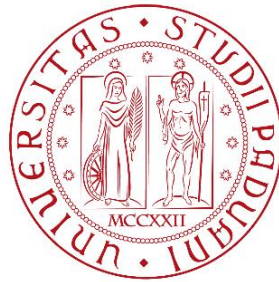


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WATER GOVERNANCE IN THE DANUBE RIVER BASIN AND THE
WATER FRAMEWORK DIRECTIVE
(WFD)

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Abbreviations

AHS: Accident Hazard Sites

AEWS: Accident Emergency Warning System

BOD: Biochemical Oxygen Demand

BSC: Black Sea Commission

COD: Chemical Oxygen Demand

DCC: Danube Competence Center

DCSF: Danube Civil Society Forum

DHSM: Danube Hazardous Substances Model

DRBD: Danube River Basin District

DRBMP: Danube River Basin Management Plan

DRPC: Danube River Protection Convention

DFRMP: Danube Flood Risk Management Plan

EC: European Commission

EEC: European Economic Community

EP: European Parliament

EPDRB: Environmental Programme for the Danube River Basin

EU: European Union

EUSDR: European Union Strategy for the Danube Region

GEF: Global Environmental Facility

IAD: International Association for Danube Research

ICPDR: International Commission for the Protection of the Danube River

JPM: Joint Programme of Measures

MLG: Multi-level Governance

NATO: North Atlantic Treaty Organization

NGO: Non-governmental Organization

NFI: Friends of Nature International

RBMP: River Basin Management Plan

RBD: River Basin District

SAP: Strategic Action Plans

SWMI: Significant Water Management Issues

TFEU: Treaty on the Functioning of the European Union

TN: Total Nitrogen

TNMN: Trans National Monitoring Network

TP: Total Phosphorus

UNDP: United Nations Development Programme

WFD: Water Framework Directive

Abstract

This thesis examines the evolution of water governance in the Danube River Basin with a particular focus on the role of the Water Framework Directive (WFD). The question of how water governance has transformed from fragmented efforts into more institutionalized ones with the WFD shapes this thesis. Initial cooperation efforts between the Danube River Basin countries paved the way for the WFD. The first international efforts started with the Bucharest Declaration in 1985. Until the introduction of the WFD in 2000, several international meetings and declarations followed the Bucharest Declaration. For example, the 1991 Environmental Programme for the Danube River Basin (EPDRB) and the International Commission for the Protection of the Danube River (ICPDR) are examples of major international water governance efforts in the region before the WFD. While there was international cooperation during the 1980s and 1990s between river basin countries, these efforts could not achieve to create standardization for the water governance in the region. This thesis focuses on the evolutionary impact of the WFD on the Danube River Basin water governance. While initial efforts were fragmented, the WFD played a crucial role in establishing multi-level water governance in the Danube River Basin.

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INTRODUCTION

Water Governance Issue

The water governance issue gained significance under the environmental policies in the second half of the 20th century. Especially international water bodies of Europe, which cross the borders of at least two countries, started to get more attention under the environmental policies (Scherer & Zumbusch, 2011). These water bodies are called transboundary waters and their role is critical in the evolution of international water governance in Europe. Because of the diverse water governance regimes of different countries, the transboundary water bodies of Europe were deprived of strong and continuous governance (Baranyai, 2019). Europe has many rivers which cross the borders of many countries. These rivers are transboundary water bodies of Europe. The Danube River Basin is a direct example of this kind of water body in Europe. Before the 1980s, there was no international water governance in the river basin. The application of international and institutional water governance to the Danube River Basin was not an easy process. Like many other parts of Europe, Danube River Basin countries had also diverse approaches to the issue of water governance. Although their problem is the same, there was no collective action.

In the 1980s, with increasing environmental pressure, the Danube River Basin countries started to develop the first international cooperation attempts on the water of the river. These attempts were important steps to build international water governance on the Danube River Basin. Between the 1980s and 2000, the river basin countries came together in several times to take action for the water of the Danube (Varduca, 1996; Margesson, 1997; Nachtnebel, 2000). These international meetings paved the way for further cooperation. For example, riparian countries gathered in Bucharest in 1985 and in 1991 they gathered in Sofia to talk and take action about the water governance (Gerlak, 2004). Also, they led to more institutionalized water governance in the region. After earlier water governance efforts of the river basin countries, a major change came with the EU legislation in 2000. In terms of water governance, the most significant development was the Directive 2000/60/EC which known as Water Framework Directive (WFD) in the region. The WFD introduced a new approach to the water governance issue. The governance became multi-level and integrated under the new directive of the union. This directive targets the river basin directly by applying several obligations to

water governance policies of the EU member states that are located in the Danube River Basin. After this point, the water governance of the Danube River became more institutionalized under the comprehensive framework. This shows that in the Danube River Basin, the water governance showed significant development and major transformation in the last decades. This thesis aims to analyse this change in water governance of the Danube River Basin.

Research Question

As indicated above, this thesis focuses the water governance in the Danube River Basin. In the river basin, the water governance witnessed significant change in the last decades. This thesis wants to answer the question “How did water governance change in the Danube River Basin after the WFD?” This question is the main research question of this thesis. Moreover, this thesis tries to answer this question by analysing water governance and its transformation in the Danube River Basin. To answer this question, earlier international cooperation attempts, international meetings between the Danube River Basin countries, their approaches to the issue and finally the WFD should be analysed properly. By analysing these, this thesis tries to answer the question about water governance in the region and its evolution. Moreover, answering this question can provide a broader picture of the issue of how water governance of the Danube River Basin gained multi-level nature in years. This point is one of the most important sources of the motivation to answer this question; showing the evolution of multi-level water governance in the region. Under the methodology section, there will be a more detailed explanation of the research question of this thesis.

Objectives and Significance

As indicated above the main motivation of this thesis showing and analysing the evolution of multi-level water governance in the Danube River Basin. In this direction, there will be a detailed analysis of different periods of water governance in the river basin. First of all, the thesis needs to clarify earlier water governance efforts. Analysing earlier water governance efforts in the river basin can provide the basis for further explanations. In addition to this, this can show the existing situation of water governance when international cooperation

efforts started. Since the main objective is to analyse the evolution of multi-level water governance in the Danube River Basin, this thesis aims to show the steps of this development. Moreover, analysing the WFD and its impact on the river basin means showing an important turning point in water governance. The WFD signalled a new era in water governance. Findings of two different periods of water governance can help to evaluate change and answer the main research question of this thesis. On the other hand, analysing the Danube River Basin's water governance is important because it is one of the most international water bodies in the world. More than 10 countries have lands in the river basin and this makes it the perfect case to evaluate international cooperation on the water. Although there are detailed studies about different periods of water governance in the Danube River Basin, there is no detailed research which focuses evolution of water governance since the first international efforts to the time period after the WFD. For example, this thesis consists of the first international efforts from the mid-1980s to the last cycle of river basin management of the WFD which is between 2022 and 2027. This thesis aims to synthesize these with earlier documents to evaluate change in time. Including early fragmented water governance efforts and today's highly institutionalized integrated one is key to evaluate the change in the governance of the water. Since there is no such study which presents detailed explanations of the Danube River Basin's water governance in five different decades, this thesis is a candidate to put valuable work at the end in terms of showing the issue from a broader perspective.

Structure Overview

This thesis is organized into six chapters, in addition to the introduction and conclusion sections. Chapter I presents conceptual framework of this thesis. The conceptual framework section mainly presents the multi-level governance as a conceptual approach. Moreover, this section demonstrates why the concept of multi-level governance is important for understanding the evolution of water governance. In this direction, there will be further explanations that show the relevance of the multi-level governance concept in the Danube River Basin water governance. Along these lines, the empirical chapters will analyse the relevance of the multi-level settings in the Danube River Basin water governance. In addition to this, Chapter I will provide extra explanations about the relationship between the concept of multi-level

governance concept and the EU water policies, showing in particular how multi-level architectures have materialized in the WFD.

Chapter II will present the methodology by explaining why this thesis adopts a qualitative research method. Under this section, there will be further explanations about the qualitative research methods that are used in this thesis. This thesis will be organized as a case study and desk review, and this section clarifies the reasons behind this. In addition to these, detailed explanations about the research question and case selection will be under the methodology section. Also, a detailed illustration will explain the ways of answering the research question.

Chapter III illustrates the early-stage cooperation efforts in the Danube River Basin. While there was fragmented water governance, the river basin countries put important effort into cooperating for the water of the Danube between the mid-1980s and 2000. This chapter presents detailed explanations about these efforts and also makes clarifications about the impact of the changing political environment on these. There were four main international cooperation attempts during the 1980s and 90s. Each of them had critical roles in terms of being steps to the multi-level water governance in the Danube River Basin. These international cooperation attempts were the Declaration of the Danube Countries to Cooperate on Questions Concerning the Water Management of the Danube or Bucharest Declaration, 1991 Environmental Programme for the Danube River Basin (EPDRB), 1994 the Convention on Cooperation for the Protection and Sustainable Use of the River Danube (Danube River Protection Convention) and the International Commission for the Protection of the Danube River (ICPDR). This chapter presents detailed discussions about their importance and roles in the Danube River Basin water governance. Moreover, the objectives of these international efforts, which decisions that river basin countries agreed on and the results of these efforts will be analysed in this chapter. In addition to these, which international tools adopted and implemented in the river basin as a result of these will be part of this chapter. At the end of this chapter, the general picture of these earlier efforts will be presented under the dedicated section to make an analysis of this period's characteristics.

Chapter IV presents a detailed overview of the provisions of the WFD. First of all, this chapter starts to give explanations about the WFD by showing some background information. This section consists of early legislations and initiatives for water governance in Europe. For

example, there are several directives about the water before the WFD, and their presence is important for the WFD in terms of building true legislation in years. Moreover, after explaining their relevance to the WFD, this chapter shows the scope of the directive. The main idea of this section is to show that the WFD is the most comprehensive legislation about water in the history of Europe and the EU because it can be applicable to all types of water, such as lakes, rivers, coastal waters, groundwaters and canals. This chapter continues with further details about the WFD and its objectives. This part aims to show what the WFD is. On the other hand, after these introductory sections, there will be core points of this chapter which is about what is new under the WFD for water governance. As one of the most important developments, its multi-level water governance structure will be the main focus of this section. At this point, there will be detailed explanations about the MLG setting under the WFD. This part will include details about the categorization of the MLG setting, in addition to challenges to the MLG setting under the directive. After this, a dedicated section will explain another important development under the WFD; river basin management. This point is extremely important for the presented research. This section includes explanations about the river basin districts and river basin management plans. Both the river basin districts and river basin management plans were introduced under the WFD and they led to a major transformation in the Danube River Basin water governance. This chapter ends with an analysis of the successful and unsuccessful results of the WFD.

Chapter V presents the changing water governance of the Danube River Basin after the WFD. Since the WFD led to a major transformation in the water governance of the river basin, this chapter analyses this change. The WFD introduced several new mechanisms and tools which are affecting the water of the whole river basin. The most crucial change is introducing multi-level water governance to the region. To analyse this major transformation in water governance, this chapter starts with the earlier efforts of the WFD in the Danube River Basin. One of the earliest works of the directive in the region is the 2004 Danube Basin Analysis Report. This report provided information about the existing situation in the river basin and became a reference point for the following works of the WFD. For example, the directive led to identification of the Significant Water Management Issues (SWMIs) and these provided basic information to the river basin management plans of the Danube. Under the SWMIs, five different management issues were presented in different Danube River Basin Management Plans (DRBMPs). In addition to explanations about the MLG setting in Danube River Basin, this chapter will present strengths and challenges of the MLG under the WFD. This chapter

ends with an analysis of the participation issue and the multi-level nature of the Danube River Basin water governance under the WFD.

Chapter VI will explain the main instrument of the WFD in Danube River Basin. This chapter demonstrates detailed explanations for each Danube River Basin Management Plan (DRBMP). Moreover, by looking at changes, a comparison between different DRBMPs is an essential part of this chapter. This also helps to evaluate progress in terms of water protection and reaching good ecological status in the time period after the WFD. Finally, the conclusion part will follow all these.

CHAPTER I: MULTI-LEVEL GOVERNANCE: THE CONCEPTUAL FRAMEWORK AND THE WATER FRAMEWORK DIRECTIVE

The Concept of Multi-Level Governance

The concept of multi-level governance draws on the idea that governance occurs across multiple interconnected level which are local, regional, national, and international levels. Multi-level governance initially described a “system of continuous negotiation among nested governments at several territorial tiers – supranational, national, regional and local” (Hooghe & Marks, 2003, p.2). “MLG often relies on the creation of ad hoc networks, which may include, in a rather haphazard way, legitimately constituted deliberative assemblies together with other public and private, individual and collective actors” (Piattoni, 2009, p.164). This concept highlights how decision-making powers are decentralised vertically, to lower level of government, and horizontally, to non-state actors. Vertical and horizontal interactions between different levels of governance means that lower levels of government interacted with higher levels and vice versa (Domorenok, 2017). The interplay between different levels of governance creates an MLG system (Zürn, 2010). While national authority was the only way in politics, in the last decades of the 20th century politics became an arena for multiple interactions at different levels. These interactions are not only between different levels of government. Also, non-governmental actors are crucial players now. A network of businesses, non-governmental organizations, professional associations and advocacy groups gained ground on national governments. Moreover, these new players have new non-hierarchical and flexible ways of cooperation at different levels (Rosenau, 1997). With new actors, governance became a more layered arena. In other words, while different sets of actors started to gain power, their different levels of backgrounds started to be represented in politics. The concept of MLG refers to the decision-making process among various levels of governmental and non-governmental actors who are charged with specific functions in policymaking. Rather than a single governmental body, multiple actors from different levels become part of the process under the MLG. In addition to local municipalities, regional authorities, national governments, and supranational organizations, non-governmental actors such as corporations and business groups, non-governmental organizations (NGOs) and civil society groups are important parts of the MLG.

Political scientist Gary Marks developed the term multilevel governance in 1993. The concept specifically intended to identify and comprehend political processes associated with the formation of supranational institutions (Saito-Jensen, 2015). In the second half of the 20th century, the “monopoly of states over political authority” started to lose its power. The establishment of the European Economic Community (EEC) in 1957 was a strong signal for the new era of political authority. This was a signal for the shift of political authority from national arenas to the European arena. Moreover, two crucial developments led to the creation of the MLG in Europe; European integration and Regionalization (Hooghe & Marks, 2001; Conzelmann, 2008). Traditionally separated domains of domestic and international politics have been crossed by the MLG. With European integration, the distinction between domestic and international politics has weakened. Moreover, in the policy network, the interrelation between supranational, national, regional, and local governments has become inevitable (Bekemans, 2008).

Multi-Level Governance in The European Union

The MLG concept has been crucial for understanding governance transformations in the EU, and it is helpful in illuminating how the EU system works in terms of governance and interactions between the different territorial levels. The involvement of different sets of actors from different levels within the EU creates a complex institutional setup. The MLG concept is very useful to analyse this complex institutional setup. Gary Marks proposed the MLG as a helpful concept to analyse the decision-making process and dynamics of the European Union. Before the MLG concept, neo-functionalism and inter-governmentalism theories dominated European and EU studies. MLG concept is useful not only to see how the EU idea emerged but also to see how it functioned (Piattoni, 2009). Cooperation and integration ideas are fundamental for the birth of the EU. Although the concept of MLG is useful for analysing fundamental ideas behind the EU, it has a more critical role in explaining how the EU works. For example, there is an intense relationship between the MLG and the policy-making process of the EU. Within the EU, the policy-making process requires negotiations and cooperation between different sets of actors from different levels of governance. A formulation of a policy requires the mutual work of the European Commission, national governments, regional authorities, and NGOs. Similarly, the implementation process requires multi-level work. In

addition to national governments, local and regional governments are involved in the implementation process. These are reflecting the multi-level nature of the EU. The complexity of multi-level interactions in the EU requires a comprehensive MLG setup. Within the EU, a more complex MLG setup has developed because of intergovernmental configuration and integration processes (Milio, 2010). When taken into consideration, the MLG is not just a theoretical framework for the EU. Because of the complex structure and necessity of multi-layered governance, the MLG is a practical need for the EU. The EU's unique political organization requires allocated authority between various levels of governance.

Multi-Level Governance and The Water Framework Directive

The Water Framework Directive (WFD) aims to build systematic cooperation for water governance between member states. It aims to create integrated coordination over water protection. In this sense, multi-level governance (MLG) is an appropriate concept to explain the WFD. This concept helps to analyse the integrated multi-level and multi-actor structure of the directive. As a conceptual approach, the MLG is crucial to understanding the implementation process of the directive. Like all other EU legislations, the WFD is also the result of multi-level coordination and cooperation. This coordination and cooperation includes many different actors from each member state. Moreover, within the member states, there are more layers and from each layer, some actors are part of the WFD legislation. This means that in the European context, besides the institutional and international level, there are also other actors at different levels within the member states. While the number of actors is increasing, cooperation and coordination become more difficult. At this point, the role of the MLG is essential. Because the WFD includes all member states and thousands of actors from every level, it requires efficient multi-level governance deeply to achieve its goals. Before starting to analyse the relation between the MLG concept and the WFD, the concept and its role in the EU should be explained.

The EU legislations are the result of the work of many actors and long negotiations. As one of the most comprehensive EU legislation, the WFD is also the result of multiple actors

from multiple levels. In other words, from the formulation process to the implementation phase, the directive is a result of the EU institutions, member states, and regional and local authorities' works. The WFD is governed by a multi-layered system that involves several levels of coordination and decision-making. The WFD encourages the creation of multi-level settings in member states. For example, Articles 3 and 14 are important in showing multi-level settings in member states. Article 3 of the WFD states that if a river basin extends the territories of one member state, it becomes an international river basin district. In such a situation, a multi-level setting is necessary under the WFD. In order to achieve environmental objectives in international river basin districts, member states should ensure proper coordination between different levels of water governance. For example, competent authorities from local and international levels should be in cooperation with the international administration of the river basin district (Directive 2000/60EC, 2000). Moreover, Article 14 of the WFD also encourages the multi-level setting in member states. According to Article 14, the encouragement of active involvement of all parties is a critical task for the directive. This shows that the directive aims to involve various actors from different levels. For example, there is a specific reference to the multi-level setting on public information under Article 14. The availability of public information helps the cooperation between different levels of the actors (Directive 2000/60EC, 2000). In other words, thanks to the availability of public information, more actors from local, national and international levels are encouraged to participate in the water governance process.

The WFD's multi-level character demonstrates a holistic and integrated approach to water management in Europe. There is an involvement of governmental entities, stakeholders, water utilities, businesses, farmers, environmental groups, academic institutions, observers and local communities. For example, River Basin Management Plans (RBMPs) are efficient in showing the multi-level character of the directive. Under the WFD, each River Basin Districts (RBDs) should formulate its own RBMP. Because RBDs are international and include transboundary waters, each riparian state should cooperate to formulate the plan. However, each state has already its own national policies and regulations. Although member states retain a significant degree of freedom, multi-level governance is characteristic of the new generation of directives. When various administrative levels were involved in to process to fit EU requirements and local conditions, the freedom of member states became limited. When multiple administrative levels are involved to ensure compliance with EU requirements and local conditions, the WFD starts to be governed under the MLG setup (Lieverink et al., 2011). In this situation, the importance of cooperation and coordination increases. In addition to their

national agenda, each riparian state works together to develop mutual RBMP. The establishment of the integrated water basin management idea led to the necessity of rethinking domestic policies for the EU members (Moss, 2008; Voulvoulis, 2008). Bureaucrats, experts and professionals from each country from distinct and different levels work together to formulate and then implement the plan. An inclusive and integrated style of policy-making is promoted by the WFD and coordinated action from various levels of government such as, national, regional and local, is a crucial part of the framework. Cross-sectoral RBMPs are important tools for reaching quality targets and water protection (Domorenok, 2017).

CHAPTER II : METHODOLOGY

This thesis adopts a qualitative research method based on desk research analysing extant literature, EU and national policy and legislative documents, as well as the documents produced by the District authorities for the Danube Water District. . In other words, qualitative research methods will provide the basis for this thesis. Some important advantages of qualitative methods help to have better organization for this thesis. For example, “qualitative methods that allow researchers to explore the views of homogenous as well as diverse groups of people help unpack these differing perspectives within a community” (Choy, 2014, p.102). This section aims to explain the reasons why qualitative research methods are chosen rather than quantitative research methods for this thesis. Firstly, the main objective of the thesis is to analyse the evolution of water governance with a particular focus on the period before and after the implementation of the Water Framework Directive (WFD) in the year 2000. To realize this objective, comparing and analysing large and diverse information and data from different periods is important. At this point desk review method will help to analyse broad information and existing data. Moreover, the paper will analyse the effects of the WFD on water governance with a case, which is the Danube River Basin. This situation turns the study into a case study. The following sections will explain methods of desk review and case study, in addition to case selection and research question sections.

A Desk Review

A desk review is a qualitative method to examine existing documents, records, publishes and reports. It is a helpful method to gather information and analyse them in a proper way. Moreover, “it involves collecting information called “existing data”, i.e., records of already performed research, usually in the form of articles and scientific monographs or specialised reports authorised by recognised public and non-governmental institutions” (Topolewski et al., 2023, p. 280). In this thesis, the desk review method will help to evaluate existing sources, such as academic articles, official EU documents, databases and annual reports of the International Commission for the Protection of the Danube River (ICPDR). This technique also helps the researcher combine multiple findings by cross-referencing multiple articles, which can increase the validity and reliability of the analysis. Because desk review is

a form of secondary research, analysing secondary sources, like in this qualitative research, is very helpful. Moreover, in organizing these secondary sources, the desk review method provides some other advantages. For example, this method is advantageous in terms of synthesizing the vast amount of information on the subject. Because there are significant amount of information and data about the multi-level water governance of Europe, synthesizing these with the Danube River's water governance is essential for this thesis.

A Case Study

A case study is a qualitative research method that provides several advantages. As a research methodology, a case study provides an intensive and systematic investigation of a single issue. Moreover, broader or more complex topics can be narrowed down under the focus on a single phenomenon. This is important to have manageable research. Thanks to the qualitative case study methodology, a complex phenomenon can be studied within narrower contexts (Baxter & Jack, 2008; Heale & Twycross, 2018). This shows that when there is complexity for single research, a case study can facilitate the research by focusing on a smaller part of one example of the issue. Also, “a work that focuses its attention on a single example of a broader phenomenon is apt to be described as a “mere” case study” (Gerring, 2004, p. 341). These show that the case study method is perfect for this thesis because the WFD is a comprehensive EU directive which concerns all waters of Europe. Because analysing all the waters of Europe is a huge work, this thesis will focus on the water of the Danube River Basin. This means that while the WFD is a broad and complex phenomenon, the water of the Danube River Basin is a narrower context of the issue. This makes the Danube River Basin a perfect case study to analyse impacts of the WFD.

Case Selection

Danube River Basin is one of the most significant examples of transboundary cooperation in Europe. Moreover, similarly, it is a perfect example of multi-level governance between different states and many other actors. Because the Danube River Basin is a complex multi-national area, it provides the perfect chance to synthesize multi-level governance concepts and WFD. In other words, as a selected case, the Danube River offers an ideal

opportunity to see the implementation ways and results of a multi-level legislation which is the WFD. Moreover, the Danube River Basin is the most international river basin in the world (Sommerwerk et al., 2010). This makes the Danube a suitable case for this thesis. Moreover, this “the most international river” title creates great complexity in its governance, but at the same time, this title makes the Danube a unique case to see how the multi-level governance model works in practice. The Danube River Basin is highly international, not only because it is transboundary water, but also in terms of the actors involved in the management process. These show that Danube is extremely open to multi-actor and multi-analyses. Also, after the WFD, the multi-level governance became more systematic and institutionalized. Under the directive, the multi-level governance became a norm for the Danube River Basin. This point makes the Danube an interesting case because it shows that water governance witnessed important change in time, or particularly witnessed significant change with the WFD. This point also shapes the research question which focuses on the change in water governance for the Danube.

Research Question

The main research question guiding the thesis is "How did water governance change in the Danube River Basin after the WFD?" This thesis will seek answers to this question by analysing water governance in the Danube River Basin prior to the WFD and the time period after the directive. By addressing this question, this thesis aims to contribute an understanding of the dynamics of water governance in the Danube River Basin and the role of the WFD in shaping these dynamics. This research question helps to analyse the evolution of water governance not only in the Danube River Basin but also in Europe. Due to the international nature of the Danube River and its status as one of the largest rivers in Europe, practices on it can reveal the EU's general approach to water management.

How will this thesis answer this question? Firstly, for the period prior to the WFD, the main parameters are some international meetings and conventions between the riparian countries. For example, the 1985 Bucharest Declaration and the 1991 Environmental Programme for the Danube River Basin (Sofia) are two of them. Although these international efforts were not successful in creating binding general norms like the WFD, they contributed to the WFD in terms of river basin management. Similarly, the period prior to the WFD had no

effective tools for water governance for the Danube. However, analysing and stating the general model of the period is crucial to answer the research question. On the other hand, after the WFD, we have a more systematic approach to water governance in the Danube River Basin. There are important tools to measure governance, and they are very helpful to answer the research question. For example, River Basin Management Plans (RBMPs) are important tools which are introduced with the WFD. After presenting general models and approaches of two periods, the thesis can answer the question that “How did water governance change in the Danube River Basin after the WFD?” By answering this research question, the thesis will shed light on novel governance dynamics generated by the WFD thus contributing to improve our understanding of how multi-level governance settings can be encouraged in transnational contexts.

CHAPTER III: THE ORIGINS OF TRANSNATIONAL WATER GOVERNANCE IN THE DANUBE REGION

The Bucharest Declaration

The Declaration of the Danube Countries to Cooperate on Questions Concerning the Water Management of the Danube or Bucharest Declaration was signed in 1985 between eight riparian countries. Although the Bucharest Declaration was not the first attempt to Danube River Basin countries together, it was the first major step for cooperation in the basin. The main concern was the environmental quality of the Danube. In other words, countries wanted to address environmental challenges in the Danube River Basin with regional cooperation and coordinated action. In the early 1980s, riparian countries had become aware that there should be a collective protection act for the Danube. The Bucharest Declaration was the result of this idea. Moreover, this declaration specified some other goals in addition to the improvement of the environmental quality of the Danube. To improve the quality of the water and reduce water pollution, some bilateral and multilateral actions were discussed in Bucharest. Also, The Bucharest Declaration specified different fundamental goals and duties for riparian countries. (McCaffrey, 2006). For example, conservation and rational use of water resources should be a part of the national policies of the countries. To achieve this goal, countries needed to take some measures according to the declaration. Firstly, countries should sustain the supply of river water. This point emphasizes the quantity of the Danube River. This means that while countries are using the river water for agriculture, industry and daily needs, such as drinking water, they should do this in balance. Secondly, states should take preventive measures for hazardous substances and radioactivity-related pollution. Because hazardous substances, such as chemicals and heavy metal waste, and radioactivity have long-term and severe effects on the water quality. For this, better waste management and more effective regulations for industries are necessary. Thirdly, countries should take gradual steps for the reduction of pollution by considering the ecological needs of the Danube, such as biodiversity. This point shows that reduction of pollution is not a short-term process. While pollution reduction is spread over a long period of time, ecological balance can also be taken into account elaborately.

The most significant result of the Bucharest Declaration was about Danube River monitoring. The declaration presented important decisions about this subject: “During 1985-

1987 a common monitoring programme was established and agreed to under the Bucharest Declaration by Austria, Bulgaria, the former Czechoslovakia, Germany, the former Yugoslavia, Romania, Hungary and the former Soviet Union” (Varduca, 1996, p.31). This common monitoring programme aimed to have a standardized approach to water monitoring in the Danube River Basin across several riparian countries. Moreover, the monitoring programme set several targets. Firstly, the programme identified the importance of systematic observation of water quality in the Danube River. Countries agreed on that systematic observation requires regular monitoring to be aware of changes in water and in the river basin. Moreover, thanks to regular observation, riparian countries could have more knowledge about the characteristics and trends of the river. Because until this programme, there was no detailed knowledge about the waters of the river, this step was significant. After having more detailed knowledge and data, intervention in the Danube River Basin becomes easier. This means that observation is key for several areas. With more data and knowledge, specialization is easier and this opens the way for improvement in response to environmental challenges and pollution. Secondly, a common monitoring programme aims to have an elaborated common methodology for monitoring activities. By common methodology, parties aimed to have a standardized approach to the issue. If there is a shared methodology, cooperation and coordination become easier. Moreover, in order to have a common methodology and analytical data, establishing observation stations became inevitable. Under the Bucharest Declaration, monitoring programme has coordinated by the Research and Engineering Institute for Environment. In this common monitoring programme, thirteen stations, such as Mohacs-Bezdam (Hungary/Yugoslavia) and Jochenstein (Germany/Austria), collected samples from the Danube River Basin and followed the Danube’s flow rate. Under the common methodology, too many data parameters are observed. For example, water temperature, water transparency, oxygen level, salts, mineralisation, nutrients, heavy metals, total bacteria and radioactivity are the most common parameters for measurement. (Varduca, 1996). Thirdly, the common monitoring programme targeted to develop of comparable data. To reach this goal, having observation stations and a common methodology is key. To have comparable data, riparian countries decided to approach the river in the same way. For example, they agreed on collecting samples from the left, middle and right sides of the Danube while measuring the flow rate. Also, there was an agreed timetable for sample collection activities. Each monitoring station should collect sample twelve in a year according to the declaration (Linnerooth-Bayer, & Murcott, 1996). All these points show that the Bucharest Declaration led to the development of an elaborated monitoring system for controlling and improving the water quality of the Danube River Basin.

Moreover, this makes the Bucharest Declaration the first international agreement that identifies a common monitoring programme for the Danube River. This act paved the way for further efforts. For example, after Bucharest, countries continued to put effort into establishing monitoring stations and the number of these stations was expanded to 61 in 1996 under the control of form the Trans National Monitoring Network (TNMN) (Chapman et al., 2016). In addition to a common monitoring programme, the Bucharest Declaration set self-monitoring for riparian countries. Although the declaration presented a detailed common monitoring programme, there are still important individual tasks for countries of the Danube River Basin. For example, with self-monitoring, countries help 13 transboundary stations in accessing data from other parts of the river. This point is crucial because, under the common monitoring programme of the Bucharest Declaration, monitoring stations are established at transboundary parts of the Danube. In this case, self-monitoring aims to have data from the inland parts of the riparian countries. Moreover, mixing self-monitoring paves the way for more direct involvement of the countries individually rather than only coming together annually in international meetings, as in Bucharest in 1985. This point shows that although there is an international cooperation attempt, nation-states are key players. In other words, establishing international observation stations and setting international regulations led to a common framework for cooperation, but the commitment and actions of the nation-states are still decisive in terms of effectiveness.

Did the Bucharest Declaration achieve its objectives? Although this declaration was a significant step in the history of the Danube River Basin in terms of cooperation to protect its water, there are questions about its efficiency and effectiveness. At this point, the roles of the states and their approaches are questioned. In other words, different economic, social and political conditions and environments of states affected the efficiency of the declaration and its objectives. For example, “although this program led to the establishment of a monitoring system, it has been characterized as being insufficient and ineffective, due to the wide disparities in approaches and resources among basin states” (McCaffrey, 2006, p. 94). Even though all parties had a similar intension which was protecting the Danube and its water, their different conditions led to differentiation in water governance. These states were representatives of the different political systems, and their priority was following the ideas and wishes of their political blocks. This situation was an important obstacle to meaningful cooperation in the Danube River Basin in those years. In this kind of environment, Danube River Basin states came together in Bucharest and even reached an agreement on several

conditions. However, after this part of the cooperation attempt, they faced a more difficult stage because of differentiated political backgrounds. “The case of the Danube is especially complicated. Its eight riparian states (for the past 45 years) have spanned three political systems (EC/NATO, neutral/non-aligned and Comecon/Warsaw Pact) (Rich, 1991, p.142). Their political background made the situation more difficult and sensitive. To full and healthy cooperation, states need to share information and discuss issues for searching common ways of solutions. However, in the Danube River Basin, there were problems with information sharing. In other words, there was no healthy information flow between riparian states. The neutral and non-aligned countries, Austria and Yugoslavia, formed a blocking coalition preventing the USSR from expanding the influence of the Danube Commission, and thus its own influence (Linnerooth, 1990, p.649). In the Danube region, states were geopolitically diverse, in addition to power imbalance. Also, the divergent agendas of national actors and the reluctance of governments to share information created further problems in cooperating to solve their common problems (Margesson, 1997). On the other hand, Danube River Basin countries were also diverse economically. While upper basin countries had economic prosperity, high standards of living and democratic society, the situation was very different in other parts of the Danube River Basin. For example, lower basin countries were economically undeveloped, and expensive pollution control programs, such as industrial water treatment plants, were creating extra burdens for their national economies (McCaffrey, 2006). This shows that although basin countries had similar problems and challenges, their political and economic capacities were different. Economic and political differentiation between the riparian countries affected the Bucharest Declaration negatively. In other words, all these prevented the Bucharest Declaration from being effective and reaching its objectives fully. Moreover, these disparities between riparian countries prevented the development of strong tools under the declaration. The only significant result of the Bucharest Declaration was the common monitoring programme which paved the way for the following programmes.

The 1991 Environmental Programme for The Danube River Basin (Sofia)

The late 1980s and early 1990s witnessed major political changes in the Danube River Basin which led to a new era in cooperation between riparian countries. These years witnessed an important political transformation in the area. The end of the Soviet Union, the collapse of

the socialist regimes, the end of the Cold War, the fall of the Berlin Wall and the fall of the iron curtain followed each other in this period. All these led to major political transformations in the basin. The dissolution of the longstanding political barriers and ideological division created a new era for the Danube River in terms of cooperation. For example, after the collapse of the socialist regimes in Hungary and Czechoslovakia, parties preferred to follow a common political direction to cooperate. Moreover, “increased political, economic, and social interdependence in the world following the end of the Cold War fostered the political will for integration within and between Western Europe and the formerly socialist countries of Central and Eastern Europe” (Jansky, 2004, p.44). On the other hand, this period witnessed political transformations for many basin countries. In former socialist countries, the privatization process started for industries and farmlands under the market-oriented economy building. The new economic model required new regulations, legislations and administrative changes (Nachtnebel, 2000). Because the barriers which create division between East and West disappeared with the political and economic transformation of the last period in the 20th century, a new session of negotiation could start between riparian countries. In other words, a suitable environment was created for further cooperation attempts for the Danube River Basin. Also, these international meetings could be helpful in terms of contributing to the integration of Eastern Europe countries. In this kind of environment, the 1991 Environmental Programme for the Danube River Basin (EPDRB) brought the riparian states together.

Until the 1980s, riparian countries were managing the water and the environment at local and national levels, in the Danube River Basin area. However, this situation started to change with the Bucharest Declaration (1985). After this first major step for cooperation, riparian countries came together in 1991 for further cooperation attempts. This time, they gathered in Sofia in 1991. As a result of this international meeting, the 1991 Environmental Programme for the Danube River Basin (EPDRB) was declared. This programme is one of the most important ones in terms of cooperation and multi-level governance attempts, in the time period prior to the WFD. It was a result of the efforts of several international organizations. “The EPDRB was co-managed and funded by the EU Phare Multi-Country Programme for Environment (Phare MCP-E) and UNDP, which planned to draw funds from the emerging Global Environmental Facility (GEF) to implement EPDRB activities” (Bachmann & Csagoly, 2006, p. 255). The EPDRB aimed to launch a series of immediate operational activities to protect the waters of the Danube. Moreover, the EPDRB was organized as a regional

environmental programme. The programme defines the main problem as environmental and economic threats to Danubian countries' well-being which originate from changes in the water of the Danube River basin. (Nachtnebel, 2000).

The programme was designed as a multi-year programme, and as a result of this, it specified two main time periods for implementation. The first period was between 1992 and 1995. Phase I of the EPDRB (1992-1995) aimed to take immediate action to answer environmental problems and concerns. Firstly, one of the earliest tasks of this phase was identifying the priorities. Health hazard-related areas and areas where critical environmental risks create irreversible threats are specified as priority areas. The first three years included a review of administrative practices, water-related policies and legislations, and identifying the key pollution sources. While doing these, the main objective was selecting true investment projects (Margesson, 1997). To protect these areas, pilot projects are developed in the first phase of the EPDRB. These projects aimed to make investments in rehabilitation, building new facilities and modernisation of existing ones. Moreover, a close monitoring system was established on these pilot projects. For example, this monitoring system was responsible for reporting urban and industry-related wastewater pollution (Nachtnebel, 2000). Secondly, the first phase of the EPDRB aimed to establish an alarm system. The basic logic behind this target was to minimize the harmful effects of industrial accidents. These accidents, such as oil spills and toxic and hazardous wastes entering the water, were causing serious damage to the Danube River Basin and the environment in general. When these accidents occurred suddenly and without warning, fighting with the rapid spread of pollution became almost impossible. Because of the transboundary nature of the Danube, cross-border cooperation is a necessity for a well-functioning alarm system. Also, this alarm system could be helpful for riparian countries in terms of being prepared for unexpected environmental challenges. Lastly, the first phase aimed to increase the capacity of the Danube River Basin actors. These actors were local, regional, national and international authorities, national and international organisations and individuals who were involved to the water governance process of the Danube. At this point, the main logic was using new technologies for data collection, and support the data and information sharing between actors who are from different parts and levels of the Danube River Basin. This means that the programme aimed to build and strengthen the interdependence between actors. In other words, at this point, interdependence was seen as a method of strengthening the collective capacity of actors. On the other hand, the second phase of the EPDRB started in 1996. In this phase, the main focus was on funding for legislation and policy

development-related issues. Moreover, funding of investment projects is organized under the second phase. In this period, funding sources are expanded to private sector and nongovernmental organisations at both national and international levels. On the other hand, the most significant result of this period of the EPDRB was the Strategic Action Plans (SAP).

Strategic Action Plans (SAP) are the most important tools of the EPDRB. Although it has been developing since the first days of the EPDRB, all riparian countries accepted and signed the SAP finally in 1995. Moreover, the SAP were one of the most significant and direct results of the cooperative efforts under the EPDRB. The SAP aimed to synthesize national environmental action programmes and EPDRB. To realize this goal, the SAP target the officials and individuals from national, regional and local governments. Moreover, people from industry, agriculture, NGOs and the public were also included in the target group of the SAP. What these people have in common is that they are the people responsible for the implementation of the program. Within this group, national actors were key players because one of the objectives of the SAP were to support the national water governance process. In this direction, the SAP aimed to deal with urgent problems of the countries based on national requests. In other words, the SAP identified the priorities by trusting national reports and the national review process. These national reports and reviews specify local and regional problems. At this point, the SAP aimed to create joint action to find solutions to these environmental problems in the Danube River Basin. River Basin countries are obligated to be part of joint action under the SAP of the EPDRB. These joint actions had several objectives. For example, “improvement of aquatic ecosystems and biodiversity and reduction of pollution loads, maintaining and improving the quality and quantity of Danube River water, control of damage from accidental spills, and the development of regional cooperation in water management” were the main objectives (Gerlak, 2004, p. 4). To realize these goals, the SAP presented strategic guidelines for riparian countries. Generally, these guidelines are created for medium and short-term periods. In this time period, the EPDRB tried to prioritize mutual values because riparian countries share certain common approaches to the environment. Although there is a disparity between the Danube River Basin countries in terms of problems, priorities and interests, the EPDRB wants to keep the countries on the same page. For this, the SAP are critical because they suggest common action and cooperation for the Danube. The EPDRB believed that with the full participation of each country, even their regional mechanism, international cooperation could work properly.

In a nutshell, the EPDRB led to crucial developments in the water governance of the Danube River Basin. In addition to the SAP, identifying priorities was an essential step for the Danube. The programme implemented this with “priority lists”, and riparian states found this method very helpful and useful. Also, under the EPDRB, one of the most important decisions was “studying for preparation for new agreements, international meetings and conventions.” This idea paved the way for new conventions in the following years. For example, in 1994 the Convention on Cooperation for the Protection and Sustainable Use of the River Danube (Danube River Protection Convention) came into existence as a result of the EPDRB studies and preparations.

Danube River Protection Convention

During the 1990s, cooperation efforts on water issues in the Danube Basin continued in a more favourable political environment. In 1994 the Convention on Cooperation for the Protection and Sustainable Use of the River Danube (Danube River Protection Convention) was signed as the new framework for international cooperation. Austria, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Moldavia, Romania, Slovakia, Slovenia, and Ukraine were the signatory states in 1994. The Danube River Protection Convention (DRPC) was adopted four years later in 1998 when nine of the signatory states adhered to their decision and signature (Cornea & Costache, 2018). Contracting parties had a strong intention to develop and intensify the cooperation effort in water governance to protect the water of the Danube. There were already cooperation and common action plans, but their concerns over changes in the conditions of the river were still on the table. They were concerned about the well-being of basin countries. Their well-being directly depends on the condition of the river because when the river is polluted, this creates extra economic burdens. Moreover, the Danube River Protection Convention (DRPC) tried to emphasize that there is an urgent need to prevent and control hazardous substances which create transboundary results. At this point, there is a special emphasis on “transboundary impacts”. According to the DRPC Article 1c, transboundary impacts means that “any significant adverse effect on the riverine environment resulting from a change in the conditions of waters caused by human activity and stretching out beyond an area under the jurisdiction of a Contracting Party” (article 1, 1994). Moreover, there are more definitions and explanations under Article 1 for hazardous substances and their

effects on the Danube River Basin. After this background information, the DRPC specified its objectives and principles for cooperation. Under the article 2 of the Convention, three main goals are specified; “Sustainable and equitable water management, including conservation, improvement, and rational use of surface and ground water, control of hazards originating from accidental spills of hazardous substances, and natural phenomena such as floods and ice, and reduction of the pollution load to the Black Sea” ((Nachtnebel, 2000, p. 121). Moreover, according to the Article 2, the convention aimed to control the “planned activities and measures in the field of water construction works, run-off and storage level of water courses, the effect of facilities situated in or aside the watercourse on its hydraulic, and the operation of the existing hydrotechnical constructions e. g. reservoirs, water power plants” (Article 2, 1994). In addition to these, the convention also want to be prepared for floods in the river basin, “deteriorations in the hydrological conditions, erosion, and abrasion, inundation and sediment flow” (Article 2, 1994). To realize these goals, the convention specified some cooperation ways under Articles 4 and 5. According to the convention, the exchange of information was the key to cooperation between contracting parties. The convention supported the exchange of information for bilateral and multilateral agreements, regulations and measures. Moreover, the exchange of legal documents, publications and experiences is wanted under the DRPC. Also, exchanging information and experience helps to find the best and most effective ways for the protection of the Danube River Basin. This shows that finding the most appropriate practices could be faster and easier with collective action. Moreover, because the main aim is to have a joint strategy in the river basin, exchanging experiences helps to be sure about the participatory process for the contracting parties. This also shows that the DRPC supported and prioritized the joint action between the riparian countries. By creating a framework, the DRPC facilitates the cooperation to collective work of states in addressing common problems, and challenges and in minimizing the transboundary impacts of wastes and hazardous substances.

After specifying the cooperation ways, the DRPC explained the responsibilities of the contracting parties. For example, states have the greatest role in developing and implementing legal and technical measures to effectively protect water quality and ensure sustainable water use. In addition to this, states should record the conditions of the water. Also, states should monitor the changing conditions of the natural water sources that feed the river. Having information and data about the changing conditions, that affect the Danube River Basin directly, is crucial because they create critical transboundary results. In other words, this point is extremely important for the DRPC because one of the most important targets of the

convention is fighting with transboundary impacts of pollution in the river basin. Reducing transboundary impacts of pollution is one of the ultimate goals of the convention. To control and coordinate this, the convention created an obligation for reporting. According to this obligation, each countries have to report to the International Commission. Their reports should include details about communication between riparian countries and information about their national laws and regulations. In addition to these, bilateral and multilateral agreements, which aim to regulate water-related issues in the Danube River Basin, should be reported. The DRPC aimed to create a more clear system for water governance. This means that the convention wanted to have more transparent cooperation between riparian countries. Before the new approach of the DRPC, the SAP tool was using networks between actors. The DRPC aimed to have a narrower agenda with a clear management style. The DRPC adopted a tried-and-tested environmental law approach to water management cooperation. This approach included the establishment of a formal decision hierarchy. In this direction, the DRPC made the EU a party to cooperate with the Danube River Basin countries. Also, an actively engaged International Commission was established to have a legal framework for cooperation at the regional level. Thanks to this, a more participatory management style became possible for riparian countries (Linnerooth-Bayer & Murcott, 1996).

The DRPC tried to develop a monitoring tool to have a structured and well-balanced view of pollution in the Danube River Basin. This monitoring tool is called the Transnational Monitoring Network (TNMN). The TNMN provides a public database with its monitoring stations in the river basin. TNMN programme established 70 monitoring stations in several Danube River Basin Countries. The main objective of these stations was to strengthen the existing network of transboundary monitoring sites. They collected samples and analysed the quality of the water in terms of main physical, chemical and biological determinants (Murphy & Brilly, 2000; Cretescu et al., 2016). The TNMN programme was an important development for international cooperation on monitoring and assessment. Although there were existing monitoring programmes in the river basin, the desired development could not be achieved. For example, the common monitoring programme of the Bucharest Declaration led to the first international monitoring in the river basin, but its working capacity was limited because of the diverse political conditions of the riparian countries. On the other hand, the TNMN was a new opportunity to achieve basin-wide proper international cooperation for water and environment observation. Under the coordination of the DRPC, the TNMN programme had several objectives. For example, the programme aims to harmonise monitoring and assessment

methods. To have comparable data and standardisation, harmonisation of monitoring and assessment techniques has a key role. Because the TNMN programme had monitoring stations in different countries of the river basin, having a mutual method is desired. Moreover, the programme also aimed to develop coordinated joint monitoring. To have healthy coordination between riparian countries, the programme aimed to have regular communication and mutual data processing facilities. Jointly operated monitoring could help to have more integrated water governance in the Danube River Basin. Also, joint programmes for monitoring could help to have a general picture of the water condition in the river. In other words, if all parties agree to participate in the joint program, all sides of the Danube can be monitored. However, the TNMN programme could not achieve to provide standardisation for monitoring. Although TNMN achieved a wide monitoring network across the river basin, the programme failed to standardise monitoring. For example, while collecting and analysing samples, equipment and methods are highly different. As a result of this, laboratory analysis and data processing do not have standardisation (Murphy & Brilly, 2000). This shows that the TNMN could not reach one of its fundamental goals. However, the programme led to an important development in terms of monitoring pollution in the Danube River Basin. Also, the program was able to observe water quality change in time. For example, “long-term trends of TNMN data showed, a significant decline of microbiological pollution could be observed in the upper and the lower stretches of the Danube while in the middle part, a significant increase was found at most investigated stations” (Kirschner et al., 2009, p 3680). This proves that the TNMN programme led to significant development in observing pollution in different parts of the Danube. As a result, the TNMN programme was one of the most important tools of the DRPC, and it helped to improve international cooperation in the Danube River Basin for water governance.

The International Commission for the Protection of the Danube River

The International Commission for the Protection of the Danube River (ICPDR) was the latest major international cooperation attempt in the Danube River Basin in the period prior to the WFD. The ICPDR came into existence in 1994, as a result of the Danube River Protection Convention’s (DRPC) collective effort. The ICPDR served as an implementation body of the DRPC until 2000. After this year, it continued to work under the WFD. This is the most important difference between the ICPDR and other international cooperation attempts before

the WFD. While the ICPDR continued to operate actively after the implementation of the WFD, the Bucharest Declaration, the EPDRB and the DRPC lost their functions in the water governance in the Danube River Basin. Today, the ICPDR is one of the most influential and crucial actors in the Danube River Basin water governance. The ICPDR was established in 1998 with 14 signatory countries, and since then, it has become to one of the most effective and active international organizations in Europe for environmental issues (Hein et al., 2016). With joint efforts, ICPDR has achieved a broad organizational structure since 1998. In other words, the ICPDR built a complex system of cooperation for transboundary water management in the Danube River Basin. In a short time, because of its complex structure, the ICPDR became a major legal instrument in the river basin. Moreover, it started to serve as a transboundary coordinating platform at the roof level. This creates several advantages for the Commission. For example, because every sub-unit is working under the coordination of the Commission, there is a prepared collective organization for detecting and answering new challenges. The ICPDR publishes regular reports which include a review of past efforts, achievements, future objectives and main challenges. Every six years, these reports are published under the name of “the Danube Declaration.

The objectives of the International Commission for the Protection of the Danube River

Under the ICPDR, three broad objectives were specified; have a cleaner Danube, have a healthier Danube and have a safer Danube. These are the most significant targets of the Commission. Firstly, a cleaner Danube objective requires an effective struggle with pollution in the river basin. The Commission approached the issue by categorizing the sources of pollution. According to this categorization, the most common sources of pollution are industrial discharges, wastewater from urban areas, agricultural runoff, and diffuse pollution. To have a cleaner Danube, the ICPDR aimed to reduce pollution from settlements, industry and agriculture. To realize these, the Commission tried to design some tools. For example, the Joint Danube Survey helps to reduce pollution by monitoring the quality of the water in the river basin. Moreover, the Commission tried to manage agricultural and industrial activities in the river basin. For example, nutrient wastes are mainly originated from agricultural activities. The Commission aimed to reduce nutrient runoff, such as nitrogen, by improving the environmental standards of agriculture. Similarly, by improving standards for industries, harmful industrial

emissions can be prevented. Secondly, a healthier Danube objective emphasizes the ecological status of the Danube River. In other words, the ecological health of the Danube water is the main concern under this objective. Its concerns include protecting the river as an ecosystem and protecting the living environment of aquatic animals and plants. Moreover, having healthier services for people, who are related to the river, is important. Drinking water is an example of this kind of service. Sustainable use of water, preserving biodiversity and habitat restoration are other elements of healthier Danube objectives. Thirdly, a safer Danube objective mainly focuses on having a safe environment in the river basin. According to the ICPDR, the main obstacle to this is floods. Floods are creating negative impacts on the environment and people. A Safer Danube objective aimed to create a safe Danube in which there is no room to fear floods and their damage. This objective has a close relationship with one of the main tasks of the ICPDR which is Flood Risk Management.

The Main Tasks of the International Commission for the Protection of the Danube River

The ICPDR specified its main tasks as accident prevention and control, climate change adaptation, flood risk management, and river basin management. Firstly, to fight accidental pollution's widespread damage to the environment, the ICPDR tried to establish a system. Accidental pollution is a big problem in the Danube River Basin. Also, it endangers the health of local people and aquatic animals and plants. To prevent accidental pollution, the ICPDR developed the Accident Risk Spots inventory which specifies risky areas. The Commission called these areas Accident Hazard Sites (AHS). For example, operational industrial sites are AHS because there is a major risk of accidental pollution. Moreover, contaminated sites and tailings management facilities are examples of the AHS because they include chemicals and materials left over from mining. In case of a flood, these materials can pollute the Danube River Basin accidentally. Because the river basin has a substantial number of industrial and mining tailings management facilities, controlling them is crucial to prevent accidents. Moreover, the ICPDR aims to increase safety requirement standards for the facilities which is risky for the Danube. The ICPDR benefits from the Accident Emergency Warning System (AEWS). The system becomes activated when it detects a risk of transboundary pollution in water, and when it detects certain levels of hazardous substances in the water. The AEWS is managed by the

Commission. There is a regular test for the AEWS to confirm that the system is working. Since the system was established, it has been triggered generally because of oil spills which reached dangerous levels to create transboundary water pollution (Kešetović et al, 2014; McClain et al, 2017). Secondly, answering to the challenges of climate change is another crucial task of the ICPDR. Climate change creates critical challenges to the environment and management of the environment. Similarly, the management of the water is affected negatively by this situation because it faces new and unknown challenges. To fight this, the ICPDR developed a Strategy on Adaptation to Climate Change. Under these, the Commission specified the climate change scenarios for the Danube River Basin and discussed possible answers. The ICPDR Strategy on Adaptation to Climate Change aims to present guidelines to riparian countries. These guidelines include potential adaptation measures. For example, ecosystem-based measures, behavioural and managerial measures, technological measures and political measures are some of the potential adaptation measures. The ICPDR presented detailed and comprehensive measures under the name of the climate change adaptation measures toolbox. Thirdly, another important task for the ICPDR is the flood risk management. In this direction, the Action Programme for Sustainable Flood Prevention in the Danube River Basin is adopted. This action programme consisted of 17 sub-basin flood action plans. According to these plans, riparian states should define which parts of the river have risk of flood. After the adoption of the Floods Directive, the ICPDR developed the Danube Flood Risk Management Plan (DFRMP). The DFRMP aimed to increase consciousness by training experts and educating the inhabitants. Also, harmonized cross-border management for floods is discussed (Oroszi et al., 2017; Tamás et al., 2019). Finally, river basin management is one of the main tasks of the ICPDR. The Commission believes that effective river basin management is possible only when all basin countries accept close international cooperation. Because the waters of the Danube are across the administrative and political borders, the basin should be managed internationally in cooperation. Moreover, river basin management has been a hot topic since the WFD. The directive built a legal framework to manage the Danube River Basin which is called the Danube River Basin Management Plan. After the WFD addressed the subject in detail, the ICPDR continued to provide regional help and cooperation to the directive.

Partners of the International Commission for the Protection of the Danube River

The ICPDR presents one of the most successful examples of river basin management worldwide. While achieving this, the Commission has many partners. These partners support the activities of the Commission. These partners are the EU Strategy for the Danube Region (EUSDR), expert groups and observers. Firstly, the EUSDR aims to support integrated water governance by answering common challenges of the region. With this purpose, the EUSDR identified 11 priority areas. For example, water quality is one of the priority areas. The EUSDR identified the main issues about water quality largely based on the ICPDR's previous works. Also, it specified possible joint actions with the Commission for the water quality area. Secondly, expert groups have a vital role in the operations of the ICPDR. These groups are the backbone of the ICPDR. Moreover, expert groups include national experts from riparian countries and representatives from the Commission's observation organisation. Most of the technical works of the Commission depend on the activities of expert groups. The ICPDR has several expert groups, such as the expert group for information management and geographic information systems and the expert group for accident prevention and control. Lastly, observers are important partners of the ICPDR. The Commission benefits from observers' works, so there is an intense interaction between them. Social, cultural, economic and environmental interest groups are examples to observers. In addition to interest groups, non-governmental and intergovernmental organisations can be observers. Moreover, observers represent a broad spectrum of stakeholders and a variety of public interests. Black Sea Commission (BSC), Danube Civil Society Forum (DCSF) and International Association for Danube Research (IAD) are examples of these groups.

Water governance was a national issue until the 1970s. It was a concern of the national actors and national policies. However, this situation started to change in the second half of the 20th century. Pressure of the urbanization and population increase started to intensify environmental problems. Like many other parts the Europe and the World, the Danube River Basin witnessed increasing environmental challenges. In the region, the main issue was about the water and its protection. In the 1970s, some international actions started to rise to answer the environmental challenges of Europe. For example, Council Directive 75/440/EEC tried to regulate the surface and drinking water of Europe. Danube River Basin countries followed this trend lately. Although the Danube River Basin was mentioned in several international agreements and international conferences before the 1970s, these were mainly concerned with

navigation or economic dimensions. For example, the 1948 Danube Commission (Belgrade) aimed to maintain navigation after the Second World War. The first international cooperation attempts for water governance started in the region in the 1980s. A couple of international efforts followed each other after this period until the implementation of the WFD. In the time period prior to the WFD, major international cooperation attempts are the Declaration of the Danube Countries to Cooperate on Questions Concerning the Water Management of the Danube or Bucharest Declaration, 1991 Environmental Programme for the Danube River Basin (EPDRB), 1994 the Convention on Cooperation for the Protection and Sustainable Use of the River Danube (Danube River Protection Convention) and the International Commission for the Protection of the Danube River (ICPDR). These agreements were the first international water governance attempts of the Danube River Basin countries. Moreover, these agreements reveal, for the first time, the countries' desire for joint action and joint solutions to the issue. Their attempt to have collective action for the Danube River Basin water governance formed the basis for multi-level water governance in the region which was established with the WFD. Although these attempts were not successful in establishing broad multi-level water governance in the river basin, they provided many important first steps. In other words, earlier water governance attempts led to the establishment of a mutual framework between river basin countries for the first time. Although there were distinct priorities, interests and political environments in the Danube River Basin, riparian countries achieved the first steps of basin-wide international cooperation.

International cooperation attempts between riparian countries started with the Bucharest Declaration officially. Although the main aim was establishing regional cooperation and joint action among Danube River Basin countries, nation-states and their national policies were still priorities. When this came together with important political and economic disparities between parties, the first attempt could not provide the desired international cooperation in the Danube River Basin. In 1985, under the Bucharest Declaration, riparian countries agreed to regulate their national policies according to the declaration. This shows that joint action still highly depended on the national policies and interests of the countries. Although this was an important obstacle, the Bucharest Declaration led to critical steps in the region for water governance. For example, the declaration introduced a monitoring system. The common monitoring programme of the Danube River Basin was the most important result of the Bucharest Declaration. Following international cooperation attempts also led to important developments for the monitoring of the river basin. The second major international cooperation

attempt was the EPDRB. This programme came into existence under the major political transformations in the region. These political changes created a more suitable environment for international cooperation between riparian countries. As a result of this, the EPDRB created the regional environmental programme. This programme aimed to establish broader cooperation than the Bucharest Declaration did. It led to important developments such as identifying the priorities and introducing the alarm system in the Danube River Basin. Moreover, there are important similarities between the Bucharest Declaration and the EPDRB in terms of trusting nation-states for the process. For example, while the Bucharest Declaration considered national agendas, the EPDRB used national reports as a main source for the Strategic Action Plans (SAP). This shows that the first international cooperation attempts were not successful in terms of making international actions and methods a priority. In other words, the first attempts could not challenge to nation-states to prioritize international needs. The EPDRB led to the first multi-year environmental programme in the region. From this aspect, the EPDRB introduced long-term cooperation ideas between riparian countries for the first time. The cooperation continued with the 1994 Danube River Protection Convention (DRPC). The main aim was the developing and intensifying the cooperation on water governance. Under the DRPC, riparian countries agreed that the main priority is protecting the water of the Danube River Basin and preventing transboundary environmental impacts which originated from human activities on the water. Also, this convention made important progress on monitoring systems for the Danube River Basin. It introduced a new monitoring system which is the Transnational Monitoring Network (TNMN). By building transboundary monitoring sites, the DRPC improved international cooperation for the water in the region. TNMN was the most significant result of the DRPC. Finally, the last international cooperation attempt was the ICPDR. The ICPDR is the most detailed and comprehensive one among international cooperation attempts of the time period prior to the WFD. Although the ICPDR came into existence before the WFD, it is still a crucial player in the Danube River Basin for water governance. It still serves as an important implementation body under the coordination and guidelines of the WFD. These international cooperation attempts in the Danube River Basin paved the way to WFD. In 2000, when the WFD came into existence, these prior international attempts were very helpful in showing what is wrong in water governance and what is missing. As a result, international water governance in the Danube River Basin started in the 1980s and in 2000, it gained a multi-level nature with the WFD.

CHAPTER IV: MULTI-LEVEL GOVERNANCE AND THE WATER FRAMEWORK DIRECTIVE

The Origins of Transnational Water Regulation and Management in the European Union

The Water Framework Directive (WFD) is a landmark piece of legislation for water management in the EU. It was adopted in 2000 and was recognized to be an important piece of legislation in terms of its scope, but before the WFD, there were some other initiatives in Europe for water governance which paved the way to the WFD. In other words, the WFD is a result of long years of effort and determination. Tracking the evolution of the European water governance and evaluating the changes in approaches to the issue are essential to understanding the role and importance of the WFD.

Concerns about the management of water resources are not new in Europe. Because of the diverse economic and political conditions of Europe, until the mid-1970s, there was no official collective effort for the water. Before this year, there was fragmented water governance, and nation-states had diverse approaches, priorities, expertise and conditions. Also, inconsistent standards and insufficient policies started to not answer to rapid urbanization in the second half of the 20th century. Rapid urbanization and growing industries created more pressure on the environment. New challenges that originated from urbanization and industrial activities led to concerns about the future of the environment in Europe. One of the most concerned parts of the environment was the water. Moreover, growing concerns about the protection of the waters of Europe led to the first examples of collective acts in water management. According to Kaika, there are three waves of European legislation for water, and the WFD is an example of the third wave of European water legislation (Kaika, 2003). The first wave starts with the first European legislation for the water; Council Directive 75/440/EEC. This directive is mainly concerned for surface water and drinking water. This directive focuses on the quality and standards of the surface water used to obtain drinking water (Da-Cunha, 1989). Under this directive, for the first time, quality standards of the water started to be regulated and monitored in Europe. Although this directive was not a comprehensive one, which only concerned about surface water, it paved the way for new directives. In other words, after this important first step, a series of other regulations and directives followed Directive

75/440/EEC. In the late 1970s and 1980s, new directives aimed to reach collective protection of the water. Between 1975 (75/440/EEC) and 2000 (WFD), there were 28 directives for the water. For example, the issues of “water for drinking purposes, water for swimming, water pollution by dangerous substances and groundwater preservation, protection of fresh water for fish life, and shellfish waters” are some examples of what these directives deal with (Bouleau, 2008). Although these directives are important in terms of establishing ground for water governance, they had limited effect on nation-states. Because their scope was limited to pollution-related issues, there was almost no reference to broader problems. For example, there was no reference to the general ecological status of the water, or there was no solution which consisted of the all river basin as a whole. This shows that, although early water management efforts led to important development, they could not bring broader solutions. The second half of the 1980s witnessed a changing approach to environmental issues. In 1987, after the Our Common Future Report of the World Commission on Environment and Development, the sustainable development concept became popular and it affected new directives and regulations. It led to the idea of more integrated water governance. After this year, new directives tried to adopt a more integrated approach to natural sources including water. The Directive for Integrated Pollution was an example of this. This directive does not focus on specific pollutants or specific parts of the environment, such as water, soil and air. Under the integrated approach, it aimed to prevent pollution and industry-related emissions in all environments rather than focusing on one part of it. (Faure & Lefevre, 1996). In terms of water governance, while the earlier directives focused on specific water management issues, this situation started to change slowly.

In addition to EU directives between 1975 and 2000, such as Directive 75/440/EEC, there are some other important internationally binding developments for water governance. For example, although the Bucharest Declaration, the EPDRB, the DRPC, and the ICPDR specifically deal with the Danube River Basin, they showed that collective action is possible. In other words, these regional efforts showed that reaching an international agreement is possible even the contracting parties have distinct economic and political conditions, diverse interests and priorities. At this point, the key was making the countries aware that the water problem requires a collective answer. These also showed that while the earlier focus was on urban areas and their effects on the water, now Europe's rivers, lakes, and coastal waters are open to collective water governance. On the other hand, the Treaty on the Functioning of the European Union (TFEU) articles 191-193 provided important standards for environment and

water protection in Europe. For example, the TFEU 191 try to bring standards for international measures for international and regional environmental problems, in addition to a broad objective to protect and improve the quality of the environment. Because water essential part of the environment, these articles created a new approach to water governance in Europe. Moreover, “development of the WFD began in 1995 when the Environment Commission of the European Union (EC), the Environmental Commission of the European Parliament (EP) and the Council of Environment Ministers of the European Union (CM) agreed to embark upon a more global approach to water policy” (Kaika, 2003, p. 300). This shows that preparations started in 1995 to develop the WFD. Also, this shows that there was an awareness that existing regulations, directives and institutional and international efforts are insufficient. In Europe, early water management efforts could be insufficient, but they are indispensable steps to the WFD. Also, the 1990s was an era of the emergence of worldwide holistic environmental management and integrated control over the environment. For example, the 1992 Rio Earth Summit was a symbol example of this trend. WFD is another representative of this idea (Hering et al., 2010). These Institutional and international efforts led to the birth of the idea that there is a need for a more comprehensive and multi-level approach which is the WFD.

The Water Framework Directive: The Objectives and Scope

The WFD targets all waters of Europe. In terms of its scope, the WFD is the most comprehensive legislation for water governance. The directive presented detailed categories for the water. The WFD is critical in terms of establishing a framework for the surface and ground waters of Europe. It has a broad and holistic vision (Copetti & Erba, 2024). In addition to surface and ground waters, there are also coastal waters categories, so there are three main categories for the water, under the WFD. Also, these three categories consist of many other sub-types of water bodies, such as rivers and lakes. For example, transitional waters are sub-waters of surface waters. The WFD defines transitional waters as “bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows” (2000/60EC, 2000). Firstly, according to the WFD Article 2(1) “‘surface water’ means inland waters, except groundwater; transitional waters and coastal waters, except in respect of chemical status for which it shall also include territorial waters.” (2000/60EC, 2000). According to the directive,

lakes, reservoirs, streams, rivers or canals, parts of streams, and stretches of coastal waters are examples of surface water. Moreover, in addition to these, artificial water bodies are also considered as a type of surface water. For example, canals are artificial water bodies, and as human-altered water environments, canals are also an integrated part of the water governance understanding of the WFD. This shows that the WFD aims to manage all forms of standing waters and this is one of the critical points that makes the WFD the most comprehensive legislation for water governance in Europe. Secondly, ground waters can be called as subsurface waters that are found in aquifers –“aquifer means a subsurface layer or layers of rock or other geological strata” (2000/60EC, 2000). According to the WFD Article 2(2), “groundwater’ means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil” (2000/60EC, 2000). Groundwaters have key roles in supporting surface waters, maintaining drinking water and supporting ecosystems. For example, by helping to maintain the base flow of rivers, ground waters support surface waters. Moreover, agriculture and industry also depend on groundwater. Thirdly, the WFD also defined the coastal waters as a distinct category of water. According to Article 2(7) (WFD) “coastal water’ means surface water on the landward side of a line, every point of which is at a distance of one nautical mile on the seaward side from the nearest point of the baseline” ((2000/60EC, 2000). As a result, the WFD aims to target all forms of water to protect and manage them comprehensively and effectively.

The Directive 2000/60/EC which is known as the Water Framework Directive (WFD) is a ground-breaking EU legislation which built a comprehensive framework for water governance in Europe. Today, it is the primary determinative for the water policy of the EU. Moreover, the WFD establishes a framework for the all waters of Europe without excluding any type of water or water bodies. This point makes the WFD unique because there was not that much comprehensive framework for all types of water before. WFD is a cornerstone of the European Union (EU) water policy. Because it targets all water in the EU, the WFD has a crucial and overarching role (Carvalho et al., 2019). Its inclusive approach and inclusive policies are creating important responsibilities and tasks for the directive. In other words, because it targets to all waters of Europe, it has to deal with all the challenges of distinct parts of the union. For this, the directive should achieve essential transformation. The Directive promises the transforming water sector in Europe by providing a legally binding water protection and management framework. This new framework led to the internationalization of water management within Europe. As a part of the internationalization process, more actors

and institutions became a part of water management under the WFD (Kaika, 2003). The WFD opened the water governance to many new actors from different levels of governance. This means that the WFD is a good example of multi-level governance under the integrated approach. In other words, the WFD set more integrated water governance between a set of new actors and existing actors, and this led to multi-level governance practices in water management. Because there was no such detailed framework for the water in Europe, the WFD created ground-breaking effects and changes in Europe. Before the WFD, there were fragmented water governance practices. While water was governed as a sector by distinct directives and regulations before, the WFD plays a crucial role in bringing all efforts under the one framework for all waters of Europe. Although, since the mid-1970s, there were regional and international cooperation attempts, none of these attempts able to create the same effect as much as the WFD did. In other words, none of them have been as effective as the WFD in terms of creating integrated water governance. In 2000, one of the most ambitious and encompassing pieces of the EU environmental legislation was presented. After the WFD, the establishment of the integrated water basin management idea led to the necessity of rethinking domestic policies for EU members (Moss, 2008; Voulvoulis, 2017; Liefferink et al., 2011). This point shows that the WFD has the power to shape the domestic policies of the member states. Moreover, it has the power to shape and organize the regional water governance policies and implementation process. In light of these, the WFD represents a significant change in the water governance practices of the EU by creating more integrated, holistic and comprehensive approach to water.

With a holistic approach, the WFD is a candidate to make significant changes in water governance in the EU. To achieve this, the WFD specified several critical objectives. These objectives are key to having properly functioning water governance in the EU. Moreover, because the WFD became a single framework for the water related issues of the union, its objectives are critical in terms of fighting environmental challenges. This means their goals are critical not just for water, but also for the environment. Although the WFD has several specific goals, the main goal is specified clearly under the article; “the principal goal is to achieve “good ecological quality” in all relevant waters by 2015” (Bennion & Battarbee, 2007, p. 285). Under the WFD, the definition of the ecological status is clarified. According to the WFD Article 2(21), ‘Ecological status’ is an expression of the quality of the structure and functioning of aquatic ecosystems (2000/60EC, 2000). The WFD wanted to measure the quality of the water by applying general standards for all members. Member states should achieve good

ecological status in all water bodies, in a given time period. For example, reaching good surface water status and good groundwater status are significant objectives while protecting the water bodies which have already good ecological status (Acreman & Ferguson, 2010; Boeuf & Fritsch, 2016).

In addition to the good ecological status goal, the WFD announced many other goals under Article 1. For example, the directive includes the objectives of preserving the status of aquatic ecosystems and preventing further deterioration in these areas. Moreover, for the long-term protection of existing water resources, the directive emphasizes the importance of sustainable use of water. In other words, the WFD aimed to apply sustainable use of water to all parts of the union. Within the union, while some states have larger water resources, others have limited water resources. At this point, the directive wants to bring equal standards for all members. Also, for transboundary waters, such as the Danube River, using the water in equal terms prevents further conflicts between the states and helps to achieve sustainability goals. Moreover, the progressive reduction of pollution is another important objective according to Article 1. Achieving this goal can provide several advantages. For example, if member states could achieve a progressive reduction of pollution in their water bodies, this can help to prevent further pollution in downstream regions. Preventing pollution and increasing the quality of the water is helpful not only within one territory but also in neighbouring countries that share the same water bodies. Especially for large water bodies, healthier aquatic ecosystems depend on the collective actions of several states. This shows that to reach the objectives of the WFD, joint action is necessary. Also, after preventing pollution, member states should ensure a sufficient supply of good-quality surface water and groundwater. In a nutshell, the WFD aimed to establish comprehensive protection for all types of water, such as surface waters, transitional waters, coastal waters and groundwater.

The Multi-level Governance of the Water Framework Directive

The WFD incorporates several features of the MLG. It presents important details about the concept and its implementation in practice. In the environmental field, the WFD is one of the most significant and comprehensive legislation within the EU. Moreover, the WFD is designed around the idea of managing Europe's all water resources by including different levels, such as local, national, and supranational levels. This shows that the WFD aims to create

cooperation and coordination among various levels of governance. From this aspect, there is a perfect overlap between the MLG concept and the directive. One of the most known definitions of the MLG concept says that multi-level governance is a “system of continuous negotiation among nested governments at several territorial tiers – supranational, national, regional and local” (Hooghe & Marks, 2003, p.2). There is a strong overlap between the MLG concept and the WFD because both of them aim to involve multiple layers of authority and decision-making with distributed responsibilities among various levels of government. Moreover, regular cooperation between these levels has great importance for both of them in terms of the continuity of the system. For example, to have healthy multi-level governance, parties should be coordinated according to the collective needs. This point is completely valid for WFD. The main idea behind the directive is to protect Europe’s water and it belongs to everyone. In other words, the WFD is an answer to the collective problem and need of the European countries. In this case, they need a powerful frame to manage their water, and the WFD fulfils this role. Also, both the MLG concept and the directive emphasize that governance is not the sole domain of any one level, and there is a shared responsibility and coordinated effort between multiple layers. In other words, governance does not belong to only one form of government, such as nation-states. Moreover, interaction between lower and higher levels of government is highly supported under the directive. Both the MLG concept and the WFD are good representatives of multi-tiered governance. While the MLG presents a theoretical framework for this, the WFD presents a practical framework.

There are important components of the MLG which can be seen in the WFD. Firstly, one of the most important features of the WFD in terms of setting MLG is specifying different levels of water governance clearly. There are many references to different levels and their responsibilities under the WFD. For example, Article 3 shows that there are different levels of water governance under the WFD. The article mentions member states at the national level while the Commission is at the international level. In addition to this, when the member state identifies the local authorities, the local level of water governance becomes a part of the process (Directive 2000/60EC, 2000). In terms of presenting the existence and importance of different levels of water governance, this is one of the core points that set the MLG under the WFD. Secondly, the WFD sets some conditions for the member states which include vertical and horizontal interactions between lower and higher levels of the government on the water protection issue. Under the WFD, the member states accept that they consider and include local-level authorities in the process of water governance. For example, the directive

emphasizes that the success of the directive depends on the close cooperation and coherent action between the Community, member state and local level. Especially, on information, consultation and involvement of the public, coordination between these different levels of governance is key (Directive 2000/60EC, 2000). Similarly, the member states also accepted that their policies about water governance are under the observation and control of the higher level of the government; the Commission. For example, Article 3 shows that the Commission is responsible for controlling the facilitation of river basin districts within the national borders and beyond. Moreover, the article also shows that member states should provide the list of their competent authorities to the Commission (Directive 2000/60EC, 2000). This shows that as a higher level of the government, the Commission has a binding role over the actions of the lower levels of the government. Moreover, Article 12 mentions that the member state should report any issue and change in their policies and approaches to water governance to the Commission (Directive 2000/60EC, 2000). This shows that the WFD includes one of the most important components of the MLG by creating obligatory vertical and horizontal interactions between lower and higher levels of the government on the water issue. The relationship between the concept of MLG and WFD can be better seen with a detailed categorization. As subcategories of the MLG concept, multi-actor governance, multi-perspective governance and multi-instrument governance are helpful in showing the relevance of the MLG concept to the WFD. In light of this, after a dedicated section to the MLG and the WFD, the following sections will explain each of these subcategories and how they are related to the WFD.

Multi-level Governance Settings under the Water Framework Directive

According to the WFD, close cooperation and coherent action between the community, member states and local level is key for the success of the new water framework. Applying close cooperation and coherent action on information and consultation is also crucial. Moreover, the involvement of the public is expected to help to intensify and expand the cooperation (2000/60EC, 2000). In the implementation process, the led to cooperation with local-level actors. For example, in North Rhine-Westphalia, which is one of the German federal states out of 16, the WFD and nature conservation authorities have close cooperation for the local implementation of the WFD. Nature conservation authorities actively participated in

round tables in developing a roadmap for the implementation (Schröder et al, 2020). The WFD established multi-level water governance in different parts of the EU. While Sweden traditionally has strong water governance at the municipal level, after the WFD, cooperation started with different levels. For example, in the Oxunda River Basin, the Oxunda Water Cooperation harmonized their work with the WFD (Andersson et al, 2012). Examples from Germany and Sweden show that the local efforts gained important partner which provides institutional standard and expertise. The new water governance system has a multi-level nature and it emphasizes the roles of regional and local authorities for the water policies. Moreover, according to the new design, there is mandatory participation for the general public and stakeholders. Their roles are important in the implementation process to have integrated water governance (Domorenok, 2017). This means that, in addition to local authorities, the inclusive approach of the WFD supports the participation of individuals from different levels. This point is also related to another dimension of the multi-level governance which is multi-actor governance.

Multi-actor Governance under the Water Framework Directive

The WFD supports the involvement of all actors who have an interest in water governance and water-related issues. This means that the WFD has an inclusive approach to water governance. Moreover, multi-actor governance is a natural result of this inclusive approach. In addition to national and supranational level actors, local level actors also have a key position in the adoption and implementation of WFD measures (Koontz & Newig, 2014). Because there are huge numbers of local actors within the member states, including them in the process leads to multi-actor governance. Under the directive, there is a special effort to ensure public participation. WFD believes that involving everyone in the process is a shortcut to making everyone aware of the challenges in European waters. Moreover, the participation of stakeholders is a part of the directive's policy to reach a wide range of actors. For example, under the participatory approach, Denmark set up "actors groups" for the implementation process of the WFD. These actors groups include different stakeholders and municipalities. They are generally responsible for making advice to upper levels of water governance (Liefferink et al, 2011). The multi-actor process starts at the local level. For example, in the Swedish case, the directive has close relation with municipalities, such as the Municipality of

Stockholm, the federations of Swedish Farmers and the Swedish Association of Local Authorities and Regions. All these actors are integrated parts of the water governance under the coordination of the WFD (Andersson et al, 2012). As a result, the WFD puts intense efforts to establish multi-actor water governance in the EU.

Multi-perspective Governance under the Water Framework Directive

The water vision of the WFD has a multi-perspective nature. For example, while the directive is developing the river basin management plans, it harmonizes perspectives from existing reports and existing legislations with new ways of water governance under a single standardization. While the existing efforts provide important knowledge about the basic characteristics of the river, a new system of water governance filters their work by considering their perspectives and approaches to the issue (Kuks & Kissling-Näf, 2004). As an inclusive directive, the WFD aims to recognise as many different perspectives and ideas as possible on water management in Europe. In other words, the WFD aims to be a roof organization above the multiple approaches. Moreover, because the WFD also has a multi-level and multi-actor nature, it has to respect different perspectives. While introducing a new approach to water governance, it is filtering existing work. This provides a healthier integration process for the directive while helping to protect diversity. Diverse perspectives help to have comprehensive water governance. In the implementation process, the WFD considers the site-specific conditions, such as regional legislations and regional actors. At this point, regional perspectives play a critical role in shaping the attitudes of regional actors. The directive aims to listen to and analyse the perspectives of regional authorities and bodies (Ramos et al., 2018). Taking regional perspectives into account helps better implement and harmonize local, national and supranational policies on water. This is one of the main tasks of the WFD; harmonization of local policies and framework's policies. Greater cooperation and coherence in water governance lay on the healthy harmonization of different approaches.

Multi-instrument Governance under the Water Framework Directive

The WFD aims to manage all aspects of the water in Europe. This situation creates a huge workload for the directive. At this point, the directive benefits from some other regulations and directives. Moreover, the directive uses their instruments according to their own objectives. This shows that there is an intense interaction between the WFD and other EU legislations. The Floods Directive, Urban Waste Water Treatment Directive, Habitats and Birds Directives and Common Fisheries Policy are examples of EU directives and regulations which have interaction with the WFD. The WFD benefits from multiple instruments which are developed under distinct directives or regulations. For example, flood risk maps are prepared under the Flood Directive, but the WFD also uses these maps as an instrument to protect river basins against the harmful effects of floods. For example, in Flanders, Belgium, flood risk maps are formulated under the integrated efforts of the WFD and the Flood Directive (Newig et al, 2018). This shows that there is strong interaction and cooperation between the Floods Directive and the WFD. Adopting the operative provisions of several water directives is not a new situation for the WFD. For example, for the Danube River Basin, the WFD has a close relationship with the International Commission for the Protection of the Danube River (ICPDR). The ICPDR serves as the main coordinating body for the implementation of the WFD in the Danube River Basin. Also, the ICPDR serves as an instrument which ensures healthy transboundary cooperation in the river basin between riparian countries. These show that the WFD is integrated with many other directives, regulations and international organizations, and this gives a multi-instrument nature to the WFD.

Challenges to the Multi-level Governance in the Water Framework Directive

The WFD aimed to establish a comprehensive example of the multi-level governance in Europe for water governance. Although it achieved significant change in water governance, there are some challenges to its multi-level governance nature. Firstly, the complexity of coordination across multiple levels created some challenges. Before the WFD, there were some other international efforts and regulations for the water, and these have been already adopted by different levels of water governance. In addition to international efforts, there were also

settled national policies. In both cases, there were existing regulations, and applying a new framework required complex coordination which creates challenges to the WFD and multi-level governance. For example, in Sweden, there was a municipal monopoly for water planning, and the WFD created possible tension in the system. Although Swedish political and administrative culture were representatives of a different governance model than what the WFD asks of states, they started to cooperate (Andersson et al, 2012). This shows that the WFD created some challenges for Sweden. In this case, although parties agreed to cooperate to overcome the challenge, it still shows that the WFD and its new framework created problems across multiple levels of water governance. Secondly, diverging interests and priorities of the parties created a challenge to the multi-level water governance. Because there is a wide range of actors, their approaches can be diverse easily. For example, while some nation-states and industries are prioritizing economic interests and industrial growth, their ways of supporting industries can create harmful effects on the water, such as hazardous substances and industrial wastes. The WFD tries to set standards for priorities, but this is not an easy task. Thirdly, the different economic and administrative capacities of the member states affect their approach to the WFD. Strong administrative capacity fosters the member states in following and adopting the EU legislation. Stronger administrative capacity brings higher rates of compliance (Lindstrom, 2021). There is no coherency in the EU in terms of economic and administrative capacities. In this case, members who have weaker capacity, face challenges in adopting and following the obligations of the WFD, and this damages the multi-level nature. Lastly, for properly working multi-level governance, the WFD encouraged wide participation. However, the participation issue is one of the main challenges for the multi-level governance of the WFD. In the management process, the Directive fails to open a space for active public involvement. In particular, local populations cannot participate in the management of their resources (Pollard & Huxham, 1998). Active participation of all interested parties is encouraged under the WFD. This shows that the WFD has a participatory approach. However, participation is limited because of several reasons. Firstly, because objectives are already set by the Directive, stakeholders do not have negotiation power over them. Secondly, because there is an increasing reliance on science and expertise, many stakeholders are excluded. In other words, only limited stakeholders have the necessary skills and expertise. This shows that although the WFD has a participatory approach, it leaves little space for participation (Steyaert & Ollivier, 2007). Although public participation is a key element for the WFD, it is a major challenge at the same time. During the participatory process, stakeholders must believe that their opinions matter and that they actually have a chance to affect the choices that are made. This requires early

involvement, but stakeholders cannot participate early because the Directive is already set. (De Stefano, 2010). Stakeholders have little real opportunity for active involvement under the WFD. Because stakeholders cannot participate fully in the negotiation process, they can be more involved in the reviewing process (Acreman & Ferguson).

The Policy Instruments for Multi-level Governance: River Basin Management Under the Water Framework Directive

River Basin Districts

The WFD aims to manage all waters of Europe, but the management of the transboundary water bodies has a significant role in the framework. Rivers are the most international water bodies in Europe. The WFD created a river basin approach to introduce and establish more holistic water governance in river basins. The directive believes that more integrated water governance is possible. However, only a new mindset and a new approach can achieve this (Giakoumis & Voulvoulis, 2018). Moreover, Europe has many transboundary rivers which need international cooperation for proper water governance. To manage these, the WFD first set the River Basin Districts (RBDs). For example, Danube RBD, Rhine RBD and Elbe RBD are major districts under the framework. According to the WFD Article 2(15), “river basin district means the area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and coastal waters, which is identified under Article 3(1) as the main unit for management of river basins” (Directive 2000/60/EC, 2000).

In addition to the highly international RBDs such as the Danube RBD and Rhine RBD, there are many sub-river basin districts at the national level. Article 3(1) specifies that member states should assign individual RBDs. Small RBDs can be combined with larger ones. Also, if territory under the RBD crosses the borders, this is called as international river basin district (Directive 2000/60/EC, 2000). The first task of the member states is identifying the RBD. Moreover, “an RBD may be made up of either one single river basin or a combination of several small river basins, together with associated groundwater and coastal waters” (Nilsson et al., 2004). After identifying individual RBDs within the national territory, member states should ensure coordination of administrative arrangements for this RBD. Identifying appropriate

administrative arrangements and assigning appropriate competent authority are important tasks for the member states. After these steps, RBD can start to work under the control of the national authorities and the WFD. In other words, the directive is also responsible for watching these RBDs. The main role of the directive is to ensure cooperation in RBDs, especially in international RBDs. International RBDs are examples of transboundary water bodies of Europe. Moreover, because their responsibility area crosses political and administrative borders, there is a need for international coordination and cooperation. The WFD aims to play this role by creating mutual responsibilities and tasks for the riparian states. In other words, the directive encourages the member states to work together in shared RBDs under the coordination of the directive. The WFD aims to establish more integrated water governance for all member states. For this goal, working together in the RBDs is essential. Also, the identification of RBDs is a necessity for the next step of water management in river basins. In other words, the directive aims to use RBDs as a base for the water management of rivers. The next step of the water management is the River Basin Management Plans (RBMPs).

River Basin Management Plans

River Basin Management Plans (RBMPs) are essential parts of the WFD. The RBMPs are key tools in the implementation process of the directive for the river basins. The directive aims to have “good ecological status” in rivers, and the RBMPs have a key position in achieving this goal. Because RBMPs are coordinated under the WFD, there are specific explanations for them under the legislation. The WFD introduced the RBMPs under Article 13. According to Article 13(1) “member States shall ensure that a river basin management plan is produced for each river basin district lying entirely within their territory” (Directive 2000/60/EC, 2000). Moreover, there are specific conditions for international RBDs and their RBMPs. According to Article 13(2), if all parts of the RBD are within the borders of the EU, there should be a single international RBMP. If an RBD crosses the borders of the union, each member state again should try to formulate a single RBMP. On the other hand, if this is not possible, member states should formulate an RBMP which covers their territories (Directive 2000/60/EC, 2000). After producing an RBMP, member states should start to work on more detailed plans and programmes. Also, the directive presented three cycles of river basin management planning. While the first cycle was between 2009 and 2015, the second cycle was

between the years 2016-2021. Moreover, the third cycle of river basin management planning is 2022-2027 (O’Riordan et al., 2021). At the end of each cycle, member states should prepare a report and should present it to the European Commission.

Content of the River Basin Management Plans

RBMPs are detailed roadmaps which include detailed conditions of the RBD. RBMPs present a general description of the general characteristics of the RBD. This general description includes “identification and mapping of protected areas” (Annex VII). This makes it easier to monitor the protected area of RBD. Firstly, RBMPs analyse the surface and groundwaters distinctly. For surface water, RBMPs include identifying boundaries of water bodies, and ecoregions. Surface water body types are also identified under this management plan. Also, in a dedicated section, the plan presents the reference conditions for the surface water. On the other hand, for groundwaters, mapping the boundaries is one of the tasks of the management plans. For both surface and groundwaters, analysing their ecological, chemical and quantitative conditions is an important task for the RBMPs. Secondly, these management plans present a summary of pressures and human activities on the waters of the river. For example, sources of pollution and diffuse pollution, land use and water use are explained in this section. Moreover, the plans mention other human activities under this section. For example, if there is an agricultural, industrial or mining site, their activities are mentioned to calculate possible pressures of them on the river. This part also includes an economic analysis of water use which is related to human activities. Analysing their impact on the ecosystem of the basin and on the aquatic environment of the river is an essential part of the RBMPs. Thirdly, the RBMPs include several measures. Measures to prevent accidental pollution, supplementary measures and practical measures to ensure cooperation between various actors and levels are examples of these. In addition to these, the RBMPs also include public information and consultation measures with together a list of competent authorities (Annex VII). Lastly, the RBMPs specify what should updated versions include. When the next cycle formulates a new RBMP, this will be an updated version. Updated RBMPs should include a summary of any changes. Moreover, it should clarify any new measure which was not included in the earlier version. Progress and monitoring results should also be part of updated RBMPs. A new version should give an

explanation of environmental targets not being achieved if there are any. In addition to all these, the RBMPs also include a list of environmental objectives for an RBD.

Objectives

The RBMPs share the same main objective with the WFD; reaching a good ecological status. While the WFD aims to achieve this for all waters of Europe, the RBMPs aim to achieve this for specific rivers and RBD. To have good ecological status, the RBMPs aim to ensure sustainably managed waters, protected freshwater resources, and no further deterioration into river basins. Firstly, the RBMPs aim to ensure the quality of the water in the RBDs. To realize this goal, the main logic was to establish broad protection of the water and ensure restoration of already polluted waters. This broad protection idea includes preventing water-polluting activities of humans. For example, agricultural activities is leading to phosphorus and nitrogen wastes, and insufficiently treated wastes create water pollution. This shows that agricultural practices create unprecedented impacts on the water and water quality. In the EU, 38 % of water bodies are affected by agricultural water pollution (Evans et al., 2019). In addition to preventing agriculture-related pollution on water, the RBMPs also aim to prevent industrial pollution. Also, increasing population and urbanization create extra pressure on water, and this directly affects the quality of water. For example, increasing population and urbanization put pressure on the sustainable use of water. Because one of the significant goals of the WFD is the sustainable use of water, the RBMPs try to find regional solutions and establish regional cooperation. Secondly, the RBMPs aim to expand cooperation on the water and in the RBDs. One of the strategies of the RBMPs, in order to expand cooperation, is to include more actors in the water governance process. For example, public participation and stakeholder participation are key at this point. Involving regional actors in the process helps to strengthen the regional cooperation. Especially for transboundary rivers, regional cooperation has a key position (Ho, 2017).

Has the WFD been successful to date? Has the WFD achieved its water governance goals? The WFD is a ground-breaking legislation for water governance in the EU. It introduced a comprehensive framework and detailed methodology for water protection. Its success can be analysed in two categories; establishing multi-level water governance and realizing environmental goals. While there are success in terms of establishing multi-level water

governance in Europe, the WFD could not realize many environmental goals until today. This means that while there is success in terms of introducing institutional standards and organizational schemes, its reflection on practice is not that successful. In the following section, each of them will be explained in detail and clearly.

When the WFD was introduced in 2000, there was no integrated water governance in Europe. It led to significant changes in water governance. While there were more differentiated approaches to water governance, it led to the establishment of a more integrated and joint approach to the water in the union. Moreover, while until the WFD, different levels of governance were responsible for different types of waters, the directive brought standardization for shared responsibility and coordinated effort between multiple levels. After the WFD, actors from different levels started to participate in the water governance process widely. These actors started to be part of the process under the coordination of the directive. For setting up a governance approach, the WFD was successful. This approach includes local actors, such as local stakeholders and citizens, and this was an important success in terms of participation (Wuijts et al., 2023). This shows that the WFD introduced a multi-actor approach to European water governance. When the number of actors from different levels increases, the process becomes more multi-levelled automatically. The directive aims to do this by including more actors from various levels of water governance. Moreover, because multi-level water governance requires interaction between different levels, these actors have key positions. For example, the WFD supports local implementations of the directive's measure by considering the opinions of local actors and local authorities. Although there are problems in practice, the WFD has built a strong framework for the coordination between different levels of water governance through local, national and supranational actors. In addition to success in ensuring the participation of the actors from different levels, the directive also achieved to bring a standardized system for all water bodies of Europe. For example, now all parties are working for the same ultimate goal; good ecological status. Because this goal is the common goal of all parties, they are all part of the same struggle. The EU member states have agreed to be part of this multi-level system by organizing around the same goal and sharing responsibility for water governance. In light of all these, the WFD was highly successful in terms of establishing a multi-level water governance system within the EU. It led to the creation of multi-layered water governance. In terms of having multi-level governance for the water, the WFD achieved to introduce a standardized approach which is applied to all parties of the European water

governance. With the WFD, all water bodies in Europe began to be managed through a multi-level process.

The WFD introduced a comprehensive framework for water governance and it specified important objectives under this framework. The ultimate goal was to have a good ecological status for all waters of Europe in 2015. However, the directive could not achieve this objective. Only 53 % of water bodies across Europe were able to achieve good ecological status in 2015. As a result of this many member states requested an extension to realize this goal to the end of the second and third cycles of river basin management (Cooper & Hiscock, 2023). This shows that member states could not achieve to realize the main goal of the WFD. There were several reasons for this failure. For example, the European Commission Report mentions that the main obstacles were governance, delays, lack of finance, lack of mechanisms, lack of measures, cost efficiency and extreme events. For example, while Estonia and France suffered from delays and lack of finance, Italy and Portugal suffered from extreme events and cost efficiency also (COM 970, 2021). This shows that there are several obstacles to realising environmental goals and these obstacles are diverse in member states. Moreover, the WFD also failed to find appropriate answers to these obstacles. This shows that the WFD set standards and collective targets for the member states but there should be further action to strengthen the implementation process. All these show that the WFD was not successful in terms of realizing its environmental objectives in a given time period. However, it achieved to create a huge change in European water governance. Today, waters of the Europe are under more systematic protection, thanks to the WFD. Also, although the directive could not achieve its all environmental goals, it created a positive trend in the prevention of further pollution in various water bodies of Europe. This shows that although the WFD was not successful in realizing its environmental goals, it led to substantial improvement in water quality and protection. This point shows that the WFD is very helpful legislation but it needs to consider its timetable. Today, it is unsuccessful because member states cannot achieve good ecological status in a given time. However, there is improvement and a positive trend in different parts of Europe. At this point, countries need more time to apply all measures. This can be key to having more success in terms of environmental goals.

CHAPTER V: THE IMPLEMENTATION OF THE WATER FRAMEWORK DIRECTIVE IN THE DANUBE REGION: THE MULTI-LEVEL GOVERNANCE SETTING, STRENGTHS AND CHALLENGES

The WFD introduces major changes to water governance in all parts of Europe. It led to significant changes in water governance in the whole of Europe including the Danube River Basin. Because the Danube River Basin is highly international, and has transboundary challenges in water protection, it was one of the major target areas for the WFD. The WFD aims to find the collective answer to transboundary challenges, and this was exactly what the Danube River Basin needed. Because of the problems of the Danube River across political and administrative borders, the WFD is a good candidate to help.

Water governance in the Danube River Basin is also affected by the WFD extremely. After the WFD, more integrated multi-level water governance was established in the Danube River Basin. Although there were some efforts for international cooperation for the water, these earlier efforts were not successful in establishing multi-level international cooperation for the water. However, some of these earlier efforts were helpful for the WFD in terms of providing base and reference points. For example, the International Commission for the Protection of the Danube River (ICPDR) was very helpful in organizing riparian states and other actors such as expert groups, observers, regional partners and stakeholders. Because of this, the ICPDR continued to work under the WFD. However, the WFD created a completely new approach and new methodology for river basin management. The WFD tried to apply sustainable integrated water governance at the river basin scale, and this was a new approach to the issue. This approach was significant in terms of creating multi-disciplinary tools and information for the rivers and especially for the river basins shared by different countries (Nikolaou et al., 2008). The WFD established the detailed legal framework for the Danube River Basin, and this legal framework includes many elements, such as the Danube Basin Analysis Report (2004), Danube River Basin Management Plans (DRBMPs), Significant Water Management Issues (SWMIs) and Joint Programme of Measures (JPM). All these are crucial parts of the multi-level water governance in the Danube River Basin. Moreover, these legal frameworks are helpful tools to see the multi-level nature of the Danube River Basin water governance. In other words, thanks

to these tools, the WFD has succeeded in taking the first steps towards healthy multi-level water management in the region. Because these tools are the results of the WFD's efforts in the region, they are designed to support multi-level governance. Moreover, the WFD aims not only to respond to the urgent challenges in Danube water management but also to establish sustainable long-term governance and healthy international cooperation.

The Multi-level Governance Setting in Danube River Basin

After the WFD, water governance in the Danube River Basin gained multi-level character. As proof of this, a new water governance system under the WFD adopted important components of the MLG concept. One of the earliest tasks under the WFD was taking necessary steps and actions to establish multi-level water governance across the union. This led to a significant transformation in European water governance. This significant shift allowed for more unified water governance. Danube River Basin also witnessed this kind of transformation after the WFD. One of the first tasks was specifying a set of actors from local, regional, national and international levels. The river basin consists of a huge number of actors from various levels. After the introduction of the directive in the region, different sets of actors started to work in cooperation under the coordination of the directive and national authorities. At this point, examples from some river basin countries can clarify the process. For example, Hungary is a Danube River Basin country, and after the introduction of the directive in the river basin, several actors from different levels are specified under the coordination of the directive. At the national level, the Ministry of Interior and National Directorate General of Water Affairs (Országos Vízügyi Főigazgatóság) were responsible for the water governance in the Hungarian territories of the Danube River Basin. The major change can be seen at the local and regional level in the Hungarian case. After the WFD, several local authorities were organized and these local authorities are an important part of the MLG setting in the Hungarian part of the river basin. For example, the South Transdanubian Water Directorate (A Dél-dunántúli Vízügyi Igazgatóság), the Lower Danube Valley Water Directorate (Alsó-Duna-völgyi Vízügyi Igazgatóság), the North Transdanubia Water Directorate (Észak-Dunántúli Vízügyi Igazgatóság), the Central Danube Valley Water Directorate (Közép-Duna-völgyi Vízügyi Igazgatóság), the Central Transdanubian Water Directorate (Közép-dunántúli Vízügyi Igazgatóság), and the Western Transdanubia Water Directorate (Nyugat-dunántúli Vízügyi

Igazgatóság) are great examples to local authorities who are important part of the water governance in the river basin (Balatonyi, 2022). These local authorities are a direct result of the new approach to water governance. Hungary and its local authorities are good examples of how the WFD set up multi-level water governance in member countries. These show that as a Danube River Basin country, Hungary specified different actors from different levels of water governance and their work organized under the coordination of the WFD. Like Hungary, other riparian countries followed a similar kind of process to set up multi-level water governance under the directive. They specified national and local authorities and agreed to coordinate their work and efforts according to directives. At this point, another important component of the MLG setting gained significance. After specifying actors from different levels of water governance, interaction between these is another vital point in the MLG setting in the region. In other words, one of the most important components of the MLG setting under the WFD is vertical and horizontal interactions between lower and higher levels of the government. These interactions became an important part of the process of water governance in the Danube River Basin rapidly. At this point, Germany presents a good example. German territory of the Danube River Basin consists of Bavaria and Baden-Wuerttemberg regions. Interactions between these regions and the national level of water governance are good examples of vertical and horizontal interactions between lower and higher levels of the government. In these regions of Germany, regional governments are local authorities for Danube River Basin water governance. These local-level actors are the Bavarian state government (Bayerische Staatsregierung) and the state government of Baden-Württemberg (Landesregierung von Baden-Württembergfor). On the other hand, at the national level, the responsible body for water governance is the Federal Environment Ministry. After the WFD, interactions between national and local levels became a norm. This means that both the Bavarian state government and the state government of Baden-Württemberg started to intensely interact with higher level, namely the Federal Environment Ministry. In Germany, to coordinate interactions between these different levels of water governance, the National Danube River Basin Community was founded in 2014 (Hein et al., 2016). This organization proves how much these interactions between lower and higher levels are essential parts of the new water governance under the directive. All these show that the Danube River Basin witnessed a major transformation in water governance after the WFD. The riparian countries adopted the MLG setting of the directive and new water governance gained multi-level nature in the Danube River Basin.

2004 Danube Basin Analysis Report

The 2004 Danube Basin Analysis Report has a critical role in establishing MLG under the WFD. In other words, thanks to this report, all parties at different levels can see what needs to be done to ensure a properly functioning MLG setting in the region. This means that the 2004 Danube Basin Analysis Report played an important role in establishing multi-level water governance in the Danube River Basin by specifying the existing situation in the region. By outlining the existing environmental, social, and economic conditions in detail, this report presented a common understanding among all stakeholders, from local to international levels, about the current status of the basin. This was crucial in enabling the effectiveness across various governance levels, facilitating an integrated and cooperative approach to the Danube River Basin water management. One of the report's most significant contributions to MLG setting in the river basin was its detailed evaluation of challenges and priority areas that need urgent and collective action in cooperation. Thanks to the 2004 Danube Basin Analysis Report's findings and evaluations became a reference point for different levels of water governance in the Danube River Basin.

Under the coordination and guidance of the WFD, the ICPDR prepared the 2004 Danube Basin Analysis Report. In addition to the ICPDR, the Danube River Basin Countries, expert groups and the United Nations Development Programme (UNDP) contributed to the preparation of this report. Moreover, this report is a result of the WFD Article 5 obligations. Although this report was the second report of the European Commission, the first one (the WFD Roof Report 2003) did not include many details. The WFD Roof Report 2003 was an introductory report. This means that there was not much detail about the issue. There were only basic definitions and fundamental issues. Detailed explanations and clarifications came with the 2004 Danube Basin Analysis Report.

One of the earliest efforts of the WFD for the Danube River Basin was trying to understand the issues about water governance in the region. Although there were previous reports with similar concerns, the WFD needed a more detailed one, so the directive wanted to develop its own report. For this report, the directive decided to cooperate with the main international actor in the region; the ICPDR. This was one of the first moments of cooperation between the directive and the ICPDR. It was one of the first of many. These show that the directive wanted to know the region before starting to work for the region. 2004 Danube Basin

Analysis Report was prepared for this reason; to know the Danube River Basin in detail. The report started its analyses by defining the Danube River Basin District (DRBD). According to the report, the DRBD consists of 18 countries and it covers 801,463 km² (section 2.1, p. 18, 2004). These countries were Albania, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Italy, Macedonia, Moldova, Poland, Romania, Serbia and Montenegro, Slovak Republic, Slovenia, Switzerland and Ukraine. This is a list of countries who has territories in the Danube River Basin. Some of these countries were the EU members while some were accession countries. Also, some of the river basin includes some states that have not applied for membership. This shows that the river basin consists of a politically diverse group of countries. Although there is no monitoring obligation, accession and non-member states accepted cooperation. They accepted to implement necessary steps under the coordination of the WFD and ICPDR. This shows that WFD's one of the main objectives, wide cooperation between diverse parties, started to work successfully. Moreover, the report also shows that countries' competent authorities contribute to the implementation of the WFD. For example, the Federal Ministry for Agriculture, Forestry, Environment and Water Management was the main competent authority in Austria (section 2.3.3, p.25, 2004). "The Danube Basin Analysis in 2004 provided the first comprehensive characterisation of the entire Danube River Basin. It comprised a basin-wide pressure and impact analysis to estimate the risk for water bodies of failing the management objective of the WFD" (Sommerwerk et al., 2010). This shows that the report provided detailed explanations about the general characterisation of the DRBD. Under the dedicated section, the report presented a general characterisation of the river basin by looking at geographic characterisation, climate and hydrology, the river and its main tributaries, important lakes and major wetlands in the DRBD, important canals for navigation and groundwater. This section mainly aims to give a general overview of the DRBD and provide background information for the detailed analysis. Since the main aim of the 2004 Danube Basin Analysis Report is to obtain better information about the Danube River Basin, this section fulfils the main objective of the report.

The natural characteristics of the environment change according to the geographical distribution of fauna and flora. The WFD requests detailed analyses of these differences to develop a better management plan. As a result of this request, the 2004 Danube Basin Analysis Report presented explanations for ecoregions in the DRBD. This explanation provided "type-specific ecological classification" (section 4.2.1, p. 36, 2004). According to the report, there are nine ecoregions in the river basin. For example, the Alps which includes Germany, Austria,

Slovenia, Italy, and Switzerland and Eastern Balkan which includes Serbia and Montenegro, Bulgaria and Macedonia are two of these nine ecoregions. The main point to specify these ecoregions is having a basis for the definition of “biologically relevant surface water types” (section 4.2.1, p. 36, 2004). 2004 Danube Basin Analysis Report presents a detailed identification and explanation for the general characterisation of surface waters and the general characterisation of groundwaters. Firstly, the report identifies the surface water categories. According to the report, there are four different main categories. These are “all rivers with a catchment size of > 4 000 km², all lakes and lagoons with an area of > 100 km², the main canals and transitional and coastal waters” (section 4.1, p.36, 2004). These are examples of basin-wide surface waters. There are detailed explanations for each category. For example, for rivers, the report analyses related ecoregions, mean water slope and water temperature. In addition to this, the report presents sub-categorization in this section. Ten different Danube section types are defined under this section. Each of them was defined according to the morphological and habitat characteristics and biological data. This detailed categorization was very helpful to water governance in the region because both the directive and experts have useful guidance for different parts of the river. Before the WFD, having this kind of detailed information was dependent on the nation-states’ capacity, attitude, priority and policies. However, the WFD applied a more institutional approach to the issue. Thanks to this effort, international cooperation has strengthened in the region. The report also presented similar kinds of detailed explanations and categorizations for lakes, transitional waters and coastal waters. Secondly, the 2004 Danube Basin Analysis Report gives significant explanations for the groundwaters of the DRBD. It shows transboundary groundwater bodies in the DRBD. Moreover, the report explains their location, boundaries and characteristics. It emphasizes the importance of DRBD groundwaters in “drinking water, industry, agriculture and spa and geothermal energy purposes” (section 5, p.147, 2004).

As a result, this report provided detailed definitions, explanations and information about the DRBD. It created detailed categorization for the river. Thanks to this fundamental background information, the WFD achieved to formulate Danube River Basin Management Plans (DRBMPs). This shows that this report is an important reference point for the WFD and DRBMPs. 2004 Danube Basin Analysis Report paved the way for further cooperation in the region. This was one of the most important first steps of the multi-level water governance in the Danube River Basin.

Significant Water Management Issues (SWMIs)

The WFD aims to address environmental challenges and sustain water protection in the Danube River Basin by establishing multi-level water governance. While the directive tries to realize its environmental objectives, the MLG setting is seen as a crucial part of the process. The directive led to major developments to reach its environmental objectives and to establish multi-level water governance in the Danube River Basin. One of these developments was the identification of the Significant Water Management Issues (SWMIs). Identification of the SWMIs was a critical milestone in establishing multi-level water governance in the region because this paved the way for further cooperation between different levels of governance. For example, SWMIs specify the source of pollution in the river basin by showing specific industrial facilities or agricultural sites. In this situation, local authorities started to work to address the problem in coordination with higher levels. This shows that identification of the SWMIs is an important step in establishing the MLG setting in the Danube River Basin.

For the Danube River Basin District (DRBD), the WFD identified several Significant Water Management Issues (SWMIs) through Danube River Basin Management Plans (DRBMPs) and SWMI Reports. According to the first DRBMP, SWMI means that an issue “can directly or indirectly affect the status of both surface water and transboundary groundwater” (section 1.3, 2009). The directive ultimately aims to make all waters of the DRBD clean and healthy, and identification of significant issues. The SWMIs are the central pressures that affect the ecological, biological and chemical status of the Danube. This shows that the SWMIs are affecting the water quality directly. Identification of the SWMIs was an important milestone for the DRBD water governance. With the identification of SWMIs, the first draft of the DRBMP was structured around these issues (Blackstock et al., 2009). This shows that the identification of SWMIs paved the way to the first cycle (2009-2015) of river basin management planning. Moreover, the SWMIs became an essential part of the management plans of the DRBD. In each management plan, there are dedicated sections and detailed explanations for the SWMIs. Also, there are detailed reviews about these significant issues in the DRBMPs. After the first cycle, the following plans started to present changing conditions about the SWMIs and their roles in water governance. The first management plan (2009) specified four SWMI which are pollution by organic substances, pollution by nutrients, pollution by hazardous substances and hydromorphological alterations. In addition to these

significant issues, the last DRBMP (2021) added the “effects of climate change” as the fifth SWMI for the DRBD.

Firstly, pollution by organic substances is one of the most powerful SWMIs for the DRBD. It creates great ecological harmful effects for the DRBD. Moreover, organic pollution is one of the biggest pressures which is leading to lower water quality. Untreated wastewater from urban areas, industries and agricultural sites is the biggest source of organic pollution on the Danube River. This shows that insufficient wastewater treatment creates very serious results. When insufficiently treated or non-treated wastewater mixes with the waters, especially surface waters, of the DRBD, this is leading to serious environmental problems. Because the WFD identified this issue as an urgent problem, it is included in the scope of the SWMIs. Wastewater treatment measures are important to reduce pollution and improve water quality in the DRBD (Kirschner et al., 2009). Organic pollution is divided into three categories; organic pollution by urban wastewater, organic pollution by industry and organic pollution by agriculture. Urban wastewater creates great pressures on the DRBD. Because there is no standard in the DRBD countries in terms of existing wastewater treatment plants and existing treatment levels, urban areas are leading to organic pollution and automatically cause significant issues for water governance. Similarly, industrial activities and industrial sites are important sources of organic pollution. According to the first DRBMP, there is still no sufficient pre-treatment for the huge amount of industrial wastewater. Some of them are discharged without any wastewater treatment to public sewerage networks (section 2.1.1.2, 2009). This creates a huge amount of organic pollution in the DRBD. Also, a similar situation can be observed in the agricultural sites. Especially big pig and poultry farms are an important source of organic pollution in the DRBD.

Secondly, pollution by nutrients is another SWMI in the DRBD. Nutrient pollution creates significant ecological effects in aquatic environments and also creates extra difficulties in water governance. Especially for international water governance areas, such as the DRBD, prevention of nutrient pollution requires collective action. This makes the issue even more significant in the water governance process. According to the second DRBMP, significant releases of nitrogen (N) and phosphorus (P) are the primary sources of nutrient pollution (section 2.1.2, 2015). Both N and P cause substantial changes in water ecosystems. The release of these substances originates from several sources. As in the organic pollution case, urban wastewater, and industrial and agricultural sites are the main sources. For example, if a municipal wastewater treatment plant has inadequate technology, it is discharging significant

amounts of nutrients into the surface waters. Moreover, agricultural sites' high nutrient surpluses are creating great risks to the environment. In other words, these agricultural surpluses are leading to challenges for water governance. In addition to the surface waters, the nutrients are also a threat to the groundwater of the Danube. Especially N can easily mix to groundwaters of the DRBD with urban runoff. Moreover, P also can easily mix with groundwaters with soil erosion. This shows that the effects of nutrient pollution extend surface waters of the Danube. This makes nutrient pollution a transboundary issue for the all river basin. All these show that nutrient pollution is a significant concern in the DRBD so it is included in the scope of the SWMIs under the coordination of the WFD.

Thirdly, another SWMI is the pollution by hazardous substances for the DRBD. Hazardous substances pollution is one of the main sources of the riverine ecology damage and lower water quality. It also directly affects the health of humans in the DRBD. Chemicals, metals, pharmaceuticals and oil are the most common types of hazardous substances. According to the first DRBMP, industrial wastes, rainwater overflow, accidental pollution, and agricultural and mining activities are the most common sources of hazardous substances pollution in the DRBD (section 2.1.3, 2009). Especially manufacturing industries are leading to huge amounts of hazardous substances pollution. Their heavy metals and organic micro-pollutants are threatening the DRBD. Arsenic, nickel, chromium and copper are examples of hazardous substances which are originated from industrial activities. On the other hand, agriculture is another important source of hazardous substances pollution. Agricultural pollutants directly threaten the DRBD water quality. Also, accidental spills of hazardous substances are creating significant results. Prevention of accidental pollution is a hot topic under the WFD. If the directive achieves to stop environmental accidents, this can help to have more healthy water governance by bringing solutions to one of the extensions of the SWMIs. Moreover, hazardous substances are leading to poor groundwater chemical status. Especially contaminated sites and waste disposal sites are significant threats to the aquatic environment of the Danube (Scheidleder, 2015). This proves that hazardous substance pollution is originated from human activities and it can be prevented with the efforts of those responsible. The WFD also aimed this by including the hazardous substances pollution under the SWMIs.

In the fourth place, hydromorphological alterations are called another SWMI. After the WFD, with increased focus on the water, the effects of the hydromorphological alterations

gained significant importance. European water governance witnessed major change with the WFD, and under the new approach, the river's hydromorphological alterations have become more important. Moreover, the new approach declared the hydromorphological alterations as one of the SWMI. Because hydromorphological alterations can change the natural structure of the surface waters, observing and controlling them is crucial to have proper water governance. In the DRBD, there are several factors that create hydromorphological alterations. These are "interruption of river and habitat continuity, disconnection of adjacent wetlands/floodplains and hydrological alteration" (section 2.1.4, 2009). These are creating serious challenges in terms of hydromorphological alterations. For example, there are hundreds of human-made barriers in the DRBD. These barriers are built for flood protection, hydropower generation and water supply, but they are leading to river and habitat continuity interruption. For example, these barriers interrupt habitat continuity by blocking fish passes. On the other hand, to have a healthy aquatic environment, there should be a connection between rivers and wetlands/floodplains. Disconnection of these leads to hydromorphological alterations in the DRBD. Wetlands/floodplains are important areas for supplying aquatic animals and plants to the main water bodies of the river. On the other hand, hydrological alteration creates negative impacts on the conditions of flow by changing quantity. All these are sources of significant management issues in the DRBD, so hydromorphological alterations are included in SWMI categorization.

Lastly, the effects of climate change are accepted as the fifth SWMI recently under the last version of the DRBMP. Like many other policy areas, environmental policies reacted to the effects of climate change recently. In other words, climate change and its effects started to get interest later than other environmental challenges. In this direction, the WFD decided to accept it as a significant problem for water governance. Like in many other river basins, the DRBD is witnessing serious results of climate change. Climate change has a serious impact on water resources. For example, air temperatures in the upper Danube watershed have already increased from 7.2 °C in 1960 to 9.2 °C in 2006 (Mauser et al., 2008). Increasing temperature is one of the main reasons for the droughts in the DRBD. Moreover, it creates water quality problems by triggering higher demand because of reducing water resources. Water scarcity is another extreme result of climate change. For example, the Great Morava, Bulgarian Danube and Romanian Danube are facing water scarcity because of the combined effects of climate change, land use and water demand (Bisselink et al., 2018; Dogaru et al., 2019). These show

that climate change is a real problem for the DRBD, and because of that the directive approaches the issue seriously by including it in the scope of the SWMIs.

Strengths and Challenges

The WFD's MLG setting in the Danube River Basin has several strengths and weakness. There are various advantages and disadvantages which are originated from the MLG nature of the directive. The first advantage is integrated and holistic water governance in every part of the region. When the directive targets all parts of the river basin including even non-member countries' territories, this creates a holistic framework. Because the WFD aims to include all interested parties into the process of water governance, this automatically provided more integrated water governance. When the framework is designed in this way, results also become more integrated and holistic. In other words, thanks to the WFD's MLG nature, the transformation in water governance accelerated from the pre-WFD era's fragmented results to a more systematic one in the Danube River Basin. Secondly, the directive's MLG setting helped to have more systematic coordination between different administrative levels. This point also one of the core elements of the MLG concept. Under the WFD, coordination between different levels, such as local, national and transboundary levels, became a norm. Multi-layered collaboration between various levels became a new way of the water governance. For example, the ICPDR started to cooperate with local authorities from each riparian country. Thirdly, stakeholder participation and public engagement are encouraged under the directive. Because the directive has an inclusive approach, the involvement of different sets of actors and the participation of interested parties are always supported and desired. This situation also created some further advantages, such as raising public awareness of the issue. For example, since 2004, under the coordination of several actors, Danube Day Celebrations are held annually on June 29. The Danube Day is one of the most significant campaign to raise public awareness in the region. (Văidianu et al., 2014). Lastly, standardization of the water governance in Europe is one of the direct results of the MLG setting of the WFD. The MLG provides horizontal and vertical interactions between lower and higher levels, and when higher levels interacted with lower level parties in different countries, these parties directly receive standardized approach from the top level. This also helps to establish a systematic approach and unified framework over different conditions of the countries and regions. Moreover, the WFD also established

standardization on monitoring, data collection, and water quality assessment across the union. For example, under the Danube River Basin Management Plans (DRBMPs), collective and standardized monitoring started for different types of water, such as surface water, groundwater, coastal water and artificial water bodies. On the other hand, the WFD's MLG setting faced several challenges and disadvantages in Danube River Basin. Firstly, resource and capacity disparities among member states created some challenges for the implementation of the directive. The directive brought standardization to the water governance. However, different regions of the union have different development levels, so this standardization faced problems in practice during the implementation process. Secondly, disparities among members showed itself also during the legal process. For example, because the WFD tries to apply complex framework with huge bureaucratic work, some members' national legal systems decelerate the process. This situation creates challenges to cross border cooperation and coordination for water governance. Also, addressing urgent environmental issues, such as floods, becomes difficult in this situation. Disparities in terms of resource, capacity and legal process create important challenge in the Danube River Basin. While the upper basin countries are economically more developed and have well-rooted legal systems, the lower river basin region suffers a lack of these. This situation is significant challenge in the Danube River Basin. This situation causes a slower process for both realizing environmental goals and setting the MLG in the region. Another challenge was about the non-member countries. Because the water bodies of the Europe are transboundary, when the borders of the water body crosses the border of the union, there is no legally binding arrangement for these countries. Although the directive tries to encourage cooperation with non-member countries also, there is no strong solution. These show that although the WFD created major transformation by establishing the MLG setting on water governance in the Danube River Basin, the complexity of coordination across multiple levels, diverging interests and priorities of the parties, different economic and administrative capacities of the member states and the participation issue can be listed as other challenges against this setting and transformation.

Participation and Actors

While the earlier plans gave short explanations about public information and consultation, there is more detailed information about these under the 3rd DRBMP. The plan

states that increasing the efficiency of active participation is one of the most important goals of the DRBD water governance under the coordination of the WFD and the ICPDR (section 9.1, 2021). The plan also states that participation has become a popular topic today due to increased awareness of environmental issues. There is a new approach which tries to use new techniques to involve more actors. For example, efficient use of social media is a new thing for the DRBD water governance. There was little mention of social media in previous plans, but the new update includes a dedicated section for it. While previous plans talked about ways of informing the public, the 3rd DRBMP introduced the concept of “being informed by the public” for the first time. This concept includes analyses of people’s comments, an online questionnaire and an online public consultation workshop. The voice of stakeholders became more important under the 2021 update. Similarly, the participation of the non-state actors became a popular topic in environmental governance discussions. For example, Jager et al. (2019) present important findings about the participation issue in environmental governance. There is a positive effect of participation on environmental governance’s outputs. Particular emphasis is placed on the participation of non-state actors in environmental decision-making processes. Differentiated degrees of public and stakeholder participation and their communication are key points. This process creates a positive impact and several advantages for both participants and governance. For example, in terms of participants, social learning, individual capacity building, trust building, shared norms and network formation are critical advantages. Moreover, in terms of governance, having an environmental standard, acceptance of the governance output and easier implementation of the output are key positive results (Jager et al., 2020). This shows that participation is crucial for a healthier environment. In this direction, the DRBD water governance tried to establish more participatory water governance in the river basin after the WFD. While the first years of the WFD, the main concern was on establishing a plan and structure for the governance, especially with the second cycle (2015-2021) of river management, participation issues started to be popular with an increasing number of interested actors. At the end of the second cycle, the 3rd DRBMP was published and it includes more details about participation in the Danube water governance. Today, private sector or civil society, groups of experts, citizens and representatives of organized groups are participating in the water governance process in the DRBD. This proves that the broad public and people from the citizenry are part of the governance in the region. This was one of the most important changes introduced by the WFD. While before the WFD, cooperation was almost only between national actors, the directive made revolutionary changes on this topic. Today, the water governance of the Danube is based on the collective actions of a huge number of actors

including both state and non-state actors. The WFD and DRBMPs created alternative routes to include more actors and participants. In this new era, the voices of the general public and stakeholders, findings of observers and expert groups became a part of the process. For example, the ICPDR is cooperating with several observer groups such as the Danube Competence Center (DCC) and Friends of Nature International (NFI) (section 9.2, 2021). On the other hand, increasing participation is also a key point for multi-level governance because an increasing number of actors come from different levels such as local, regional and national levels. When these actors express their ideas and knowledge, the water governance becomes stronger, more detailed and more multi-levelled. This means that a more participatory process is helping to have more effective multi-level governance.

CHAPTER VI: POLICY INSTRUMENTS OF THE WATER FRAMEWORK DIRECTIVE IN DANUBE RIVER BASIN

Danube River Basin Management Plans (DRBMPs)

Danube River Basin Management Plans (DRBMPs) are the most significant instruments of the WFD for Danube water governance. They are the most detailed representatives of the river basin management plans (RBMPs) of the WFD. The directive developed RBMPs to establish integrated water governance on transboundary rivers of Europe. By creating RBMPs, the main objective is to have internationally governed rivers. This logic is directly applied to the DRBD by creating DRBMPs. Today, we have three DRBMPs which were published in 2009, 2015 and 2021 respectively. Each of them is the cornerstone of the DRBD's water governance and international cooperation in the region. Each plan represents different cycles of river basin management planning. These management plans were published at the beginning of each cycle to show the general situation in the region, and to provide an overview for the water governance and cooperation. Each DRBMPs have a similar structure, but new versions (DRBMP 2015 and DRBMP 2021) also consist of updates and dedicated sections to show key findings and progress. This means that the first DRBMP is a strong reference point for the following ones. Adoption of these plans is an important step for the Danube and its waters. After river basin countries adopted these plans, a DRBMP became superior to their national RBMPs. In the DRBD, each country has its own national RBMPs, but the WFD's DRBMPs create a more international approach to the issue. Because the main issue about reaching good ecological status, DRBMPs are ensuring that all countries and all actors from different levels are on the same page. In other words, DRBMPs are providing a strong institutional approach by creating standardization for water governance. Also, these plans work as important reports to show what is improving or changing in the river basin. In short, DRBMPs are essential guidelines for the DRBD's multi-level water governance.

THE 1st DRBMP (2009)

In 2009, 1st DRBMP was published under the coordination of the WFD and the ICPDR. This plan was significantly important because its structure became a norm for following DRBMPs. The first cycle of the river basin management under the WFD lasted until 2015, and 1stDRBMP was the one of the most important elements of this period. Because the Danube River Basin is the most international one, its governance requires a highly international effort. To fulfil this role, 1st DRBMP created a detailed framework which includes several elements. For example, the 2009 DRBMP specified three levels of coordination on which the plan is based. These three levels are called part A, part B and part C respectively. According to the 2009 DRBMP, part A is a roof level and it is international and river basin-wide. Part A consists of analysis and sharing findings about rivers with catchment areas >4,000 km², lakes >100 km², transitional and coastal waters. Smaller water bodies are under the responsibility of the national RBMPs. Moreover, part B is national level. Internationally coordinated component authorities are the main actors at this level. These actors are responsible for formulating sub-basins, such as the Danube Delta and Sava. In addition to these, part C is a sub-unit level (section 1.2, 2009). These explanations of 1st DRBMP about three levels of coordination emphasize the multi-level nature of the new water governance in the DRBD. There are intense interactions between these different levels. For example, the plan states that findings and actions at national level are very determinant for the content of the roof level. This proves the interaction between different levels of water governance in DRBD. This also shows that 1st DRBMP tries to establish a multi-level governance framework in the DRBD. On the other hand, the plan includes dedicated sections for significant pressures identified in the DRBD, monitoring networks and ecological/chemical status, environmental objectives and exemptions, economic analysis of water uses, a joint programme of measures (JPM), flood risk management and climate change and public information and consultation.

Firstly, the 2009 DRBMP identified several significant pressures on surface and groundwaters. This was an important step because, for the first time, several Significant Water Management Issues (SWMIs) are presented under a single document. Although previous SWMI reports introduced the concept under the provision of the WFD, the 2009 DRBMP presented detailed explanations for the first time. This was one of the most important elements

that shaped the first period of the river basin management in the DRBD. The plan presented basin-wide scale explanations and clarifications while analysing the significant pressures. Following DRBMPs presented more details about the issue by analysing key findings and progress. Secondly, the 2009 DRBMP presented important explanations about the monitoring networks and ecological/chemical status. Because good ecological and chemical status is one of the ultimate goals of the WFD, 1st DRBMP has to include information and a collective action plan. This section presented information about the ecological/chemical status and potential of the DRBD. Moreover, this section specified what river basin countries should do to reach the environmental objectives of the directive. In addition to this, there are more detailed explanations about monitoring the different types of water, such as surface water, groundwater, coastal water and artificial water bodies (section 4, 2009). The next section is about environmental objectives and exemptions. There are already very detailed explanations about the environmental goals under the directive. This section aimed to create harmonization between the environmental goals of the WFD and the water governance of the DRBD. In other words, this section aimed to apply these goals to the DRBD. In addition to this, this section presented clarification about exemptions. Although the directive aimed to reach its objectives in 2015, this section extended this period for some issues. Also, it showed that all articles of the directive cannot be applied to the DRBD. For example, according to the 2009 DRBMP, only 38% (259 out of 681) of the water bodies are suitable to apply article 4 (4) of the directive, in the DRBD (section 5.2, 2009). The following section was about the economic analysis of water use in the DRBD. This section showed key findings of the WFD economics, results of economic analysis in DBA 2004 and the Danube Economic Analysis 2009. In other words, in 2009 DRBMP harmonized different economic reports under a single document. After explaining the existing situation based on these reports' findings and data, an in-depth economic analysis was presented. For example, economic disparities between riparian countries, their economic dependency on the river basin and their water demand were clarified (section 6.2.1, 2009). This section ended with the introduction of economic control tools, such as cost-effectiveness analysis (CEA) (section 6.4.2, 2009). A joint programme of measures (JPM) is explained under the next section. The JPM is a result of analyses of the SWMIs. SWMIs are the main determinants to shape the JPM. The JPM is structured around the basin-wide water governance objectives of the SWMIs. In addition to these, national measures are an important part of the JPM. The importance of these measures across the basin is highlighted within the scope of the JPM and their implementation processes are highlighted within the scope of the DRBD. Moreover, this section also showed the JPM approach towards 2015 when this cycle

ends and the next cycle of river management starts (section 7.1.1.2, 2009). Furthermore, the following section of the 2009 DRBMP is about flood risk management and climate change. This section presented early efforts of the DRBD water governance about climate change. The 2009 plan introduced the climate change concept based on the EC Green Paper (Adapting to Climate Change in Europe). This approach is also adopted by the WFD to have integrated water governance. The plan mainly explained the findings of the 2007 International Conference on Climate Change in the Danube River Basin (Vienna). Also, there were some explanations about the potential effects of climate change in the DRBD and possible answers to them. Lastly, 2009 DRBMP explained public information and consultation issues shortly. This section specified some general principles regarding public information and consultation. For example, the plan emphasized the importance of providing information to the general public. Having an active communication tool is critical to have a more inclusive process in the DRBD. For example, the ICPDR website works as the main information channel. In addition to this Danube Watch magazine and the International Danube Day provide a regular flow of information. Secondly, consultation with the interested public through round table discussion is a key point under this section of the plan. This also paved the way for the active involvement of stakeholders (section 9, 2009).

THE 2nd DRBMP (2015)

The 2nd DRBMP was published in 2015, and this was the first signal of the new cycle of river basin management (2015-2021). This plan shared the same structure as the 2009 DRBMP. Because the main reference point is the previous plan, 2015 DRBMP had the same sections such as significant pressure and the JPM. In addition to the same sections, there are dedicated sections for the integration issues. This section mainly talks about integration between the WFD and other directives which can be applied to the DRBD, such as the Floods Directive. This shows that the new plan is an updated version of the previous one. In this direction, the 2015 DRBMP included dedicated sections for the key findings of the new period and explanations about progress since the previous plan.

Progress

The 2nd DRBMP explained the key findings and progress under two main categories; progress in SWMIs and progress in implementation of measures from 1st DRBMP. Firstly, the plan presented progress for SWMIs distinctly for each of them. In the 2nd DRBMP, there were four different SWMIs. The first one is organic pollution. DRBMPs used BOD and COD parameters. Biochemical oxygen demand (BOD) and chemical oxygen demand (COD) are the most important test parameters used to determine the degree of pollution in water and wastewater samples (Singh et al., 2021). Between the first and second plans, there were important changes in organic pollution. There is a remarkable reduction in organic pollution in the DRBD. According to the 2ndDRBMP, while the 1st DRBMP reported 480,000 tons BOD and 1,040,000 tons COD per year, the 2nd DRBMP reported 255,000 tons BOD and 550,000 tons COD discharge into the waters of the DRBD (section 2.1.1, 2015). This shows that there is a significant decline in organic pollution in the waters of the river basin. Also, thanks to cooperation, developed infrastructure and technology, emissions are remarkably lower. The second SWMI is nutrient pollution. According to the 2ndDRBMP, significant releases of nitrogen (N) and phosphorus (P) are the primary sources of nutrient pollution (section 2.1.2, 2015). Because of this, the plan uses total nitrogen (TN) and total phosphorus (TP) as main parameters. According to the 2nd DRBMP, while the 1st DRBMP reported 605,000 tons TN and 38,500 tons TP per year, the 2nd DRBMP reported 490,000 tons TN and 25,000 tons TP (section 2.1.2, 2015). This shows that nutrient pollution is also significantly reduced between the first cycle and the second cycle of river basin management. In other words, transported nutrients in the water decreased at an important level. The third SWMI is hazardous substances pollution. According to the 2015 update, there is an important data gap for hazardous substances pollution in DRBD (section 2.1.3, 2015). Although river basin countries have taken important steps to change this gap, there is no strong development for the issue. For example, there were the ICPDR investigations for the emissions and discharges but these were not enough to have a detailed report on the issue. Also, at the national level, there were some individual efforts to collect samples and data from the industrial and contaminated sites. Under the plan, the last SWMI is hydromorphological alterations. During the first cycle of the river basin management (2009-2015), there were important efforts to improve river continuity, reconnecting wetlands/floodplains and hydrological alterations. During this time, the connection between the river and 50,000 hectares of wetlands/floodplains is fixed partly or totally to improve hydromorphological conditions. Also, although 667 barriers (out of 1,030) remained unpassable, more than 100 fish migration routes were fixed (section 2.1.4, 2015). These show that there were positive developments in terms of hydrological alterations in the

DRBD between 2009 and 2015. Moreover, the plan also mentioned progress in terms of the implementation of measures. Between 2009 and 2015, there were significant investments to facilitate the implementation of measures. For example, the DRBD witnessed the construction of urban wastewater treatment plants, and this was one of the most important reasons for the major organic pollution decrease in the region. Moreover, the ICPDR implemented the Best Agricultural Practice (BAP), and this helped to reduce nutrient pollution in the DRBD. In addition to this, while 108 implementation measures, for restoration of river continuity to help fish migration, were defined under the 2009 DRBMP, 80 % are completed (section 8.1.4.1.2, 2015). On the other hand, there were short explanations about the future scenarios. Under the 2nd DRBMP, some future infrastructure projects and future development scenarios are presented. For example, for navigation, flood protection and hydropower generation, 40 future infrastructure projects are declared, and 33 of them are directly on the Danube River (section 2.1.4, 2015). Also, there is a future scenario for 2021. The plan predicted that if the targeted ecological status cannot be reached, the biggest reason will be the hydromorphological alterations issue (section 1.3, 2015).

THE 3rd DRBMP (2021)

The third cycle (2021-2027) of the river basin management under the WFD started with the 3rd DRBMP. As in the previous plan, the DRBMP Update 2021 has also the same structure as the 1st DRBMP. However, there are some significant differences. The 1st DRBMP is a reference point for all following plans but it was clearly shorter than updated versions of 2015 and 2021 plans. For example, the 3rd DRBMP plan is almost three times longer than the first one. This means that the DRBMP Update 2021 presents more detailed analyses of the DRBD. At this point, developing tools and increasing the number of water governance actors are important determinants. Also, there are some additions in the 2021 version of the plan. For example,. In addition to the participation issue, another difference between previous plans and the 3rd DRBMP is seen in the concept of climate change. The 3rd DRBMP added the “effects of climate change” as the fifth SWMI for the DRBD. This means that with the new update, climate change is officially recognized as a challenge for the DRBD. Although the ICPDR adopted the first legal regulation (ICPDR Strategy on Adaptation to Climate Change) about climate change in 2021, this topic found a detailed place in DRBMPs in 2021 for the first time

with the introduction of the “effects of climate change” as the fifth SWMI (section 8.4.1, 2021). In addition to these new points, the 3rd DRBMP presented significant findings about the progress since the last plan. Besides these new issues, the 3rd DRBMP revealed important findings on the progress made since the last plan.

Progress

Like the previous plan, the 3rd DRBMP also explained key findings and progress of the SWMIs. Firstly, in comparison to the previous plan, there are significant changes in organic pollution. While the 2nd DRBMP reported 255,000 tons BOD and 550,000 tons COD per year, the 3rd DRBMP reported 190,000 tons BOD and 440,000 tons COD discharge into the waters of the DRBD (section 2.1.1, 2021). This shows that the downtrend is continuing while the new cycle of river basin management is about to start. However, there is a slower decrease in organic pollution than previous period. While 1,040,000 tons COD was reported in 2009, this number was 550,000 in 2015. This was an amazing decrease. The latest number is 440,000 tons COD, and this shows that although there is still a downtrend, the pace is not the same. Secondly, this downtrend is not applicable to nutrient pollution. According to the 3rd DRBMP, while the 2nd DRBMP reported 490,000 tons TN and 25,000 tons TP per year, the 3rd DRBMP reported 500,000 tons TN and 31,000 tons TP (section 2.1.2, 2021). This shows that in terms of preventing and decreasing nutrient pollution, the second cycle (2015-2021) of the river basin management was unsuccessful. In addition to improvements, showing negative results is critical to improve missing points. The third SWMI is hazardous substances pollution. According to the plan, the DRBD countries put important effort into filling the gap in hazardous substances pollution. Because previous plans do not have the necessary data, there is no report about what changed, but river basin countries want to change this. For example, under the coordination of the WFD, countries developed the Danube Hazardous Substances Model (DHSM). Under this new initiative, they started to collect data from major industrial facilities. Although there was no time to prepare a report from the findings of the DHSM at this time, this new tool is a strong candidate to provide data for the next DRBMP. Moreover, hydromorphological alterations are the last SWMI which the 2021 update presented an explanation about its progress. There are still 624 unpassable barriers. This shows that there is no real progress at this point. The plan states that 28 river restoration projects have been implemented since 2015, in addition to the construction of 47 fish migration aids. Also, there

are 28 future infrastructure projects to improve the hydromorphological conditions of the DRBD (section 2.1.6, 2021).

CONCLUSION

The Danube River Basin witnessed an evolutionary and transformative change in water governance over the past decades. This major transformation has been shaped by the region's political, economic, and environmental conditions since the 1980s. Historically, there were highly fragmented approaches and policies for the Danube River in the region. Each riparian country had their distinct priorities and interests which were directly shaping their approach to the Danube River. In addition to their distinct interests, the diverse political positions of the riparian countries played a key role in fragmented water governance in the river basin. However, in the mid-1980s, the Bucharest Declaration marked the first notable regional cooperation attempt in the Danube River Basin for water governance. This declaration was a result of rising awareness between Danube River Basin countries about the necessity of collective action to address environmental challenges and pollution in the river basin. Although the Bucharest Declaration of 1985 was one of the first initial cooperation efforts in the region, it was limited due to political and economic disparities between the parties. This situation started to change in the early 1990s. Especially with the 1991 Environmental Programme for the Danube River Basin (EPDRB) and the 1994 Danube River Protection Convention (DRPC), cooperation on the Danube River Basin water governance led to some significant results during the 1990s. For example, the Transnational Monitoring Network (TNMN) and Strategic Action Plans (SAP) were the most significant results of these two international efforts in this period. Cooperation continued with the International Commission for the Protection of the Danube River (ICPDR) in the second half of the 1990s. The ICPDR was the most detailed and comprehensive international programme up to its date. Because of this, it continued to be one of the most crucial international bodies in the region after the implementation of the WFD. This shows that the ICPDR signalled the upcoming new era in water governance of the Danube River Basin in the late 1990s.

Although the transformation of the water governance in the Danube River Basin started between the 1980s and 2000, a major change came with the WFD in 2000. After this period, the Danube River Basin water governance gained a multi-level nature. The WFD is designed to establish multi-level cooperation on the water by addressing complex environmental challenges with a long-term vision. This approach shows that the WFD led to a new era by transforming water governance for Europe. This fundamental shift aimed to have more

effective water governance and harmonized policies on the water with collaborative mechanisms. At this point, participation of various actors from local, regional, national and international levels is encouraged under the directive. Before the WFD, there were important international regulations and meetings which paved the way for the WFD. For example, Directive 75/440/EEC, the Our Common Future Report of the World Commission on Environment and Development, the Directive for Integrated Pollution, the Treaty on the Functioning of the European Union (TFEU) articles 191-193 and the 1992 Rio Earth Summit were the most significant international efforts during the pre-WFD era. By creating the WFD, the union aimed to have a unified legal framework for water governance and water protection across every part of the union. Also, the growing complexity of environmental challenges can be addressed with this comprehensive framework. Moreover, in terms of its scope, the WFD created a huge impact because the regulation targets all waters of Europe for the first time. This makes the WFD the most comprehensive legislation for water governance. Under the directive, detailed categories for the water were presented. For example, surface waters, ground waters and coastal waters are three main water categories under the directive. In addition to these, there are many sub-categories for the water, such as transitional waters, lakes and rivers. Also, the WFD aims to manage all forms of standing waters and this is one of the critical points that makes the WFD the most comprehensive legislation for water governance in Europe. Because the WFD does not exclude any type of water, it led to a unique transformation in water governance. In other words, all types of water started to be regulated under a single framework. The Directive promises the transforming water sector in Europe by providing a legally binding water protection framework. Its principal goal is to achieve “good ecological quality” in all relevant waters by 2015. In addition to this, the directive also aims to preserve the status of aquatic ecosystems and prevent further deterioration, progressively reducing pollution, increasing the quality of the water, sufficient supply of good-quality surface water and groundwater and bringing equal standards for all members.

There is a strong tie between the WFD and the multi-level governance (MLG) concept. Because the directive aims to establish a multi-level setting on water governance, this concept is an inseparable element of the WFD. One of the most significant achievements of the WFD has been its successful implementation of multi-level governance, a concept that recognizes the need for coordinated action across multiple administrative and territorial levels. Because the WFD is designed around the idea of managing Europe’s water resources by including different levels, such as local, regional, national, and international levels, it needed to adopt the

MLG concept in practice. In other words, the directive targets to create cooperation and coordination among various levels of governance for effective water protection and water governance across the whole of Europe. Several articles of the directive include direct references to the MLG setting. For example, articles 3 and 12 show the roles of the vertical and horizontal interactions between various levels. Close cooperation and coherent action between the community, member states and local level are key to the success of the new water framework. These show that the success and effectiveness of the directive highly depend on properly working MLG in practice. In other words, the WFD needed to establish proper MLG setting to achieve its targets fully. Its MLG setting has different dimensions such as multi-actor, multi-perspective, and multi-instrument dimensions. Multi-actor dimension includes the involvement of all actors who have an interest in water governance and water-related issues. These actors can be from local, regional, national or international levels. Moreover, under this multi-actor dimension of the MLG setting, public participation and involvement of local stakeholders are encouraged. In other words, the involvement of a diverse range of stakeholders, including governments, NGOs, businesses, and local communities and each's contribution by bringing their unique expertise and perspective is critical to have a properly working system. This inclusive approach was seen as key by the directive to strengthen water governance across Europe. Also, the multi-perspective dimension is critical to see how the WFD harmonizes different approaches and perspectives under the single framework for every part of the union. The directive considers the site-specific conditions, such as regional legislations and regional actors, and it harmonizes them with the framework. This encourages authorities to consider a variety of perspectives and knowledge sources when addressing water-related challenges. The last dimension of the MLG setting under the WFD is multi-instrument governance. The directive benefits a variety of different other regulations and legislation and uses them as instruments to address challenges for all types of water in Europe. In addition to using multiple instruments which are developed under distinct directives or regulations, the WFD also uses the ICPDR as the main coordinating body. It serves as an instrument which ensures transboundary cooperation for the water. On the other hand, in addition to these, the WFD created its own instrument which is related to water governance in river basins, such as the Danube River Basin. In other words, river basin management under the WFD has its own tools and instruments. These instruments are River Basin Districts (RBDs) and River Basin Management Plans (RBMPs). For example, the Danube River Basin is specified as the Danube River Basin District (DRBD) under the WFD and it has its own RBMPs.

Detailed evaluation of this transformation in water governance in the Danube River Basin presented an answer to the question “How did water governance change in the Danube River Basin after the WFD?” In light of WFD’s MLG setting, water governance in the Danube River Basin gained a multi-level nature. In other words, one of the major changes was establishing multi-level water governance in the region after the implementation of the directive. While there were cooperation efforts between mainly national actors before the WFD, this kind of effort for cooperation started to be seen among local and regional actors under the coordination of the directive. This means that the WFD makes the local and regional actors a part of the water governance. The WFD led to the regulation of interactions among various levels of water governance in the river basin. In other words, thanks to the guidelines of the directive, riparian countries are able to organize their national, local and regional authorities and their interactions. After the directive and its RBMPs, political and administrative borders lost their primary role in water protection and governance in the Danube River Basin. The directive emphasized that because of its transboundary nature, the Danube River Basin needs international water governance. Under the directive, rather than political borders, the river basin’s geographical and hydrological units were determinant to specify new borders. Based on this, the WFD specified the DRBD. Within the DRBD, various actors from different levels of the government started to participate in the governance process. Moreover, multiple interactions between different levels of governance became a norm under the coordination and guidelines of the WFD. Moreover, all actors from different levels became a part of the unified approach to the issue. At this point, one of the major changes introduced by the WFD is the River Basin Management Plans (RBMPs). These plans are the main instrument of the WFD in water governance. After the directive, the Danube River Basin became a Danube River Basin District (DRBD) and Danube River Basin Management Plans (DRBMPs) started to be published in the region. In addition to the DRBMPs, each riparian country prepares its own national RBMPs. These plans are the most important instruments that ensure multi-level cooperation for water governance in the river basin. Moreover, DRBMPs presented joint action plans. Under the DRBMPs, JPM is a good example in terms of reflecting the multi-level nature of the new way of water governance. With the JPM, the main aim was to put a basin-wide vision for water governance. The JPM presented Danube River Basin-wide scale measures. These measures require coordination and joint action between various levels of the Danube River Basin water governance. For example, to further reduce pollution, local municipalities

and the World Bank cooperated to establish wastewater treatment facilities. Under the World Bank and the Danube Water Program, there were important interactions between the local level and an actor from the global level (section 8.1.1.3, 2021). In the DRBD, the directive led to significant developments. For example, the directive led to improvements in coordination across administrative levels, stakeholder and public participation, cross-border cooperation and standardization. Although the directive has not yet fully achieved its environmental objectives, it has succeeded in establishing a properly functioning multi-level water governance system in the Danube River Basin. In light of these, water governance in the Danube River Basin became more systematic and gained an institutionalized multi-level character after the WFD.

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