authorities responsible of implementing the WFD, the topic is very central to informal discussions the European Commission has, especially with water directors. In fact, the two respondents working in the European Commission agreed on how generally the competent authorities across the EU could relate to the thematic map of the Maltese competent authorities’ organizational capacity in their implementation of three selected WFD Articles (Figure 4.2). This is because many of the areas that the European Commission can point out to Member States with a need for improvement do link with the organizational capacity components identified. Its ‘detail and focus on human aspects’ make it useful to help discussions between European Commission and Member States to address more in-depth an identified issue on why something is not working and how it is being organized. It can also help Member States to put in place the requirements of the Directive, because of fear of commitment and also because the situation is different from one Member State to another due to the history of public administration, culture, skills, and governance. Moreover, it can also be used as a learning process similar to that of the recent initiative of the informal peer review process of RBMP (with a number of Member States participating but not as much as expected) where Member States can have bilateral contacts and have their plans reviewed, and in the process foster an environment encouraging exchange of information, guidance and learning. Similar to twinning projects (which have limited European Commission involvement and are more focussed on capacity building of the receiving country), the principle of peer review process is that some MS with considerable experience could offer their expertise to those facing difficulties and the European Commission funds all the logistical aspects. While the organizational capacity components can be interesting for informal acknowledgement of issues and the European Commission would be happy to help were there are problems, it is clearly

noted that these will not be accepted as justifications for non-compliance: ‘we are not responsible for what Member States decide, but we have to ensure they comply and implementation has to happen’. Therefore, in EU law these organizational capacity aspects are very much seen as pertinent to subsidiarity of Member States; ‘Member States are supposed to allocate the resources according to what they have voted for and the rest is Member State’s business’. Moreover, some Member States would not want similar information to be put on paper and given that competent authorities are government workers, it is within reason that they will justify their government; ‘this is precisely something on which the Member States do not want the European Commission to interfere, not many will be happy to recognize their weaknesses’. Thus, one respondent concludes: ‘informally we can learn about the conclusions from your study, but for example Malta will not report on these and try to justify them’.

Possible revision of the WFD is still to be determined. This will be in consideration of the five assessments of the WFD (two dedicated to the first and second RBMPs of Member States respectively, with the latest one becoming available in 2017) and reviews, which have to be completed by 2019; ‘first we deliver on the assessments of RBMPs and then together with all the studies (e.g. economic study) we engage in the review of WFD’. The review process sees if the WFD is fit and if objectives have been achieved. It is part of the increasing European Commission’s focus on smart regulation and represents a form of assessment of the Directive’s legislative framework in terms of appropriateness, gaps in the legislation and any improvements in scientific knowledge since entering into force. More heavy reliance on recent reviews and assessments will be placed as these represent the most up-to-date knowledge on state of implementation of the WFD. It is important to for the European Commission to showcase the progress of the WFD and justify its existence, even though the policy objective of achieving good status will be quite far from full achievement.

# 5. Discussion

## 5.1. Introduction

This chapter presents a critical examination of the empirical research findings reported in Chapter 4 in the context of the existing literature reviewed in Chapter 2. Essentially, the constructed narrative draws out organizational capacity learnings from the experience of Maltese competent authorities in their implementation of the WFD. It also presents judgements on these learnings in terms of their significance to wider water management scholarship and practice. The chapter continues to address the third research objective, which was partially achieved in Chapter 4, by discussing the organizational capacity learnings in relation to the institutional approach adopted in the study of competent authorities in Malta and their meaning to water governance. It then continues to discuss the understandings specific to the concept of organizational capacity in terms of what it's unpacking and use as a method to determine the organizational profile of competent authorities have shown. The discussion continues with partial addressing of the final research objective. This involves determining the wider implications of the competent authorities' planning and management of WFD implementation within the RBD have on the future shaping of the Directive.

## 5.2. The institutional environment of WFD competent authorities

The experience of Malta shows that the implementation status of the three selected WFD Articles (the extent to which the required objectives had successfully been achieved, as judged by the European Commission) is not necessarily reflective of the WFD-relevant internal organizational capacity which the competent authorities possess. For instance, the data in this study show that the competent authorities in Malta have the legal capacity to implement the Directive. However, having capacity does not automatically result in effective performance, and indeed the data also highlight a lack of enforcement of the regulatory framework. Similarly, the high implementation status of Article 14 (public information and consultation) is not reflective of the challenges the competent authorities encounter throughout implementation of relevant

responsibilities with the corresponding moderate organizational capacity they possess. This corroborates previous claims in the literature that while organizational performance and capacity are interdependent, they are not necessarily indicative of each other (Einsinger 2002, Meyer *et al*. 2012, Kayaga *et al*. 2013). Indeed, in accordance with previous literature on organizations and the influences they experience across the institutional frameworks they work in (e.g. North 1990, Scott 1995, Hodgson 2006, Hatch 2011), evidence strongly shows that the surrounding institutional environment of competent authorities can at times be an enhancing factor while at other times it can constrain effective implementation of the WFD. This is because the competent authorities and the water network (Figure 4.1) mutually influence each other and their relationship shapes both their behaviour and their work.

Therefore, as shown in the experience of Article 14 implementation, cases where organizational performance appears to outstrip the competent authorities' organizational capacity, are explained by the supplementary capacity of the larger network of organizations who contribute to the implementation of the WFD tasks. Conversely, as shown in the experience of Article 9 implementation, where organizational performance is lower than the competent authorities' organizational capacity, influencing factors such as politics (e.g. government's decisions what level of cost recovery and from where to recover costs), economic (e.g. willingness-to-pay and ability-to-pay for water use, subsidies), media (e.g. social and news news) and social norms (e.g. culture, lifestyle and mentality of water use) can be hypothesized as intervening. This means that the different states of the organizational capacity (availability, accessibility and use) competent authorities possess reflect a combination of both internal and external capacities.

Whilst the research ambition does not draw on the political will of the Maltese government to implement the WFD, nor its political priorities, evidence shows that leadership capacity of competent authorities is particularly heavily determined by the surrounding political environment as it influences their vision and direction, and how they influence stakeholders. Indeed, both the Blueprint report (European Commission

(2012b) and Moss (2008, p.32) attribute lack of enthusiasm to implement the WFD to "*political convenience"*. Similar experience has been reported for groundwater management through the WFD provisions in Spain, which attracts little investment from politicians due to limited visibility that can win votes and popularity, and unpopular government initiatives that would be required in order to address the issue of free riders (Stefano *et al.* 2014). This suggests that supplementing the current organizational capacity of competent authorities would not necessarily translate into more use of capacity, particularly in the case of recovery of costs for water services. While it may offer more opportunities for enhancing water management at the local level, organizational capacity does not exist in isolation. Thus, organizational capacity as a construct needs to be understood in the context of both the individual organization and the larger network of organizations of which it forms part.

The research has focused on the WFD as a regulatory institution, but the interrelations between the competent authorities and the water network show that informal structures have a largely complementary role to the non-exhaustive formal structures. This corroborated previous institutional literature that noted such complementarity between formal and informal structures (e.g. North 1990, Scott 1995, 2008, Hodgson 2006). Complementarity of formal and informal structures is highly dependent on the consistency between the meanings that the competent authorities have of the local WFD context to that of the larger water network. The understanding of meanings is very much reflective of Zilber (2008, p.152) who conducts a content analysis of literary works addressing meaning and institutionalization and defines meaning as the "*untangibile…aspects of institutions that are ideational and symbolic*". The case of Malta supports the idea that meanings are socially constructed and can in turn contribute to the social construction of the institution itself (Berger and Luckman 1966). Examples of consistent meanings from the data include the need for government to allocate resources such that talent can be deployed, the characterisation of the water network as fragmented, need for new legislation that clarifies allocation of water resources, the culture of information sharing in Government organizations, and the limitations of using

consultancies to do work outside of the competent authorities' expertise. Examples of differential meanings include the politicisation of water management and undermining of competent authorities' leadership capacity, the set-up of the WCU, trust in the quantity and quality of information that is provided in information and consultation meetings, use of public water resources by major water users, and the knowledge the competent authorities possess on various aspects of the RBD.

The data shows that such consistencies and differences in meanings are causal rather than spontaneous as these highly correlate to the concept of 'organizational field' i.e. organizations that share a common meaning system, have higher interaction and have closer affinity than with organizations outside the field (Scott 1994, Barman and McIndoe 2012). Indeed, the organizations (e.g. regulatory organizations in Figure 4.2) that have frequent formal (e.g. one to one meetings, small stakeholder consultation groups) and informal (e.g. friendships from a long history of working/studying together, feedback on document writing) interaction with the competent authorities tend to have more affinity with and knowledge of each other, share a similar vision for water management in Malta and enjoy a positive perception of each other. This idea offers support to the assumed benefits of public participation presented in Chapter 3 (Figure 3.2). This was particularly evident in the case of surface waters in Malta, which as evident from the dataset it constituted a major organizational capacity challenge for the government organizations, but constituted a subject of much less interest for other organizations. A relatively lower affinity with eNGOs and Users means that these often criticise the competent authorities as they do not meet their rational expectation of how they should function. Criticism from eNGOs and Users is also rooted in their perception that competent authorities' are not transparent when it comes to sharing the knowledge they possess (e.g. the economic framework for deciding cost recovery of water services) and a lack of trust in their leadership. However, lower affinity does not necessarily correlate with lower contribution to the competent authorities' organizational capacity to implement WFD provisions. Indeed, many non-government organizations within the water network have contributed to informing the public, for

example: the writing of news articles, blogging and use of social media. These are avenues that have not been explored by the competent authorities, partly because of their perception that outreach using these mediums is not enormously significant. However, both the competent authorities and the people working in the European Commission have acknowledged that they make reference to these information mediums, and considering the ease and popularity among the Maltese public to access information online (as noted in Chapter 3 Section 3.5.4) significant potential outreach to the wider general public exists. Other organizations have created affinity with the competent authorities following the latter's recognition of their strong leadership in undertaking projects, which have recorded significant impact on either water savings or dissemination of information. As a result, these projects have also contributed to shaping the future direction of water management as they constitute as best practice and feasible examples.

The Maltese competent authorities are not oblivious to these interrelations and similar to Hooper's (2006, p.1) observation they recognize that their organizations do not function in an "*institutional vacuum*". The key success factor that they identify in the implementation of established WFD measures is their social standing, which refers to the trust the water network has in their leadership capacity to manage the WFD requirements, perceived willingness to disseminate available knowledge and real involvement in the shaping of the direction for water management. This corroborates previous literature which identifies possession of "*sufficient standing to deal with all other organizations that have a bearing on the water in a river basin district*" (Chave 2001, p.18), and the ability to influence key actors and establish a forum for the involvement of all relevant stakeholders (Green and Fernández-Bilbao 2006) as the major requirements for successful competent authority organizations.

When these findings are understood in the wider perspective of (water) governance scholarship, the observation made by Pierre and Peters (2000) and Jordan *et al*. (2005) that modes of governance are increasingly complementing government, stands true to Malta. Indeed, Petersen *et al*. (2009) argues that the wider WFD experience shown that

governance does not result in reduction of governmental activity. The 'totality' characterization typical of the small state context as described by Baldacchino (2012) is evident in Malta as the history of strong state-centric approach to the management of water resources means that decision-making power and implementation of water policy is in the hands of the few. The WFD has effectively institutionalised water management in Malta. In the literature it is noted that institutions are reinforced by third parties (March and Olsen 2000), this corroborated with Malta's experience. In the learning curve of WFD implementation in Malta it was discussed how the competent authorities feel empowered by the WFD regulatory powers to urge organizations to fulfil their water responsibilities and meet compliancy with the European regulation in terms of the direction decided by Government (Chapter 4, Section 4.5.1). Similar to research that sees public participation as fostering empowerment of stakeholders (Reed 2008), data shows that the WFD implementation experience has in turn empowered stakeholders (e.g. non-government organizations) to increasingly hold government accountable for cases of non-adherence to the WFD, eNGOs form one example of this as they demand justification when action is taken that is not in the best interest of the environment. The NAO (2012) and the TPPI (2015) documents constitute other prime examples of this stakeholder empowerment. Moreover, non-government organizations such as eNGOs and User groups, which, as noted by the competent authorities, tend to be the same small number of people interested in water management, are expecting more involvement in shaping of water policy future of Malta.

The reasons for participation in governance identified by Peters (2000) and Lee (2003), namely, undermined credibility in the state's ability to reach goals and increasing capability and power of the public, reflect the interest of these organizations to seize opportunity to influence how to implement the decided direction of the Government. Competent authorities have been responding well to these desires as several opportunities offered for active involvement go beyond the minimum requirements mentioned in Chapter 3 (Section 3.3) and those of other countries mentioned in Chapter 2 such as Sweden (Gooch and Baggett 2013) and England and Wales (Fritsch and Benson

2013), such that WFD-related measures are developed jointly in stakeholder consultations, one-to-one meetings with representatives of key Users stakeholders groups, and the set-up of the Water Table for the implementation of the second WCMP. This is very much rooted in the competent authorities' organizational learning that developing WFD measures which users cannot and/or will not implement is a waste of their capacity efforts as it likely means unsatisfactory fulfilment of initial expectations written in the WCMP. Yet, while the set-up of the Water Table is a positive leadership initiative for active involvement in WFD implementation, it is intended for the people with 'genuine interest in water', which could potentially reinforce the differential meanings mentioned above as those with whom interaction is low or whose interest in water is possibly misconceived are alienated further.

More evidence supporting the idea that governance complements government in Malta corroborates previous literature that argues the choice of policy instruments is a good indicator (Stoker 1998, Pierre and Peters 2000, Jordan *et al*. 2005, Hezri and Dovers 2006). Indeed, the Maltese competent authorities wish to balance current negative enforcement (e.g. legislation requiring farmers to register boreholes and have them metered) that has not been adhered to in Malta such as households with rainwater harvesting cisterns and illegal water abstraction from unregistered boreholes, with increased emphasis on positive enforcement (e.g. consultation with more than forty per cent of agricultural community and domestic water saving kits).

Another significant finding from the case of Malta is the distinct value that individuals working in the competent authorities bring to the organizations' capacity. It has been established in the literature that organizational capacity has unique elements outside the summed individual capacities and that therefore the life of the organization is larger than that of the individual, which can be replaced with a new recruit who would learn the organization's routine (Hodgson 2004, 2006). However, evidence from Malta strongly shows that the individuals currently working in the competent authorities are very much indispensable in terms of their knowledge on the organization's routines, and more importantly the distinct approach to water management and specific WFD skills

such as fostering strong relations with other institutional actors in Malta as well as at European level (e.g. CIS working groups). So much so that changes in Government and organizational restructuring do not have a big impact on the work of the competent authorities and the organizations sharing close relations as the people remain the same, some of which have occupied similar positions from before WFD transposition. This is highly reflective of the small states context, which Sutton (2006) labels as 'exaggerated personalism', referring to the typical strong influence of government officials, and Baldacchino (2012) as 'intimacy', referring to the multiplicity and overlap of roles that they occupy over the years of serving in typically compact government arrangements.

These organizational capacity learnings from the case of Malta are captured in Figure 5.1. The three circles represent the major institutional actors of WFD implementation: the competent authorities, the water network, and the European Commission. The interior of the circles represents availability of capacity that each has. As shown by the areas where the circles overlap, the competent authorities interact with both the European Commission and the water network, and these two also interact independently of the competent authorities. Such interaction makes the capacity of the European Commission and the water network accessible to the competent authorities, and vice versa. The organizations sharing meanings of the WFD context with the competent authorities are presumed to provide more accessible capacity to the competent authorities, while those with lower affinity may still carryout actions that indirectly (i.e. not via the competent authorities) contribute to Malta's performance of WFD. The central part where all three circles overlap represents the organizational capacity that is deployed to perform i.e. implement the WCMP.

Performance is not only determined by the competent authorities' interaction with other institutional actors, but it takes place amid influences from the institutional factors existing in the wider institutional environment. Together with the interactions among the institutional actors, these largely characterise the peculiarity of a Member State. The instrumental case study approach adopted in the research means that focus was not drawn on the aspect of interaction with other Member States. However, the learnings

from this research indicate that this is another important institutional actor to consider when assessing the organizational capacity of competent authorities interactions they share in twinning projects, bilateral meetings between Member States, and peer review process of CIS. Indeed, such interaction takes significance in this research by positing to use the proposed method for assessing competent authorities' organizational capacity as a learning and communication tool across the European WFD implementation.

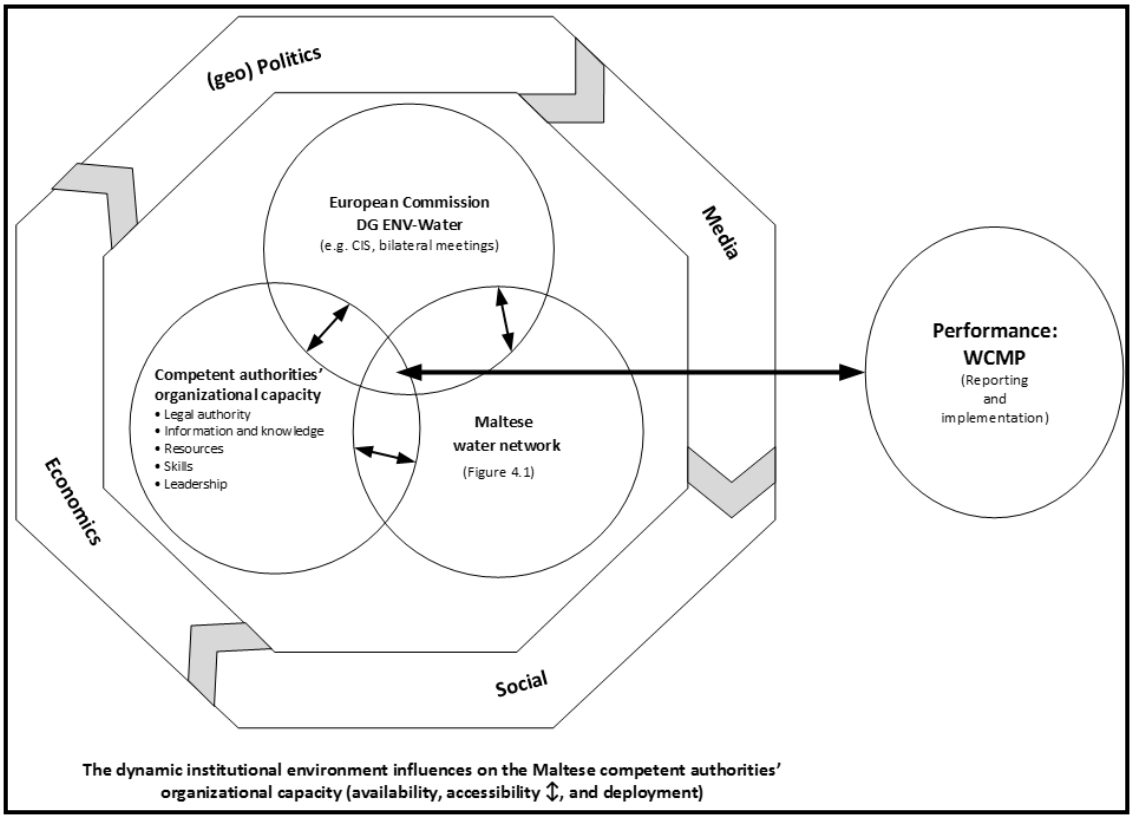


**Figure 5.1:** The wider institutional environment of the competent authorities

## 5.3. Interlinks of organizational capacity

The results support the idea of the organizational capacity components being highly interlinked and the presence (or lack thereof) of one component having knock-on effects on others within an organization as well as on other organizations. For instance, the generic literature on organizational capacity (Hall *et al*. 2003, Mostert *et al*. 2007) and that of small states (Sutton 2002, Börzel 2002) identify a lack of resources as being a critical factor hindering organizations from achieving their objectives. Evidence shows that the most pressing capacity indicator in Malta is human resources, as the

respondents unanimously asserted that the 'heavily understaffed' competent authorities are the 'crux of the problem'. This lack of human resource has prevented the competent authorities from deploying opportunities available to them, such as using financial resources to attend training events, frequent participation in CIS working groups, and hiring new personnel, as current employees cannot afford to dedicate time to teaching new recruits. As is typical of small states (Thorhallson 2000, 2015, Panke 2010, 2012), the small pool of resources means that the competent authorities strategically channel their organizational capacity to areas of most interest to the country for optimum use of capacity, such as attendance of CIS working groups on monitoring obligations due to the significant reliance it has to the country, rely heavily on consultancies (Sutton 2006). Therefore, these capacities 'are available but desirable' as the competent authorities prioritize work and meet the most pressing deadlines with the limited number of people and time available and accessible to them. Interestingly, this means that investing in the skills of current personnel has a lower priority than getting the job done, a tendency that is at odds with work which sees continual investment in organizational learning as necessary for an organization to have the required skill set to do its work (Andreadis 2009).

The major knock-on effect of not recruiting new personnel is that the skills that these potentially have are also not made available to the competent authorities. When this aspect is combined with the fact that the current personnel have not changed (as noted in the previous section), a lot of weight is assumed on the ability of the competent authorities to continuously adapt their current capacities according to the dynamic requirements of their institutional environment and developments from the WFD European community side. However, evidence indicates that such a scenario is unlikely to be sustained in the long term. While abundant, like the case of Czech Republic and Poland (Kowalczak *et al*. 2013), water management skills in Malta are largely from engineering and technology rather than hydrogeology, social and economic backgrounds (e.g. policy analysis), and do not tend to be specific to the WFD. For instance, communication has been identified as the biggest issue in conveying the

hydrology of the small island state context of Malta to the European Commission, as well as in writing of the first WCMP. Such homogenous technocratic skills are against what is currently advised across several literature sources, which recognize interdisciplinarity as key to effective water management and the necessary response to current water governance challenges (Thornton *et al*. 2006, Castro 2007, Feitelson *et al*. 2007, McColloch 2007, Tropp 2007, Mollinga 2009, Perry 2013). The competent authorities' recognition that governance and capacity building are fundamental to the successful implementation of the second WCMP, and recent developments in the WFD institutional network that have merged MEPA and MRA into a single entity, are promising steps towards starting to address such organizational capacity issues. This is especially significant since Malta as a sovereign state and an island is highly autonomous in WFD implementation when compared to a country such as Luxembourg, which has relied on the capacity of its river basin counterparts for fulfilment of obligations (Maganda 2013). The perception is that with less organizational fragmentation the chances of achieving water objectives are higher as a knock-on effect of the pooling of resources that comes with centralization.

The results also show that interlinks and knock-on effects are experienced across the three Articles in focus. For instance, through the organization of an inter-ministerial committee in Malta, which gave direction to the development of the first WCMP, the various ministries sharing water responsibilities became more informed of the work undertaken by each ministry, and as a result, they were able to identify overlaps and improve the alignment of policies. The fitting of individual ministerial responsibilities into the wider Maltese water organization perspective manifested positive knock-on effects across the implementation of obligations under the three focus Articles. This despite participation is thought to become increasingly difficult with integration (Theesfold and Schleyer 2013). Synergies and interlinkages were identified across several European Directives which resulted in the more efficient use of available and/ or accessible capacity because a culture of sharing capacities was fostered and duplication avoided. Moreover, coordination contributed to reinforcing the integrated water

management approach, an aspect which Junier and Mostert (2012) remarked as significant in their analysis of the Netherlands case of implementing the WFD and similar to the case of Malta they also argue that efforts at Member State level have to be matched with efforts at EU level. This example from Malta also supports the argument of Brody *et al*. (2010) that enhancing capacity need not necessarily entail high costs, as informed strategic thinking and cooperation can be inexpensive measures compared to other management options.

## 5.4. Prospects for effective water management

The findings reported in Chapter 4 and their discussion in the previous two sections of this Chapter have meaningful implications for how competent authorities plan and manage WFD implementation within a RBD both in Malta and the wider European context.

Effective water management through the provisions of the WFD is a collective effort as implementing the nationally devised measures requires concerted action from all sectors and actors, ranging from government organizations to private sector, eNGOs, research and users. The exploration of the research made it evident that understanding the mechanisms and use of organizational capacity within competent authorities requires an understanding of how it is influenced by the larger water network it forms part of. The influences the competent authorities share with their institutional environment mean that supplementing capacity may not necessarily translate into more use of capacity. Similarly, the indication from the unpacking of the resources capacity component is that the size of the task that the small Maltese competent authorities have is not proportional to the amount of resources and skills available. In turn, knock-on effects have created a vicious cycle situation that strongly suggests the Maltese competent authorities, among their efforts to continue improving implementation, are saturated with their workload. For instance, higher levels of implementation would require verification and integration of information from public information and consultation sessions rather than simply offering such opportunities. Both factors

impact the management options and outcomes of the competent authorities as shown in cases when several organizational capacities are available and accessible but only few are used.

The water network has increasingly been supplementing the organizational capacity of competent authorities across several components, primarily human resources and communication skills. This means that despite being major institutional actors in WFD delivery, competent authorities are not the only source of capacity for a Member State to implement the WFD. There is therefore the opportunity to support the water network to continue commissioning water-related projects, such that the capacities of these initiatives would have a positive knock-on effect on the organizational capacity of competent authorities. Recognizing the organizational infrastructure of these forms of governance has indeed been a lacking aspect in the larger EU governance context (Kassim and le Galès 2010, Schout *et al.* 2010).

While appreciative of these initiatives generated from the water network, the competent authorities identify that their coordination is essential so that projects' objectives are better aligned and maximum benefits are acquired. Similarly, Wegerich *et al*. (2014) argue that coordination of non-government organizations is necessary in order to prevent possible hidden agendas and avoid confusion. The Maltese competent authorities identify research organizations as key to addressing current knowledge gaps that if addressed could improve WFD implementation especially in aspects that offer higher integration of science into policy that can particularly inform decisions related to Article 8. More recently, research organizations have embarked on addressing water governance and capacity building aspects (e.g. Gatt 2015 and FOWARIM 2016). Therefore, supplementing the organizational capacity to implement the WFD is a two way process between competent authorities and the network. Given the knock-on effects across organizational capacity components, enhancing capacity is a lengthy process that requires growth to be gradual and in parallel across the components, rather than rushed efforts aimed at isolated components. This is similar to literature that identifies improvement in one aspect of water governance such as collaboration, leads

to a zero-sum game, a situation where gains in one area lead to equal losses in another (Imperial 2005).

Member States' organizational performance is based on whether implementation of WFD obligations have been fulfilled as judged by the European Commission. Cases such as that of the Netherlands where an in-depth study offered a contrasting story to the positive performance assessment (Heijden *et al*. 2013), show inherent shortcomings in the method. Primarily, it does not offer explanations to policy makers, practitioners and stakeholders in terms of how and why implementation was done. Moreover, it gives no indication of the longevity of the performance status, as well as reasons for variance across Members States. The use of the set of core qualitative capacity components as an assessment method supports a more reflective approach to WFD implementation and serves to enhance the European organizational memory of implementing the WFD across river basin districts as part of the WFD learning curve. Each core component of organizational capacity can be further unpacked to uncover specific areas of success as well as those needing intervention throughout the competent authorities' WFD implementation experience of each European RBD.

Notwithstanding the differences in how the implementation of the WFD is experienced across Europe, some similarities in the development of sub-components are foreseen to match those developed for the case of Malta. The differences are mostly thought to be related to the organizational capacity requirements for the management of shared river basins, as this is a missing aspect in the case of the island state of Malta as well as activities like hydropower. In turn, the set of qualitative organizational components can then be used to address issues regarding the sensibility of the implementation expectations a competent authority has based on the combination of its organizational capacity components. It opens up an avenue for knowledge exchange on organizational capacity possibly through fora such as the CIS and the recent peer review process, and gives a more transparent and narrative context to the extensive literature on the WFD. This is particularly interesting since WFD implementation has been described as path dependent and could therefore help explain current practice in retrospect (Moss 2004,

Correjlé *et al*. 2007, Lubell and Edelenbos 2013). These can be useful for example to understand why high ambitions of Member States are settled off in later practical phases, which has been identified as one of the challenges of WFD implementation (Liefferink *et al*. 2011). More specifically, by understanding and measuring current organizational capacity, it supports policy-makers in identifying the interventions needed to be put in place as well as improve both their quality and quantity, both in formal and informal contexts.

The information from using the set of qualitative components can be especially useful to informing collaborations on twining programmes between Member States, with the donor country knowing better what it can offer from its experience and the receiving country being able to choose the donor from which it can learn the most. A track record of the organizational capacity pathways of competent authorities presents further opportunity to monitor progress over time and better understand the evolution of WFD implementation (e.g. developments in interpretation). This is especially significant considering that both the people working at European Commission and the consultants appointed to carry out the assessment of RBMPs tend to be on short term appointments.

# 6. Conclusions and further study

## 6.1. Introduction

The WFD is a regulatory policy with governments of Member States as the main institutional actors that take WFD decisions with authority. It is highly results oriented and aims to achieve good ecological status of European waters and prevent the deterioration of the current status. Formal structural arrangements known as competent authorities help governments achieve these objectives, namely through coordination and reporting on the implementation of WFD-related measures. Largely reflective of the challenges identified in current academic and policy discourses of effective water management on institutions and organizations, this thesis has set out with the rationale that the delivery of the WFD is a major challenge for competent authorities across European Member States. This Chapter begins by offering a summary of how the research objectives have been fulfilled and the research contributes to understanding the impact which organizational capacity has on water policy design and implementation. The Chapter concludes the thesis by pointing out a number of future directions that can contribute towards better addressing of the major knowledge gap identified in the research.

## 6.2. Research findings and contributions

This thesis offers a narrative constructed with the aim of understanding organizational capacity for effective water management in the context of WFD implementation in Malta. In accordance with the research aim, Table 6.1 offers a summary of the identified research objectives and how these have been achieved in terms of the corresponding tasks undertaken, findings discovered and contributions made. The objectives are nested and therefore different tasks may be in fulfilment of multiple objectives.

**Table 6.1:** How the research objectives have been fulfilled

| Research objectives | Major findings | Contributions |
|---|---|---|
| **1.** To identify the core components of organizational capacity from conceptualizations in literature studies adopting an institutional perspective in order to construct a set of core qualitative components that can be used as a method to assess the organizational capacity profile of WFD competent authorities | - Demonstrate the unpacking of organizational capacity concept and identified five core components of organizational capacity: legal authority, information and knowledge, skills, resources and leadership | • A method for the assessment of WFD competent authorities organizational capacity |
| **2.** To test and illustrate the application of the set of core qualitative components for assessing competent authorities' organizational capacity in the case of the small state of Malta, and use the findings to expand and refine the core qualitative components of organizational capacity | - Designed a methodological framework that involves data collection from three qualitative methods, which can be used to test the set of core qualitative organizational capacity components<br>- Described the Maltese WFD organizational network<br>- Determined the organizational capacity profile of Maltese competent authorities in their implementation of three WFD responsibilities and a narrative account with evidence supporting capacity statuses<br>- Expanded and refined the set of core organizational capacity components to form a thematic map of organizational capacity | • Illustrate the application of the core components of organizational capacity to assess competent authorities and show the type of results that can be generated<br>• In-depth and holistic assessment of organizational capacity across three chosen Articles. |
| **3.** To critically examine how organizational capacity affects management options and | – Narration of the learning curve of Malta's implementing of WFD, including the distinct aspects of being small state<br>– Bridging of understandings between institutional theory and water management, including: 1) organizational capacity is not synonymous to organizational performance, 2) the institutional environment influences the availability, accessibility and use of competent authorities' organizational capacity, 3) differences in meanings of the local WFD context exist due to organizational fields but do not mean that marginalised organizations do not contribute to implementing the WFD, and 4) the role of the individual in small state context is significant (possibly more) than the organization itself | • A constructivist account of one small state's experience in implementing the WFD, with the potential for knowledge sharing among policy makers (e.g. European Commission) and practitioners (e.g. |

| | | | |
|---|---|---|---|
| | outcomes in the implementation of the WFD | – Identification of knock-on effects within the competent authority, across the network and across European Directives, with human resources being the most prominent | competent authorities of other Member States) |
| **4.** | To determine the wider implications which a deeper understanding of organizational capacity have on the future planning of the WFD | – The influences the competent authorities share with their institutional environment mean that supplementing capacity may not necessarily translate into more use of capacity. This is due to knock-on effects, which have created a vicious cycle situation that strongly suggests the Maltese competent authorities, among their efforts to continue improving implementation, are saturated with their workload<br>– The use of the proposed method for assessment of organizational capacity can facilitate communication and assessment of WFD<br>– Key areas to consider in the future planning of the WFD include: 1) the need to recognize more formally the role of organizational capacity in WFD implementation to understand challenges and opportunities across European RBD and foster knowledge exchange across Members about the subject, 2) channelling more support to the water network to help competent authorities achieve WFD objectives | • Awareness and literacy of the organizational capacity concept in WFD context, with aspects transferable to the larger water management literature |

### 6.2.1. Contributions of the research

The understandings conveyed in this research have contributed to both academic debates, and policy and practice. The Introduction (Chapter 1) identified that similar to the larger water management literature, current WFD challenges are more of an institutional and organizational nature rather than technical. The aim of the research was rooted in the fact that despite the many research on WFD and its implementation, organizational capacity of competent authorities remains a fairly unexplored subject. Moreover, when research has addressed such capacity it tended to focus on isolated aspects.

For this reason, in Chapter 2 reviewed the literature relevant to the research aim and demonstrated the unpacking of organizational capacity concept. The major outcome was the identification of five core components of organizational capacity (legal authority, information and knowledge, skills, resources and leadership) that can be used to assess WFD competent authorities. The Chapter also noted differences of being small state and highlighted the dearth of research on WFD as well as their water management from a political-institutional paradigm.

Chapter 3 then developed a qualitative research strategy and methodological framework for the assessment of WFD competent authorities' organizational capacity in order to test the set of core organizational capacity components in the small state of Malta. Chapter 4 contributed by illustrating the application of the method and the type of results that can be generated. Furthermore, it offered in-depth and holistic assessment of Maltese competent authorities' organizational capacity profile across three chosen Articles. Together with Chapter 5, it has contributed to a constructivist account of one small state's experience in implementing the WFD, with the potential for knowledge sharing among policy makers (e.g. European Commission) and practitioners (e.g. competent authorities of other Member States). This is important as Malta, as is the case for several other member states, was not part of the original drafting of the Directive but it will be present for its review and possible revision by 2019. Chapter 5 and 6 conclude the thesis by determining the wider implications which a deeper

understanding of organizational capacity have on the future planning of the WFD. These include:

1. The influences the competent authorities share with their institutional environment mean that supplementing capacity may not necessarily translate into more use of capacity. This is due to knock-on effects, which have created a vicious cycle situation that strongly suggests the Maltese competent authorities, among their efforts to continue improving implementation, are saturated with their workload.
2. The competent authority is not the only way of implementing WFD as with WFD experience the water network is becoming increasingly empowered to take contributing action. Thus, more support needs to be channelled towards the water network to help competent authorities achieve WFD objectives. This is especially significant in the case of Malta as competent authorities are currently not using capacity that is accessible to them due to the knock-on effects experienced internally.
3. The need to recognize more formally the role of organizational capacity in WFD implementation to understand the challenges and the opportunities existing across European RBD and foster an environment of knowledge exchange across Member States about the subject. This will become increasingly important with prospects of linking the WFD and the Floods Directive. The proposed method for assessment of competent authorities' organizational capacity serves this purpose as it can help explain why in one area performance is in a certain way and in another it is different. Moreover, it can facilitate communication across the various institutional actors of the WFD.

Finally, one of the major contributions of this research lies in its clarification of organizational capacity concept, an understanding that can go beyond the WFD context, especially in terms of its availability, accessibility and use within a larger institutional environment, and the knock-on effects of its components.

## 6.3. Future direction

This research understands that the exploration of organizational capacity has much left to be discovered. This research posits that a future direction is to pilot a set of RBD (including shared ones) and potential users (e.g. consultants appointed by European Commission) of the knowledge obtained by using the method so as to explore the mechanisms of interchange of knowledge among competent authorities and other institutional actors, and how practical it is in facilitating communication among parties. This would very much constitute a similar process like the studies cited in Chapter 2 that have used previously published sets of organizational capacity and in turn continued to describe and, largely, validate the existing conceptualizations of organizational capacity (e.g. Sharpe 2006, Misener and Doherty 2009, Mustapa *et al*. 2014).

Another emergent finding from the research that present another future direction relates to the interaction of different stakeholder groups and the intersectionalities between the different WFD Articles. Indeed, the findings of the research show that existence of organizational capacity knock-on effects across WFD responsibilities as well as the water network. Future research can explore further concretely how these specific two components influence the organizational capacity of WFD competent authorities in terms of addressing compliance issues in effective and efficient ways.

Another future research direction is to conduct a broader analysis of law in the institutionalization process of water management. This can take the form of a systematic review of the court cases on water that would seek to understand the WFD implementation challenges and the institutional capacity of Member States in addressing them. This is considered especially opportune since decisions of the European Court of Justice emerged across several discussion points in the latter part of the thesis and which could not be explored into detail as it comprises an aspect that goes beyond the scope of this thesis.

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# Appendix A The three selected WFD responsibilities

## A.1 Article 8 – monitoring of surface water status, groundwater status and protected areas

1. Member States shall ensure the establishment of programmes for the monitoring of water status in order to establish a coherent and comprehensive overview of water status within each river basin district:

- for surface waters such programmes shall cover:
    i. the volume and level or rate of flow to the extent relevant for ecological and chemical status and ecological potential, and
    ii. the ecological and chemical status and ecological potential;
- for groundwaters such programmes shall cover monitoring of the chemical and quantitative status,
- for protected areas the above programmes shall be supplemented by those specifications contained in Community legislation under which the individual protected areas have been established.

2. These programmes shall be operational at the latest six years after the date of entry into force of this Directive unless otherwise specified in the legislation concerned. Such monitoring shall be in accordance with the requirements of Annex V.
3. Technical specifications and standardised methods for analysis and monitoring of water status shall be laid down in accordance with the procedure laid down in Article 21.

## A.2 Article 9 – recovery of costs for water services

1. Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted according to Annex III, and in accordance in particular with the polluter pays principle.

Member States shall ensure by 2010

- that water-pricing policies provide adequate incentives for users to use water

resources efficiently, and thereby contribute to the environmental objectives of this Directive,

- an adequate contribution of the different water uses, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services, based on the economic analysis conducted according to Annex III and taking account of the polluter pays principle.

Member States may in so doing have regard to the social, environmental and economic effects of the recovery as well as the geographic and climatic conditions of the region or regions affected.

2. Member States shall report in the river basin management plans on the planned steps towards implementing paragraph 1 which will contribute to achieving the environmental objectives of this Directive and on the contribution made by the various water uses to the recovery of the costs of water services.
3. Nothing in this Article shall prevent the funding of particular preventive or remedial measures in order to achieve the objectives of this Directive.
4. Member States shall not be in breach of this Directive if they decide in accordance with established practices not to apply the provisions of paragraph 1, second sentence, and for that purpose the relevant provisions of paragraph 2, for a given water-use activity, where this does not compromise the purposes and the achievement of the objectives of this Directive. Member States shall report the reasons for not fully applying paragraph 1, second sentence, in the river basin management plans.

### A.3 Article 14 – public information and consultation

1. Member States shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans. Member States shall ensure that, for each river basin district, they publish and make available for comments to the public, including users:

   a) a timetable and work programme for the production of the plan, including a

statement of the consultation measures to be taken, at least three years before the beginning of the period to which the plan refers;

b) an interim overview of the significant water management issues identified in the river basin, at least two years before the beginning of the period to which the plan refers;

c) draft copies of the river basin management plan, at least one year before the beginning of the period to which the plan refers.

On request, access shall be given to background documents and information used for the development of the draft river basin management plan.

2. Member States shall allow at least six months to comment in writing on those documents in order to allow active involvement and consultation.
3. Paragraphs 1 and 2 shall apply equally to updated river basin management plans.

# Appendix B The generic interview schedule

<table>
<tr><td colspan="2">Organization: _____</td><td>Interview Code: _____</td><td>Date: _____</td></tr>
<tr><td colspan="4">1. Introduction – details about the study and interviews</td></tr>
<tr><td>Thank you<br>Introduce myself<br>Details about the study<br>Consent Form<br>Duration</td><td colspan="3">• Thank you for agreeing to participate in this interview.<br>• Introduce myself including the PhD project at Cranfield University and mention the supervisors.<br>• Why they were selected and the importance of their participation.<br>• The interview will take approximately 1 hour; feel free to give your opinions and thoughts.<br>• Go through the details listed in the consent form and ask for signature.</td></tr>
<tr><td colspan="4">2. The Interviewee – Verify that the participant meets the capacity components criteria on the basis of which its participation was deemed necessary and specify which criteria are met.</td></tr>
<tr><td>Background</td><td colspan="3">• Academic, job experience and skills<br>• Current job description.</td></tr>
<tr><td colspan="4">3. WFD experience</td></tr>
<tr><td rowspan="2">Understanding, Achievements and Challenges of WFD</td><td>Primary Question</td><td colspan="2">Secondary Questions</td></tr>
<tr><td>• What are the greatest achievements and challenges of the WFD in Malta?<br>• How much of a priority is the WFD for your organization?</td><td colspan="2">• What is your understanding of the WFD?<br>• What factors hinder or facilitate achievement?<br>• How are these challenges being addressed?</td></tr>
<tr><td colspan="4">4. Malta's water organizational framework</td></tr>
<tr><td>Establishment of CAs<br>Roles and Responsibilities of Organizations</td><td colspan="3">• What is your opinion on Malta's water organizational framework?<br>• Do you know which organizations are responsible for what aspects of the WFD in Malta?<br>• What factors make the CAs 'competent' to fulfil the WFD?</td></tr>
<tr><td colspan="4">5. Legal Capacity</td></tr>
<tr><td>Status of organizational capacity component</td><td colspan="3">• What are your views on statements made by both the 1st WCMP and the European Commission feedback (2012) in which they state the need for enforcement of the regulatory and institutional framework in Malta?</td></tr>
<tr><td colspan="4">6. Information and Knowledge</td></tr>
<tr><td rowspan="2">Information Sources, Assessment Methods and<br>Knowledge gaps</td><td>Primary Questions</td><td colspan="2">Secondary Questions</td></tr>
<tr><td>• How does your organization contribute to CAs' knowledge on the WFD implementation in Malta?<br>• What are your organization's sources of knowledge informing the WFD implementation in Malta?<br>• How are knowledge gaps addressed within your organization?</td><td colspan="2">• What is your opinion on the CAs state of knowledge on implementing the WFD in Malta?<br>• Do you encounter any difficulties when compiling information from multiple sources about the state of water resources in Malta?</td></tr>
<tr><td colspan="4">7. Skills</td></tr>
<tr><td rowspan="2">The skills of CAs<br>Opportunities</td><td>Primary Questions</td><td colspan="2">Secondary Questions</td></tr>
<tr><td>• What major skills does your organization have with regards to implementing the WCMP?<br>• Can you identify any skills deficiencies?</td><td colspan="2">• Does your organization carry out research?<br>• Did you benefit from any training related to water management?<br>• What is your opinion on Malta's training opportunities that are available ex: at the University or MCAST?</td></tr>
</table>

| | | |
|---|---|---|
| | • What major skills do you think that the CAs and collaborators have with regards to implementing the WCMP? | |
| 8. Resources | | |
| Allocation<br>Type and quantity<br>Funding | • What impact would an increase or decrease of your organization resources have on the implementation of the WFD?<br>• What impact would an increase or decrease the CAs resources have on the implementation of the WFD? | |
| 9. Leadership | | |
| | Primary Questions | Secondary Questions |
| Information flows<br>Personnel management<br>Direction<br>Co-ordination | • Describe your organization's relationship to the CAs.<br>• What impact did the inter-ministerial committee have on the implementation of WCMP?<br>• How does your organization manage the responsibilities of the WFD coordinated with the responsibilities of other policies? | • Do you liaise with other organizations on issues regarding the WFD implementation?<br>• Do you participate in national or international forums, conferences and seminars?<br>• What is your opinion on the CAs representation at EU level? |
| 10. Public Information and Participation | | |
| | Primary Questions | Secondary Questions |
| Challenges and Prospects of implementation | • What impact do the contributions of stakeholders and the public have on the development and implementation of the WCMP and more importantly on your organization?<br>• Are there any changes you would like to see from the 1st to the 2nd WCMP?<br>• When/if you have any comments to make about the WCMP, what means do you use? | • Where do you look for information concerning the WFD implementation in Malta? Do you know who to contact if this information is not available?<br>• What methods of public information and participation are you aware of?<br>• How did you (or the group you represent) participate in the 1st WCMP?<br>• What is your opinion on the relationship between the CAs and the stakeholders? |
| 11. Cost Recovery | | |
| Challenges and Prospects of implementation | • What is your opinion of the cost recovery of water services?<br>• Would you like to see any changes from the 1st to the 2nd WCMP? | |
| 12. Monitoring | | |
| Challenges and Prospects of implementation | • What is your opinion on the monitoring of water status (both quantitative and qualitative)?<br>• Would you like to see any changes in the implementation of this responsibility? | |
| 13. Performance | | |
| Organizational Learning<br>Compliance | • How would you summarize your organization's experience of the 1st WCMP?<br>• What is your opinion on Malta's performance of the WFD?<br>• How do you think this performance is compared to other MS? | |
| 14. Conclusion | | |
| Other issues<br>Snowball sampling<br>Contact Details<br>What happens now<br>Thank You | • Would you like to discuss anything else that has not been covered in the interview?<br>• Reference to other potential participants.<br>• I will send you the transcript for your approval and you can add or dismiss anything that has been discussed today.<br>• Best mode to contact me is via email. | |

# Appendix C Research consent form

| | |
|---|---|
| **Research Title** | The capacity of organizations to deliver effective water management through the provisions of the Water Framework Directive: The case of Malta |
| **Researcher** | Francesca Xerri<br>Ph.D. Candidate in Land and Water Management with Integrated Studies<br>Cranfield Water Science Institute<br>School of Applied Sciences<br>Cranfield University<br>Bedfordshire, MK43 0AL<br>f.xerri@cranfield.ac.uk |
| **Supervisors** | Prof Paul Jeffrey and Dr Heather M. Smith |
| **Duration and Recording** | The 1-hour long interview will be recorded. |
| **Rights** | Participation in this research is voluntary. You have the right to withdraw at any point during the interview and refuse to answer any of the questions. |
| **Anonymity and Data Storage** | The data (including recordings, notes and transcripts) will only be used for this research purpose and will be used and stored in accordance with the Data Protection Act. Access to the data is limited to the researcher and the supervisors as it will be stored in password-protected files.<br>Your anonymity is secured as you will be assigned a code that shall be used to label transcripts, recordings, data analysis and reference in any research outputs. The code ensures that the research participant identity cannot be traced. |

Tick (×) the boxes below if you agree with the following:

| | |
|---|---|
| I confirm my willingness to participate | ☐ |
| I confirm I understand the research purpose and use of data | ☐ |
| I confirm I understand my research participation rights | ☐ |
| I have been given a copy of the consent form | ☐ |
| I have been given the contact details of the researcher | ☐ |

_____

Name and Surname of participant

_____

Signature of Participant

(for the use of the researcher, supervisors)

Date: _____

# Appendix D Data evidence from the case of Malta

**Table D.1:** Evidence supporting the organizational capacity status of competent authorities to implement Article 8

| Capacity component | Reference | Capacity statements |
|---|---|---|
| Legal authority | NAO (2012, p.10 & 50) | *"The national legal and regulatory groundwater framework needs to be broadened to include climate change adaptation. This would facilitate efforts in the monitoring of initiatives…Implementation to date has focused considerably on the establishment of the regulatory framework to control groundwater abstraction and to ascertain its quality through minimising contamination. Although the relative legal provisions are in place, the administrative and organisational capacity at various entities is still not available to fully enforce these provisions".* |
| | TPPI (2015, p.17) | *"Under the WCMP, the implementation of groundwater metering was hindered by complexities both legal (identification of ownership and multi users of water sources) and technical (problems due to the various methods used over the years for drilling of boreholes); as well as shortages of MRRA staff responsible for installing meters…while progress had been made in installing groundwater metres for the commercial sector, the completion of groundwater metres for the agricultural sector had been delayed until mid-2013, and as a result, the requirements of L.N. 241 concerning groundwater metring could not proceed".* |
| | WCMP (2011, p.97) | *"More significant engagement in water regulation and control is still required to meet the environmental objectives of the WFD, in terms of permitting and other obligations, such as the installation of rainwater harvesting devices and action programmes for specific pollutants".* |
| | WCMP, p.110 | *"This function* [supply and distribution of potable water] *is currently undertaken by the Water Services Corporation (WSC) and is regulated by the Water Supply and Sewerage Services Regulations LN525/04. WSC abstracts groundwater and operates three reverse osmosis desalination plants".* |
| | Competent authority | 'Legislation and measures are in place, for example there has been a process of registration and metering of boreholes to safeguard groundwater and a legislation stating a moratorium on borehole drilling. There are other laws that will need to be enacted and others still to be thought of'. |
| | Public administration: government department | 'Malta is very backwards on regulatory enforcement, both for the WFD and Nitrates Directives, for instance, the sanctions placed on farmers are limited to the subsidies they apply for and are entitled to receive. The Department of Agriculture responsible of the Nitrates Directive has built the capacity to start taking enforcement action, the water Regulator should seek a similar experience'. |
| | Water Suppliers: government | 'The legal tools are there, including the Directive itself. However, the problem is enforcement of these legal tools'. |
| | Associations: eNGOs | 'The investment of 17 million euro in the Floods Directive project is a necessity out of negligence at source...while all the legislation is in place for it [flooding partly cause by weak enforcement of the domestic cistern law] not to happen it still happens, there is an enforcement problem'. |
| | Associations: eNGOs | 'The Minister still has a policy role, the WCU is under staffed, there is the regulator, and then there is a very big and powerful water operator with direct relations with the Minister that bypasses the two layers which have been introduced…and it's not going to work'. |

| | | |
|---|---|---|
| | Public administration: government department | 'Theoretically, rainwater harvesting could meet 60% of offices' needs, it requires cisterns with plumping systems in buildings, which currently it is already the law, however this will never be widely adopted in practice as the law has been poorly enforce'. |
| | Associations: political group | 'Instead of investing in the costly floods relief project, government should have enforced developers and property owners to respect more the domestic cistern law'. |
| | Research and training: expert | 'There is very loose enforcement on the law that states that every household has to have a well'. |
| | Times of Malta (30 March 2014) | *"Signs are scarce that the Ministry for Conservation of Water is ready to take on the managing of surface waters (rainwater run-off, ponds, streams) and coastal waters, which up to now fall under the environment and planning authority...As far as regulation of quality goes, the Environmental Health Division's monitoring so far only extends to first-class water. Private suppliers providing water from boreholes are only monitored from the operational side by the MRA".* |
| Information and knowledge | FAO (2006, p.xv) | *"Policies and practices to do this* [protect groundwater quality and stabilize mean sea-level aquifer] *need to be based on accurate information and acceptance that solutions must be applicable in the long-term".* |
| | Gatt (2004, p.22) | *"Licensed boreholes are generally unmetered and therefore there is no record of the amounts being drawn".* |
| | TPPI (2015, p.12) | *"While Malta's water scarcity and the stress on its aquifers are well documented, and there are debates and government initiatives from time to time, there is widespread ignorance about the real nature of the problems, issues, and choices. This is the result of a dearth of sound analysis and reliable data. Proposals appear to be made and initiatives taken largely on the basis of ideas, discussion, and limited observation".* |
| | WCMP (2011, p.75) | *"The identification of 'Quantitative Status' has been primarily assessed on the basis of water balance estimations and this due to the fact that quantitative monitoring networks are only operational in the two main sea-level groundwater bodies. Moreover these calculations are based on water demand estimates, particularly for groundwater abstraction by private operators such as agriculture and industry"* |
| | WCMP (2011, p.142) | *"A lacuna on the degree of impact and the implications of certain pressures on the various water environments calls for the carrying out of investigations and studies".* |
| | Competent authority | 'Monitoring has been completed and there is now a good idea of what the status is. In many cases, the expert judgement carried out in the first monitoring cycle was proven right'. |
| | Water regulator | 'Monitoring data has given a clear picture of the quality of water bodies in Malta. Even though this picture is not a very happy one, in terms of nitrates and chlorides because those are the two big issues, and showed that if Malta takes drastic measures, still the effect will only be felt in 40 years' time. The monitoring and the data we received gave us a justification for any action that needs to be taken. Monitoring of surface water started late and marine environment, but are now in line and the data will be used in the 2nd WCMP to consolidate those particular areas'. |
| | Public administration: government department | 'Rural metering of boreholes is still underway so government still does not know what is being abstracted and how the water is used'. |
| | Associations: eNGOs | 'At the moment we only have water meters with boreholes and obviously nitrate control measures. The farmer today still only has the option of pumping water from the ground, so metering is just for statistics'. |

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| | Times of Malta (26 May 2013) | *"Manuel Sapiano of the MRA water policy unit (within the Ministry for Energy and Conservation of Water) pointed out that an increase in quantity of groundwater sourced from TSE could never be at the expense of water quality. He pointed out that this is a basic requirement of both the EU water framework and ground water directives".* |
| | Times of Malta (6 May 2013) | *"With no up-to-date information on what, and how much, goes into and out of local aquifers, authorities must make do with estimates "from undocumented sources, many contradictory", the Malta Water Association has said".* |
| | Times of Malta (24 December 2010) | *"Other technical considerations, such as a lack of historical scientific data trends on Malta's inland surface waters makes the scientific monitoring methods required by the Directive unsuitable to Malta's case," the government insisted".* |
| | Maltatoday (22 March 2011) | *"MRA spokesman Manuel Sapiano however said that since the average age of Maltese groundwater bodies have a slow response system, the results of what we are implementing today will be noticed in 40 years".* |
| Skills | TPPI (2015, p.29) | *"There are no reliable calculations of the proportions of water Malta obtains from various sources. There are only estimates and rational assumptions".* |
| | TPPI (2015, p.40) | *"It is crucial that "sustainability" is properly defined, calculated, regularly measured using a valid and reliable methodology, reviewed over time, and the results made public along with their policy implications".* |
| | WCMP (2011, p.57) | *"For the inland surface waters identified by Malta in 2005, monitoring in accordance with the current regime under the WFD has proven to not be possible. The absence of reference conditions, which are associated with and obtained from pristine sites that have no or very minor anthropogenic alterations, as well as historical data for these inherently and discreetly different water bodies has led to the development of an alternative monitoring approach. Malta will be undertaking baseline studies for inland waters as a first step to accumulate enough data to enable it to develop a national monitoring program that is in line with the objectives of the WFD".* |
| | WCMP (2011, p.62) | *"The main problems which have hindered the full implementation of quantitative monitoring in all water bodies relate to the fact that as expected, field investigations on water level measurements have proven that this 'metric' is not adequate for monitoring quantitative status in the minor perched and coastal groundwater bodies. The monitoring methodology will thus be adapted to include flow measurements from springs as the main measurement used in these smaller units".* |
| | WCMP (2011, p.94) | *"The need to improve the national capacity for environmental monitoring* [as it is the scientific basis for policy and measure development within the WFD] *both in terms of technical requirements and infrastructure has therefore become more urgent. Innovative ways to increase collaboration between local and regional research institutions and regulators to address data gaps need to be developed".* |
| | Competent authority | 'MEPA is skilled in GIS in fact several stakeholders rely on MEPA's IT resources. Monitoring is done by external parties with expertise because for example in the case of intercalibration the skills requirements when looking at certain biological element as Posidonia oceanica, you need to know how it reacts to certain pressures and understand the physiology of the plant'. |
| | Competent authority | 'In groundwater and resource management from unconventional water supplies Malta is at the forefront; the fact Malta is considering to use sewage effluent reuse and rainwater harvesting is a very positive thing. When it comes to scientific knowhow, techniques and laboratory techniques Malta is behind. Certain knowledge that is traditionally passed on in government entities, such as a history of hydrogeological data that was inherited from the Water Works Department, will be lost unless the data management system is beefed- |

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| | | up…University of Malta does not cater for our research needs and not even other European Universities as these will focus on mainstream hydrology of their conditions not those typical of Malta' |
| | User: industry (beverage) | 'The person used to do this work in WSC and another company before we employed her, she had that experience. Otherwise it is difficult to find skilled personnel in Malta for this kind of things [overseeing environmental issues], there is a thirst for these kind of people. Perhaps because there was never that market for them as well. Thus, the role of the government is to provide incentives for it, because in the end it will benefit the country'. |
| Resources | Competent authority | 'Financial resources is a problem for the competent authorities but the crux of the problem is human resources. If you want a strong compliance and enforcement framework, you need people and you need to train the people. Thus, there is currently the need for more investment in the competent authorities' human resources. Monitoring programmes analysis is outsourced due to Malta not having the necessary laboratories. Currently, the feedback loop of MEPA is weak as it lacks people who can for example follow on environmental permits that are issues of environmental impact assessments that have been undertaken. Much more could be absorbed from the monitoring experience by understanding the lessons learnt in the process'. |
| | Competent authority | 'We are working on capacity development and research, with about two projects running every year that are funded through regional funds or cohesion funds or Mediterranean funds, but there has to be in parallel project capacity building so that the knowledge attained from these projects is retained' |
| | Water regulator | 'When it comes to groundwater, MRA does not have the resources it requires to do monitoring properly, both in terms of quality and quantity'. |
| | Water suppliers: government | 'Boron in water especially from RO is an issue, but thanks to EU funded projects this is being addressed and should be inline by 2015'. |
| | Associations: political group | 'Boreholes issue has been debated forever and Malta told EU what it planned to do. As iterated in the NAO report, while it is nice to have targets, there is the need to allocate the resources for them, such as continuously trained people to do the work as best as possible'. |
| | Maltatoday (7 October 2011) | *"Pullicino* [then Resources Minister] *added that Malta is the first country to be treating all sewage generated and is currently studying EU cohesion funds in order to have a polishing plant within each of the three treatment plans installed".* |
| | Maltatoday (22 March 2011) | *"Through a €4.9 million, MEPA said it is making a substantial investment to develop comprehensive monitoring programmes, including Malta's coastal and inland surface waters".* |
| Leadership | MRRA (2012, p.20) | *"A register of abstractions will be held and a monitoring system of groundwater quality and abstraction rates will be developed for the different use classes".* |
| | MRRA (2012, p.36) | *"Regular monitoring (surveillance & operational) of groundwater quality and quantity will be carried out in line with the requirements of the Water Framework Directive".* |
| | WCMP (2011, p.6) | *"The analysis* [of the natural characteristics of the water resources, the different uses, the threats to waters and their impacts] *was needed to identify the state of health of our waters and where and what management action is required to maintain or improve such status and thus achieve the purposes and objectives of the Directive".* |
| | WCMP (2011, p.60) | *"Existing groundwater water-level monitoring networks as operated by the Water Services Corporation were therefore utilised to monitor water level in the main sea-level groundwater bodies".* |

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| | Competent authority | 'There has been a change in the monitoring vision, whereby what used to be done before has been adapted to the Directive's requirements. While we are responsibility for groundwater quality control, we collaborate a lot with WSC on groundwater quantity. Since MEPA is the competent authority for the Nitrates Directives, it offers support in committees and other relevant initiatives. WCU rapports with MRA who support WCU in the presentation of data reporting'. |
| | Competent authority | 'Fully implementing the WFD is something that can happen. Malta is already implementing almost fully the WFD for the simple reasons that the measures to address over abstraction are being developed. So from that aspect Malta is planning to get there. In terms of quality, there are exemptions due to natural conditions: 1) travel time 2) a relatively high storage compared to annual yield. The Directive is fair enough to accept these justifications as exceptions. Malta tries to do its best, but there is a need for more investment.' |
| | Water regulator | 'Malta is at the forefront at notification and registration of groundwater abstraction and all commercial boreholes are registered. While the scope of meters was good, some changes are necessary. The next step for Malta is the licensing of water abstraction'. |
| | Associations: political group | 'If monitoring was really being done, some things would have been halted in consideration of the state of water resources of the country!' |
| | User: industry (beverage) | 'In a meeting we had with a government representative we were informed that the aim of metering of water boreholes is not to tax water users but to incentivise efficient water use'. |
| | Research and training: tertiary | 'Everyone knows we have a water problem. Everyone knows that there is insufficient GW. Why is monitoring being done? To comply with the Directive's provisions that we have to measure the parameters? If that is the point of monitoring, it has its validity. But not to put us on the road to recovery. The road to recovery is very hard'. |
| | Times of Malta (24 June 2012) | *"It is pointless referring to water as blue gold unless we show the political will to address one of the most damaging elements of this dire situation: nitrate levels, which in certain parts of the island have long been at an atrocious level".* |
| | Times of Malta (6 June 2012): Reader's comment | *"As if the worsening of the quality of water is not a clear indication that this natural resource, which belongs to everyone is not being managed properly!"* |
| | Times of Malta (5 August 2010) | *"Addressing a news conference this afternoon, Resources Minister George Pullicino said the aims of the policy included to reduce demand and water waste, improve quality by reducing ground water extraction, reduce pollution and ensure good quality water, encourage people to harvest their own rain water, adapt to climate change, and manage floods. Malta, the minister said, hoped to be the first EU country in the Mediterranean which treated all its sewage before this was disposed into the sea and which recycled water waste for agriculture and industry. The government, he said, was also in discussions with the Malta Resources Authority to see how to create fiscal incentives to encourage people to start reusing wells and rectify mistakes of past by enforcing the law which stated that new buildings had to have wells".* |
| | Maltatoday (1 December 2012) | *"Scientific advice by experts such as those within the Malta Water Association should be taken seriously by the Government… it is clear that having the regulator for resources* [and at the time WFD competent authority] *and the Department of Agriculture carrying the political responsibility of the same ministry is impeding the regulator from acting effectively".* |
| | Maltatoday (10 December 2011) | *"The Life programme being run in collaboration with the Malta Hotel and Restaurants Association (MHRA) and the eco-certification of hotels are positive measures".* |
| | Maltatoday (5 September 2011) | *"The government's topmost priority is the measurement of how much water is being extracted from the aquifer through boreholes. He said that government has already started a process of registration, and it intends to measure how much water is being extracted.* |

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| | | *Emphasising that government does not intend to suffocate or damage agriculture, he however said that government does intend to clamp down on extraction that goes on for other reasons, such as filling pools or other commercial activities".* |

**Table D.2:** Evidence supporting the organizational capacity status of competent authorities to implement Article 9

| **Capacity component** | **Reference** | **Capacity statements** |
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| Legal authority | FAO (2006, p.3) | *"Planning processes do not exist that maximize the allocation of water to the most beneficial use nor do they consider potential negative trade-offs associated with different courses of action".* |
| | Gatt (2004, p.23) | *"It is therefore worth considering issuing regulations that are properly embraced within a legal framework so as to set the obligation for all licensed boreholes to have installed devices that would enable metering and with the powers that would render any borehole that does not have such installations to be deemed illegal and hence liable for immediate closure".* |
| | WCMP (2011, p.8) | *"The relevant legal framework is also in place to apply these principles to private abstractors of groundwater".* |
| | WCMP (2011, p.114-116) | *"The tariff structure of the potable water supply is regulated by the Malta Resources Authority…Groundwater monitoring is today governed by new regulations LN241/2010 (Groundwater Abstraction (Metering) Regulations 2010). According to these regulations all groundwater abstraction in excess of 1m$^3$/day are to be metered. Installation and O&M costs for borehole meters are recovered through fees chargeable to groundwater users"* |
| | Competent authority | 'Cost recovery is responsibility of MRA. We are consulted because it is an issue that is so cross cutting that one cannot do it on their own'. |
| | Water regulator | 'There is the need to establish a water act that determines who owns the water and the abstraction licenses'. |
| | Times of Malta (6 June 2012) | "There has been a clamp down on illegal boreholes – mainly thanks to people who blow the whistle on their neighbours and through reading of water consumption patterns". |
| Information and knowledge | Gatt (2004, p.21) | *"Rates for water consumption that reflect the true cost of water are one of the most effective means for ensuring a responsible use of groundwater. Coupled with strong educational campaigns, economic instruments have proved to be very successful in altering the behaviour of individuals towards consumption patterns. Statistics for water consumption in Malta seem to reinforce this theory".* |
| | MRRA (2012, p.63) | *"Exhaustive studies and reports have been recently conducted by Government to provide more detail on specific issues concerning water resources. Typical examples are the Review of Water Resources, prepared by MRA and FAO in 2006, and the study on Nitrate Source Tracing conducted by BGS, 2009".* |
| | TPPI (2015, p.22) | *"The real economic value of Malta's water is not publicly known; the real costs of extraction and delivery (which include the environmental costs and social costs) have not been adequately calculated; there are no definitive studies to determine how close, in years, is the tipping point for the aquifer (the point at which sea water ingress, or nitrate concentrations cannot be reversed by affordable human action). There are no definitive studies on the options and their various costs of capturing rainwater, much of which currently ends up in the sea; the real extent of subsidies associated with water usage by different sectors of the economy are not publicly known, and have probably not been calculated. Also, there is only the vaguest notion of what indigenous water adds to Malta's GDP".* |

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| | TPPI (2015, p.33) | *"The system of distribution of piped water contains many problems, some remaining leaks, inefficiencies in the way water is distributed, a tariff system that does not encourage care in water use, end even some degree of consumer cheating. In combination, factors like these have the effect of increasing the water subsidies that are not made public, or probably not known".* |
| | Competent authority | 'Differentiates between key stakeholders and public stakeholders'. |
| | Associations: political groups | 'Cost of water production is costed but that of the raw material is not'. |
| | Research and training: tertiary | 'I think the fact that we have what I call structural problems makes water for free not a sustainable concept, abstraction greater than recharge is not a sustainable concept and that is exactly what monitoring is showing us'. |
| Skills | TPPI (2015, p.39-40) | *"There are many problems with existing water tariffs. They contain a number of uncalculated and hidden subsidies. Their justification based on an economic value of water has not been publicly demonstrated. The differentiation between household and commercial tariffs is unrelated to the extent to which water contributes to commercial profit. Additionally, the division of the household tariff between a water charge and a consumption charge does not appear rational, especially as government says it is committed to reduce water usage…Statements about water demand and what people are really willing to pay for water, is based largely on anecdote, invalid inference, and political imperatives".* |
| | Competent authority | 'The biggest skills deficiency felt within MEPA is economic knowhow'. |
| | Water regulator | 'With regards to the recent water tariffs changes, we received a proposal from the Operator, we reviewed it, many times we have internal expertise and we also get consultants that help us analyse the requirements. The big four consultants located in Malta that we normally use are: Thornton's, PWC, Deloitte, Ernest and Young. Together with our analysts and experts, we look at the proposal and then we propose a position to the board and the board decides on that position'. |
| | Times of Malta (15 March 2014) | *"The Malta Resources Authority and the Water Services Corporation have been carrying out various trials and experiments to establish the optimum use of treated sewage".* |
| Resources | FAO (2006, p.61) | *"Government also finances the cost of collection and purification of wastewater. Owners of new buildings pay a contribution that covers the cost of connecting the premises to the sewage network. The MEPA receives 10 per cent of these receipts and the rest is paid to government and not to the operators, i.e. the WSC. The capital and infrastructural cost of constructing the Gozo recycling plant is being financed from funds made available by the Italian Protocol. EU funding is being sought to upgrade the RO plants and other projects".* |
| | MRRA (2012, p.26) | *"Financial instruments on water use; implementing entity – MFIN, WSC and MRA; potential sources of financing – National and European Funds; Timeframe – Ongoing".* |
| | Times of Malta (6 June 2012) | *Also, €1.5 million have been spent on a programme to instruct farmers how to learn to reduce the impact of nitrate seepage into the ground, which contaminates the water. There are only 12 farms left which do not have tents to cover cow manure and many of these are pending relocation, he said.* |
| Leadership | FAO (2006, p.63) | *"It is only in recent months that there has been a greater awareness of the need to use water optimally and channel the consumption of this resource to its highest economic value. Indeed, the drive by the WSC to collect outstanding bills due is a sign of the determination to introduce* |

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| | | *accountability in water consumption. This is the first step towards generating an effective cost-recovery system and introducing widespread conservation attitudes and habits".* |
| | Gatt (2004, p.22) | *"As abstraction is in no way linked to amount one would pay, their use is indiscriminate and the current situation offers no incentive towards responsibility of use. Consequently, the authorities should consider undertaking an exercise with a view to metering such boreholes and establishing charges to cater for this type of water supply".* |
| | TPPI (2015, p.12) | *"Malta cannot, in the near future, be self-sufficient in water at an economically affordable rate. This would be so even if the two most important sources are better managed, namely the restoration and preservation of its aquifers, and the effective harvesting of rainwater".* |
| | TPPI (2015, p.50) | *"As the EU Water Framework Agreement requires the implementation of cost recovery for water provision, it will be necessary to establish what degree of cost recovery will be mandated and how that will impact on tariffs. This study needs to be complemented by a survey to establish the price-demand elasticity of water".* |
| | MRRA (2012, p.44) | *"There are certain tariff structures as well as permitted operations within some sectors which do not provide scope for water conservation measures and valuation of water as an economic good. This includes unmetered groundwater abstraction and the provision of treated sewage effluent at a flat rate irrespective of demand volumes. Such practices warrant remedial measures".* |
| | Water regulator | 'There needs to be agreement between stakeholders, otherwise it will not work. What I don't want to happen is that the issue of tariff becomes a political issue. This has to be transparent and people need to know about it. There needs to be a plan ultimately of where to cover the full costs including: environmental, recourse etc. What has happened is that the current model in Malta has full cost recovery on water but there is not cost recovery on wastewater. Other countries have started the other way round. This means that the model needs to change a little bit, as well by having full cost recovery on wastewater collection, waste water treatment and then because of social reasons there will be a gap and the country would not have a full cost recovery on water – and this would be allowed in the Directive. Although this is a sensitive issue for Malta, it has to make everyone happy and satisfied with having a pricing policy which is established on that which is related to groundwater. Apart from this, there needs to be full cost recovery on groundwater, which can also effect Water Services as it can extract groundwater. Again I have no problem that this would not cover the complete environmental cost. I know it will be criticised, it needs to be gradual. I do not mind finding ways to subsidise agriculture. I am also in favour of supporting agriculture by providing quotas so that the sector can improve'. |
| | Research and training: tertiary | 'Malta needs to get a national consensus on water in order to eliminate the big P. The sector is victim of a lot of political bickering. The challenge continues to be the appreciation of water as a limited and finite resource, groundwater resource which is overexploited, and a resource which is too cheap to be respected – from all the possible imaginable stakeholders including water users and water policy makers. The portion that is currently subsidised per annum is $33m^3$, if you divide this by 365 days, the result is 90 litres/person/day. Statistics show the average consumption nowadays is between 70-80 litres/person/day. So do we need everyone at a domestic level to be fully subsidised on the average consumption? I think it defeats the concept of a subsidy. Cost recovery is a must, in everything. Gone are the days when we can stay under the impression that the public's tax can serve for everything. We should start looking at services and to at least break even – I would like them to be profitable. This applies to all sectors – domestic, agriculture, industry, because the same volume and of the same resource is pumped'. |

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| | Times of Malta 1 | *"Operators of ground water boreholes and suppliers of water by bowser have been given free rein to bleed our aquifers dry... With a succession of short-sighted administrations at the helm and still no monetary charge to restrict tapping of ground water (whether from registered or illegal unregistered boreholes) for agriculture and other uses – the island's hydrological future looks bleak… The present political commitment to a lower price for tap water and free ground water for farmers makes any long-term plan for future water security difficult to achieve".* |
| | Times of Malta (15 March 2014): Reader's comment | *"The main problem is that the governments, PL as well as PN, have only been paying lip service to the water problem in Malta. They have continued to condone the legal and illegal plunder of our groundwater resource, most likely because the perpetrators of this plunder constitute a potential swing vote".* |
| | Times of Malta (24 October 2010) | *""Their stand is understandable, but not commendable, in a democratic country where not upsetting the electorate is evidently more important than doing what's needed in the national interest".* |
| | Times of Malta (11 March 2014) | *"Minister for Water Conservation Konrad Mizzi said that although the government was concerned about over-extraction and abuse of water, it did not want to use the meters installed on boreholes to impose new tariffs on the agricultural sector".* |
| | Maltatoday (10 December 2011) | *"Briguglio* [then chairperson of Greens Party] *said "The usage of groundwater by industry, including that of a certain soft drinks company, which was ironically recently awarded an environmental prize, should be banned immediately and should purchase water at commercial prices."Briguglio was making reference to General Soft Drinks Co Ltd Coca-Cola which make use of boreholes in Qormi to supply water for their factory in Marsa".* |
| | Maltatoday (9 January 2013) | *"We find ourselves in a situation where Malta is under pressure by the European Commission to implement the Water Framework Directive by 2015. Malta should have already implemented parts of it in 2010 (particularly Article 9 which deals with Water Pricing), and the pressure is increasing…the EU Life+ Investing in Water Project managed by the Malta Business Bureau…are auditing businesses and hotels, and it is surprising how much money can be saved simply by performing low cost interventions".* |

**Table D.3:** Evidence supporting the organizational capacity status of competent authorities to implement Article 14

| **Capacity component** | **Reference** | **Capacity statements** |
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| Legal Authority | Water Regulator | 'This is now a WCU responsibility who have to first listen and then draft the proposal'. |
| Information and Knowledge | TPPI (2015, p.9) | *'The public is largely unaware of the water problem and its dimensions. Even within government, there is a dearth of reliable data and facts relating to the water situation. This was recognised before the last election by the three political parties - Partit Nazzjonalista (PN), Partit Laburista (PL) and Alternattiva Demokratika (AD) who all pledged to produce a National Water Plan".* |
| | TPPI (2015, p.23) | *"Even if there is a public consensus on measures proposed during a public consultation, based on the current dearth of analytical foundations, the measures, if implemented, are unlikely be cost effective".* |
| | TPPI (2015, p.31) | *"When a topic, such as the role of the agricultural sector in Malta is publicly discussed, the absence of analysis and reliable facts almost inevitably results in sharp polarisation and exaggerated opinion".* |

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| | Maltatoday (7 October 2011) | *"A conference organised by MediWat – an organisation aimed at providing decision makers and stakeholders in the Mediterranean islands with the update know-how necessary to define the strategies for managing local water resources under stress conditions".* |
| Skills | MRRA (2012, p.63) | *"Stakeholders and interested parties are given ample opportunity to comment and participate in the development and review of reports and this approach will be reinforced in coming years, by means of a more intensive communication strategy".* |
| | NAO (2012, p.10) | *"Efforts to publicise the risk and vulnerability assessments are to be intensified. This will enable greater participation from the public and stakeholders in the public consultation process relating to such assessments. In turn, a broader public debate on these assessments will lend further credibility to the ensuing policies and strategies devised'".* |
| | TPPI (2015, p.10) | *"So far, in the development of the National Water Plan, the Government has relied largely on stakeholder consultations and presented facts and data with considerable inherent uncertainties".* |
| | TPPI (2015, p.51) | *"Consultation invariably takes place in the context of ignorance about the basic facts, resulting in special interest group lobbying, and undertakings that the Government has no way of delivering".* |
| | Competent authority | 'In recent years there has been a lot of work on data management such as MEPA's establishment of a shared environmental information system. However, it may be the case that access to information of high quality is more of an issue to people outside the government organizations'. |
| | Competent authority | 'The WFD makes it a point that the technical knowledge has to be delivered to the people and the people need to understand it. So even I, needed to make sure that the technical knowledge was for my personal understanding but then I have to market that knowledge to the people. Training was offered at accession stage by means of twinning projects such as with France, but the experience is gained along the way. The relationship with the stakeholders is good – it is only understandable that a person comes to express their concern; after all that is the purpose of the meeting. The process is very open. The aim is to be more accessible and of course feedback is integrated otherwise what is the purpose of doing the work! Meetings are advertised in the press. An attempt is made so that one or two weeks before a public meeting there is a meeting with local experts – an informal water table. The discussion during these meetings is more technical. This is done because experience has proven that in meetings some people can take up the time of others and answering them takes time as well and they may not even understand. This allows a public level approach in the meetings and ensures that you stick to the issue, and no one misunderstands the message as it is not technical'. |
| | Water regulator | 'The challenge of the authorities is to convey the message to the public that groundwater is a highly limited resource. The roundabouts with turf and sprinklers do not help to convey this message, conversely these give the impression of water availability and no need to conserve it. I would like to see more participation in the formulation of the WCMP, I think there have already been two very good meetings but there needs to be more engagement with the stakeholders in particular, and by this I do not only mean government stakeholders but also public, such as farmers'. |
| | Water supplier: government | 'Water management changes overtime, but government authorities do not inform us of these changes'. |
| | Water supplier: water tanker operator | *'There is a lack of information on current changes in water management, for instance the water price water-tanker operators will be paying'.* |

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| | Associations: eNGO | 'We have been invited to other sessions but under other programmes, such as SWMED. These are meant to be feeders into the overall strategy, but we do not know what the overall strategy is'. |
| | Associations: political group | 'The informed people at the top, presumably, they are not trickling the knowledge down to water stakeholders. The dates of consultation sessions do not attract the public, example in august when everyone is on holidays. While a lot of documents were issued last summer the content is not really substantial, more a report format of the sessions and attendance rather how it informs policy'. |
| | Associations: local councils | 'Water has never been mentioned in national local council meetings and invitations to attend public information sessions and consultation meetings organized by WCU were never received'. |
| | Research and training: expert | 'Many public information and consultation meetings take place but nothing substantial comes out of them. There would be one like me who makes a comment and they try to pass the responsibility of who should answer from one member of the panel to another!' |
| | Times of Malta (24 June 2012) | *"The Water Policy for the Maltese Islands, which up to a week later was not even available online – as most environmental experts and hydrologists complained in their blogs. So did the rest of us".* |
| Resources | NAO (2012, p.12) | *"The appropriate resources are to be made available to conduct information campaigns intended to inform the farming community of their obligations emanating from the second NAP…the information campaign project undertaken under the Life+ project should be carried out within the envisaged timeframes. The expedient undertaking of information campaigns minimises groundwater contamination and enables the competent authority to embark on enforcement action. Moreover, a farming community which is appropriately informed of its obligations minimises the risks of a significant non-compliance rate with regards to the implementation of EU programmes".* |
| | Competent authority | 'Due to limited resources, public participation with the general public is done only where it is necessary i.e. according to minimal requirements of the Directive – we don't go beyond that. Before publishing of draft program or draft plan, consultation every six months'. |
| | Times of Malta (26 May 2013) | "*A public consultation was held earlier this month as part of a project aimed at sustainable management of environmental issues related to water stress in Mediterranean islands. Partly financed by the European Regional Development Fund, the Mediwat project explores opportunities for increased inter-island cooperation involving regulators, technical people, academics and utilities*". |
| Leadership | MRRA (2012, p.63) | *"Government will seek to facilitate access to information on water policy issues, promote research and development in the sector and raise awareness on the strategic and economic importance of water…the National Environment Policy for Malta (NEP) has been published in 2011 following a stakeholder consultation. With respect to water this has been largely based on information collated as part of the Water Framework Directive obligations".* |
| | WCMP (2011, p.14) | *"The active involvement of stakeholders and the general public has been imperative to the development of this plan. In fact, several stakeholders and the public have been consulted during its preparation. Their involvement will not stop with the publication of the plan but will be a continuous process till the end of the first planning cycle".* |
| | Competent authority | 'Meetings are done with government stakeholders in the form of workshops, with for example Transport Malta and WSC. After publishing of first plan, stakeholder consultation was stepped up due to the establishment of the inter-ministerial committee. Generally, NGOs show an interest, sometimes they are invited to provide expert input in certain issues, especially on freshwaters'. |
| | Competent authority | 'Meetings are organized on topics, for example the last one was efficiency. So it is less relevant whether the meeting targets specifically the WFD or the National Water Management Plan, a measure that comes up, if it is good for one, it will be good for the other as well. Meetings |

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| | | are held monthly (on average) on specific topics. This means that a number of significant water management issues have been divided into topics to target consultations on them. The level of difficulty of the issues varies, so an issue on groundwater management is more difficult than an issue on efficiency, and presence in the groundwater meeting will be more as it is a more controversial topic than efficiency. Every topic is to reinforce a legal issue, so there is like an implementation matrix whereby the jigsaw pieces will be joined. This separation of topics is ideally because a meeting targeting the whole policy would entail more talking than listening to what people have to say. We will see if this will work. Interesting things do come out of these meetings. One has to listen to what is concerning people and to see whether the people actually understand the problem. If what you are saying or have been saying during the years is being understood correctly. The people's reaction is also important as well as understanding why on a particular issue 150 people attend and on other issues merely 10 are present. This would also show what the people consider as an issue, even though sometimes it can be the case that the least attended meetings address issues that have a far greater impact than the crowded meetings. The changes from the first to the second WCMP are many in this responsibility include: 1. Fragmented approach; 2. Informal water table and public level meetings; 3. In the first there was a conference and some stakeholder meetings, while now the meetings are already double or triple to that and there are still six months before publishing of the draft in December; 4. The gap analysis of the first plan showed that there is a need to move out more in order to get the message across; 5. The fact that the government is thinking of doing a water conservation campaign and the wide concept goes beyond taps dripping to include concepts such as urban water management is positive move that shall assist in the implementation of water management across the country'. |
| | Associations: eNGO | 'We do not see consultation sessions as effective as after many years little has been done to integrate our views into policy and agriculture still gets the blame for water quality and quantity deterioration'. |
| | Associations: eNGOs | 'While in the conventional agriculture the farmer has to pay nothing to poison the food, in organic agriculture the farmer has to pay certification in order to provide clean food! This is discrimination between a conventional product and an organic product – the conventional get away with murder, almost because the sampling is done but the random sampling is so small that it is not representative if not insignificant, while in organic the sampling is 100%'. |
| | Research and training: tertiary | 'The value of public information sessions is to a certain point limited, perhaps more with an individualistic scope, but bottom line we have to make sure that we get our policy right, and that there is an administration that wants to implement the right policy'. |
| | Research and training: expert | 'There is lack of will, lack of vision and disinterest: 1) sessions are generally presented by government entities, so they lost their voice, if the government does not what to do a measure of rainwater harvesting, these will say justifications why the government does not want to harvest, irrespective of what they think and academic background - the last one I attended I could see how the organizers either do not have an idea of the subject or they do not want to create a position that embarrasses them, 2) Most of these meetings are done for the sake of doing them, especially if funded by the EU: we did it, there were 100, they said this, there were NGOs, we invited everyone, who came…and when it is over it is forgotten, 3) during these meetings there is no politician attending, from the government or the opposition, they go for the opening, say a few words someone else would have written which mean nothing to them, and when the photographer leaves they also leave'. |
| | Times of Malta (24 February 2014) | *"Those who fret about the lack of collective awareness on the fragility of the water supply must now feel relieved that, at last, public policy on water management appears to be moving in the right direction".* |

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| | Maltatoday (10 December 2011) | *"De Marco* [then Parliamentary Secretary for Tourism Mario De Marco] *stressed that investment in water conservation programmes alone is not enough. "We need a cultural change and improve our practices""*. |

# Appendix E Online news media dataset

**Table D.1:** Source/Capacity Component/Voice

| Newspaper | | Times of Malta | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | | 2010 | | | | | 2011 | | | | | 2012 | | | | | 2013 | | | | | 2014 | | | | |
| No of Articles | | 10 | | | | | 2 | | | | | 7 | | | | | 5 | | | | | 4 | | | | |
| Prominent Capacity Component | | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L |
| General Tone | P | | 1 | | | | | | | | 1 | | 2 | | | | | 1 | | | | | | | | 1 |
| | M | | 1 | | 1 | 3 | | | | | | | 1 | | | 4 | | 1 | | | | | | | | 1 |
| | N | | | | | 4 | | | | | 1 | | | | | | | 1 | | | 2 | | | | | 2 |
| Newspaper | | Malta Today | | | | | | | | | | | | | | | | | | | | | | | | |
| Date | | 2010 | | | | | 2011 | | | | | 2012 | | | | | 2013 | | | | | 2014 | | | | |
| No of Articles | | 7 | | | | | 5 | | | | | 5 | | | | | 2 | | | | | 2 | | | | |
| Prominent Capacity Component | | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L |
| General Tone | P | | | | | | | 1 | | | | | | | | | | | | | | 1 | | | | |
| | M | | 2 | | | 1 | | 2 | | | | | | | | 2 | | | | | 1 | | | | | |
| | N | | 3 | | | 1 | | 2 | | | | | | | | 3 | | | | | 1 | 1 | | | | |
| Newspaper | | Di-Ve | | | | | | | | | | | | | | | | | | | | | | | | |
| Date | | 2010 | | | | | 2011 | | | | | 2012 | | | | | 2013 | | | | | 2014 | | | | |
| No of Articles | | | | | | | | | | | | 3 | | | | | 2 | | | | | 1 | | | | |
| Prominent Capacity Component | | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L |
| General Tone | P | | | | | | | | | | | | 2 | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | | 1 | | 1 | | | |
| | N | | | | | | | | | | | | | | | 1 | | 1 | | | | | | | | |
| Newspaper | | Gozo News | | | | | | | | | | | | | | | | | | | | | | | | |
| Date | | 2010 | | | | | 2011 | | | | | 2012 | | | | | 2013 | | | | | 2014 | | | | |

| No of Articles | | 5 | | | | | 2 | | | | | 1 | | | | | 2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prominent Capacity Component | | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L |
| General Tone | P | | 1 | | | | | 1 | | | | | | | | | | | | | 1 | | | | | |
| | M | | | | | 3 | | | | | 1 | | 1 | | | | | | | | | | | | | |
| | N | | | | | 1 | | | | | | | | | | | | 1 | | | | | | | | |

| Newspaper | | iNews | | | | | | | | | | | | | | | | | | | | | | | | |
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| Date | | 2010 | | | | | 2011 | | | | | 2012 | | | | | 2013 | | | | | 2014 | | | | |
| No of Articles | | | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | |
| Prominent Capacity Component | | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L | LA | I & K | S | R | L |
| General Tone | P | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | M | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | | | | | 1 | | | |

**Table D.2:** General tone and prominent capacity component

| | | 2010 | 2011 | 2012 | 2013 | 2014 | Total |
|---|---|---|---|---|---|---|---|
| General Tone | Positive | 2 | 3 | 4 | 2 | 3 | 14 |
| | Moderate | 11 | 3 | 8 | 3 | 2 | 27 |
| | Negative | 9 | 3 | 5 | 5 | 4 | 26 |
| Capacity Component | LA | | | 1 | | 2 | 3 |
| | I & K | 7 | 5 | 6 | 5 | 2 | 25 |
| | S | | | | | | |
| | R | 1 | | | | | 1 |
| | L | 13 | 5 | 10 | 6 | 5 | 39 |

**Table D.3**: Complete online news media data set

| Source | Article Title | Date | | Section | Author | Main topic (s) | General tone | Prominent capacity component |
|---|---|---|---|---|---|---|---|---|

| | | 2010 | 2011 | 2012 | 2013 | 2014 | **Nº Readers' Comments** | | | | P | M | N | LA | I&K | S | R | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Times of Malta | Water policy consultation launched | 05/08 | | | | | 0 | News | N/A | Policy measures | • | | | | | | | |
| | Replenishing aquifers with treated sewage 'good but costly' | 07/08 | | | | | 0 | News | Kurt Sansone | GW sustainability | | • | | | | | | |
| | Water policy penalises basic consumption | 09/08 | | | | | 0 | Comment | Micheal Camillieri | Water pricing and consumption | | | • | | | | | |
| | Editorial - Water: Will serious action be taken at last? | 12/08 | | | | | 0 | Editorial | N/A | Water Sustainability | | | • | | | | | |
| | Draft water management plan | 29/08 | | | | | 0 | News | Anne Zammit | Compliance to EU law | | • | | | | | | |
| | Are we watering down the issue? | 24/10 | | | | | 0 | News | Herman Grech | GW sustainability | | | • | | | | | |
| | After the floods... EU demands Malta's river basin plans | 28/10 | | | | | 0 | News | N/A | Compliance to EU law | | • | | | | | | |
| | Nitrate pollution and salinity among groundwater problems | 17/11 | | | | | 0 | News | N/A | GW sustainability | | | • | | | | | |
| | One size fits all as EU court convicts Malta | 22/12 | | | | | 2 | News | N/A | Compliance to EU law | | • | | | | | | |
| | Malta guilty of violating Water Framework Directive | 24/12 | | | | | 0 | News | N/A | Compliance to EU law | | • | | | | | | |

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| | 'Malta lacks plan on water management' | | 30/06 | | | | 2 | News | N/A | Mismanagement | | | • | | | | | | |
| | EU closes infringement proceedings against Malta | | 16/07 | | | | 0 | News | N/A | Compliance to EU law | • | | | | | | | | |
| | Efforts to ensure groundwater sustainability must be stepped up - Auditor General | | | 20/02 | | | 26 | News | N/A | GW sustainability | | • | | | | | | | |
| | More effort urged on groundwater | | | 21/02 | | | 1 | News | N/A | GW sustainability | | • | | | | | | | |
| | Water catchment plan risks missing EU target | | | 23/02 | | | 4 | News | Bertrand Borg | WCMP implementation | | • | | | | | | | |
| | Water Policy issued | | | 05/06 | | | 19 | News | N/A | Policy Measures | • | | | | | | | | |
| | Malta can never run out of water – WSC - There is no need to buy bottled water. We can all drink tap water – minister | | | 06/06 | | | 28 | News | Kristina Chetcuti | Water Sustainability | • | | | | | | | | |
| | Conflicting signals on water | | | 24/06 | | | 2 | Comment | Leo Brincat | Water Sustainability Water Information | | | • | | | | | | |
| | 'Charge more to conserve water' | | | 26/06 | | | 37 | News | Sarah Carabott | Water Pricing | | • | | | | | | | |
| | Unrealistic water bills | | | | 12/01 | | 4 | Comment | Theodore Sammut | Water Pricing Lack of Public Information | | | • | | | | | | |

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| | AD vows to protect ground water | | | | 26/02 | | 1 | News | N/A | Compliance to EU law | | | • | | | | | | |
| | Appeal to make water policy body a reality - Institute would help plug Government's knowledge gap and create national plan | | | | 06/05 | | 3 | News | Bertrand Borg | How to establish a national water plan | | • | | | | | | | |
| | Aquifer recharge potential | | | | 26/05 | | 0 | News | Anne Zammit | Water Sustainability | • | | | | | | | | |
| | Water policy runs dry | | | | 18/08 | | 0 | News | Anne Zammit | Mismanagement | | | • | | | | | | |
| | A paradigm shift in water management | | | | | 24/02 | 3 | Comment | N/A | Mismanagement | | • | | | | | | | |
| | Farmers will not be billed for water extracted for irrigation | | | | | 11/03 | 0 | News | Matthew Xuereb | Water Pricing | • | | | | | | | | |
| | Planning water sustainability | | | | | 30/03 | 1 | News | Anne Zammit | Water Sustainability and Mismanagement | | | • | | | | | | |
| | Every little drop counts | | | | | 15/04 | 1 | Comment | Carmel Cacopardo | Mismanagement | | | • | | | | | | |
| Malta Today | Scicluna calls on EC to ensure Malta complies with Water Framework Directive | 02/07 | | | | | 0 | | Charlot Zarha | Compliance to EU law | | • | | | | | | | |
| | No billing of groundwater extraction, government to | 11/09 | | | | | 2 | | N/A | Water Pricing Compliance to EU law | | • | | | | | | | |

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| | allocate quotas to farmers | | | | | | | | | | | | | | | | | | |
| | Government to allocate groundwater quotas to farmers | 13/09 | | | | | 0 | | James Debono | Water Pricing Compliance to EU law | | • | | | | | | | |
| | Water bills 'to skyrocket' when EU forces WSC to pay for groundwater | 19/09 | | | | | 2 | | James Debono | Water Pricing Compliance to EU law | | | • | | | | | | |
| | Higher water bills when EU gets WSC paying for groundwater | 20/09 | | | | | 1 | | James Debono | Water Pricing Compliance to EU law | | | • | | | | | | |
| | Water 'clearly not a priority for government' - hydrologist and Everester Marco Cremona | 28/10 | | | | | 2 | | Nestor Laviera | Lack of water policy action | | | • | | | | | | |
| | Malta guilty of not fulfilling Water Directive obligations - European Court of Justice | 22/12 | | | | | 0 | | N/A | Compliance to EU law | | | • | | | | | | |
| | MEPA, MRA launch Water Catchment Management plan | | 22/03 | | | | 1 | | Miriam Dalli | Compliance to EU law | • | | | | | | | | |
| | National Environment policy scant on water-conservation proposals | | 05/09 | | | | 6 | | Nestor Laviera | Lack of water policy action Water Sustainability | | | • | | | | | | |
| | Treated sewage water should be considered | | 14/09 | | | | 3 | | Nestor Laviera | Water Responsibility | | • | | | | | | | |

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| | 'an alternate water resource' | | | | | | | | | | | | | | | | | | |
| | Down the drain: each one of us is flushing 32 litres of water every day | | 07/10 | | | | 4 | | Miriam Dalli | Compliance to EU law Water Pricing | | | • | | | | | | |
| | Political parties in agreement on strategic importance of water | | 10/12 | | | | 3 | | Jurgen Balzan | Water Sustainability Mismanagement | | • | | | | | | | |
| | AD says Malta requires sustainable policies | | | 01/02 | | | 1 | | N/A | Water Sustainability | | | • | | | | | | |
| | Water policy lacks targets | | | 27/03 | | | 0 | | James Debono | Water Sustainability Water Quality | | • | | | | | | | |
| | Hydrologists in urgent appeal to stop exploitation of water resources | | | 03/08 | | | 5 | | Matthew Vella | GW protection – Water Pricing | | | • | | | | | | |
| | European Commission raps Malta over water pricing | | | 12/12 | | | 4 | | James Debono | Compliance to EU law – Water Pricing | | • | | | | | | | |
| | Reducing water tariffs a 'huge mistake' – Marco Cremona | | | 19/12 | | | 20 | | James Debono | Water Pricing | | | • | | | | | | |
| | Marco Cremona \| Higher water prices – a reality Malta must face | | | | 09/01 | | 1 | | Nestor Laviera | Water Pricing | | | • | | | | | | |
| | AD says waste and excessive use of water should be penalized | | | | 26/02 | | 3 | | N/A | GW Sustainability | | • | | | | | | | |

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| | Experts call for bipartisan consensus on water management plan | | | | | 05/02 | 2 | | N/A | Water Quality | | | • | | | | | | |
| | Energy ministry sets up water conservation agency | | | | | 12/02 | 2 | | N/A | Water Organizations | • | | | | | | | | |
| Di-ve | Water association concerned about groundwater resources | | | 03/08 | | | 0 | Editorial | N/A | Policy Measures | • | | | | | | | | |
| | A five drop policy | | | 09/11 | | | 0 | | Carmel Cacopardo | Policy Measures | • | | | | | | | | |
| | ''Malta requires sustainable policies" – AD | | | 01/12 | | | 0 | | N/A | Water Organization | | | • | | | | | | |
| | National Water Plan should be priority - MWA | | | | 24/04 | | 0 | Editorial | N/A | Water Policy action | | • | | | | | | | |
| | Malta: surface water most polluted in EU | | | | 21/10 | | 0 | Editorial | N/A | SW quality Compliance to EU law | | | • | | | | | | |
| | Every little drop counts | | | | | 15/03 | 0 | Editorial | N/A | Water Metering | | • | | | | | | | |
| Gozo News | World Water Day 2010: A red letter day for Europe's waters | 22/03 | | | | | 0 | | N/A | Compliance to EU law | | • | | | | | | | |
| | Scicluna urges Commission for action on water shortages | 02/07 | | | | | 0 | | N/A | Water Quantity | | • | | | | | | | |
| | Scicluna demands government ditch | 11/09 | | | | | 0 | | N/A | Water Quality | | | • | | | | | | |

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| | water quality derogation | | | | | | | | | Compliance to EU Law | | | | | | | | |
| | EU Commission urges Malta to submit river basin plans | 28/10 | | | | | 0 | | N/A | Compliance to EU Law | | • | | | | | | |
| | MEPA & MRA draw up water catchment management report | 15/11 | | | | | 0 | | N/A | Compliance to EU law | • | | | | | | | |
| | MEPA launches the water catchment management plan | | 23/03 | | | | 0 | | N/A | Compliance to EU law | • | | | | | | | |
| | Urgent need for a sustainable water policy in Malta – AD | | 10/12 | | | | 2 | | N/A | Water Responsibility | | • | | | | | | |
| | Sustainable water policies needed to avoid problems – AD | | | 01/12 | | | 0 | | N/A | Water Policy Action Water sustainability | | • | | | | | | |
| | AD would ensure groundwater is protected and used wisely | | | | 26/02 | | 0 | | N/A | GW protection | • | | | | | | | |
| | Malta's surface water & groundwater some of the most polluted – EU survey | | | | 19/10 | | 6 | | N/A | GW & SW Water Quality | | | • | | | | | |
| iNews | Petizzjoni biex l-ilma jitla' fuq l-aġenda tal-UE | | | 14/09 | | | 0 | | N/A | Water Responsibility | | • | | | | | | |
| | Pjan Nazzjonali favur is-sostenibbiltà tal-ilma | | | | | 06/02 | 7 | | N/A | Water Sustainability | • | | | | | | | |

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| | Hemm bżonn li nipproteġu l-ilma tal-pjan - AD | | | | | 10/05 | 1 | | N/A | Water Responsibility | | | • | | | | | | |