

**Public Governance across Borders (B.Sc.)**  
University of Twente, Enschede, The Netherlands  
Westfälische Wilhelms-Universität Münster, Münster, Germany

*To what extent can the pollution of the  
Tisza River be managed through the  
cross-border cooperation between the EU  
and non-EU countries?*

First Supervisor: Dr. Annika Jaansoo  
Second Supervisor: Dr. Martin Rosema

*Paula de la Roche*  
Student Number: s2615495  
Submission Date: 03.07.2022

## **Abstract**

Tension surrounding fresh water has been increasing due to the human made climate change. Therefore, the maintenance of fresh water sources is now more important than ever. In this sense, it is necessary to find ways to manage the pollution of rivers.

Especially the Tisza River, has been affected by the pollution of its riparians, Ukraine, Hungary, Slovakia, Romania, and Serbia. Therefore, the research question of this thesis is “To what extent can the pollution of the Tisza River be managed through the cross-border cooperation between EU and non-EU countries?”. To this end this single case study is conducted using desk research and document analysis with a qualitative and deductive approach.

A theoretical framework was developed based on obstacles to transboundary river management, their impact on the transboundary river management, which specific obstacles can be affected the most by CBC, drivers to even engage in cross-border cooperation and lastly the types of CBC. The analysis followed this structure and found that the drivers and framework for functional CBC are present in the case of the Tisza River. Although this is the case, the lack of awareness for the river, has meant that nearly no actions have been taken.

Keywords: Transboundary River management, Cross-Border Cooperation, Tisza River, Pollution, EU, Ukraine, Serbia

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**List of Abbreviations**

European Union	EU
European Commission	EC
Water Framework Directive	WFD
Sustainable Development Goals	SDG
United Nations	UN
Cross-Border Cooperation	CBC
Council of Europe	CoE
Significant Water Management Issues	SWMI
Member States	MS
River Basin Districts	RBD
Program of Measures	PoM
Treaty of the European Union	TEU
Green Deal	GD

## 1. Introduction

Now more than ever, there is an increasing need for sustainability due the human made climate change. As the global temperature rises, droughts are occurring more regularly, and are now increasing the tension for fresh water. Clean water and healthy ecosystems within water bodies are needed and, although, sustainability has become more important, the pollution of rivers through waste as well as agriculture continues being a problem.

One of the rivers that has been affected the most by the pollution of its riparians, is the Tisza River which flows through five countries: Ukraine, Hungary, Slovakia, Romania, and Serbia. The pollution begins in Ukraine, where huge amounts of waste have been thrown into the river (Interreg Danube Transnational Programme JOINTISZA, 2019). Furthermore, given the lack of infrastructure for the waste disposal, wastewater can run into the Tisza River through the wasteland along the shores (ibid.). However, the pollution is not only limited to Ukraine. Also Romania, Slovakia, Hungary, and Serbia are providing for the pollution and are now facing a common problem. On the one hand, in managing the pollution in general, but, on the other hand, also in finding ways to manage the pollution jointly.

This pollution affects not only the cities along the river but also heavily endangers the ecosystems within. Given that Hungary, Romania, and Slovakia are members of the European Union (EU), they are compiled to follow the Water Framework Directive (WFD) set by the EU, which aims at ensuring a good status of all waters within the EU (European Commission n.d.-c). Furthermore, the EU is also committed to following the Sustainable Development Goals (SDG) set out by the United Nations (UN) (United Nations, n.d.-b). In this context they are supposed to promote SDG 6 relating to clean water and sanitation for all (ibid.). Additionally, Ukraine has an Association Agreement with the EU which aims at improving the water quality and has also agreed to implement the SDG's. Although the WFD and the SDGs have been decided upon and the EU-Ukraine Association agreement applies, the pollution is still ongoing. As the current coordination between the countries involved has not led to the achievement of a clean Tisza River the question arises as to what extent the river can be managed between these EU and non-EU countries.

The current discourse surrounding transboundary water management has been moving away from mainly "exploiting hydropower potential or on flood defenses" (Bréthaut & Pflieger, 2020, p. 5) towards considering more environmental issues and goals (ibid.). Ocskay's (2021) research allows for a comprehensive insight into the way in which multi-level governance could be used as a tool to achieve the SDGs in the Tisza which again highlights the need for a more sustainable management.

Generally, it is important to mention that Eastern European countries have not been studied extensively in the context of transboundary river management and the implementation of the WFD (Boeuf & Fritsch, 2016). Therefore, the aim of this thesis will be to reduce this gap by analyzing the extent in which a highly polluted river in Eastern Europe can be managed between EU and non-EU countries. This is important since, the current transboundary river management has not led to a good management of the pollution, meaning that there is a need for research to manage rivers sustainably, especially those of Eastern European countries

Considering the above, this thesis has the following research question: To what extent can the pollution of the Tisza River be managed through the cross-border cooperation (CBC) between the EU and non-EU countries? To answer the research question, two SQs have been developed.

*SQ1: What is the role of CBC in transboundary river management?*

On the one hand, this SQ aims at giving a definition on what transboundary river management is in the first place. On the other hand, this SQ offers the possibility to elaborate on the mechanism and common practices that are used to implement transboundary river management as well as gives an overview of the role in CBC in this action.

*SQ2: What are the drivers for CBC in the case of the Tisza River?*

The second SQ, is based on the findings of the first SQ. In this sense after having established what the role of CBC in transboundary river management is, the aim of the second SQ will be to clarify the drivers for CBC in

the actual case of Tisza River. Therefore, this part of the thesis will be focused on the current way of transboundary river management and then identifying each of their drivers.

To answer the RQ, the thesis will be structured as follows. Firstly, the theoretical framework will be established, this will include defining the main concepts of this thesis namely, cross-border cooperation and transboundary river management. With these in mind the theoretical framework will then look at possibilities and obstacles to transboundary river management, the impact of the obstacles on transboundary river management and the obstacles most affected by cooperation. After building the theoretical framework, the research method for this case study will be discussed. The third part of this thesis consists of the empirical analysis where the results of the document analysis will be compared with the theoretical framework. Lastly, in the conclusion, the research question will be addressed, the limitations discussed and propositions for further research made.

## 2.Theory

As the aim of this thesis is to answer the question of the extent in which the pollution of the Tisza River can be managed between EU and non-EU-countries through cross border cooperation, two main theoretical concepts need to be defined: cross border cooperation and transboundary river management.

### 2.1 Cross-border cooperation (CBC):

Sousa (2012) sees the cooperation in general as a voluntary act that does not influence the sovereignty of countries involved, but instead is a process that follows the goal of acting together to reach a common goal. Coming from the previous and by adding the cross-border element, Sousa (2012) defines cross-border cooperation as follows:

*“cross-border co-operation can be defined as any type of concerted action between public and/or private institutions of the border regions of two (or more) states, driven by geographical, economic, cultural/identity, political/leadership factors, with the objective of reinforcing the (good) neighbourhood relations, solving common problems or managing jointly resources between communities through any co-operation mechanisms available.”*

Sousa, therefore, sees CBC as a practice between both public and private actors that can take place on different levels and is not bound to one specific topic. The definition of the Centre of Expertise for Local Government Reform and the Council of Europe (CoE) (2012) adds that CBC involves actors on different levels both local stakeholders and authorities which are in a process aiming at a harmonious development of border communities. Moving forward the CBC definition of Sousa (2019) will be used in this thesis, while the definition of the CoE can be seen as a further addition to Sousa’s definition.

Given this definition, it is important to identify on the one hand the actors and on the other hand the reasons for the CBC to analyze its possibilities.

### 2.2 Drivers for cross-border cooperation:

Drivers for CBC have been formulated in a heuristic model explaining cross border cooperation for the public provision of services, by Jaansoo (2019). This model shows four interrelated categories explaining the likelihood for cross-border cooperation in service provision. As transboundary water management is a public service provision, this model can be applied here too.

The four categories of the above-mentioned model are the institutional context, gains from cross-border cooperation, resources for cross-border cooperation and the transaction costs for cross-border cooperation. These will now be discussed briefly.

#### 2.2.1 Institutional context

The institutional context is the grounds on which cross-border cooperation (CBC) takes place. This implies that the subnational and local context as well as the international regime must be considered when assessing the likelihood for CBC. The institutional context can foster and encourage CBC by influencing “(1) the gains or the perception of the gains from the cross-border cooperation; (2) the transaction costs or the perception of such transaction costs; and (3) the resources for or the perception of the resources required for cross-border cooperation.” (ibid.).

### 2.2.2 Gains from CBC

Following the model, the four gains of CBC are that it raises the efficiency and/or effectiveness, the individual motivations of elected politicians, solving shared and/or interrelated problems and lastly, the gains from following the national and/or transnational policies about CBC (Jaansoo, 2019).

Individual motivations of elected politicians are part of the gains of CBC since, engaging in CBC could gain them "personal ease, security, income, prestige, power in the work setting, but most of all career advancement and long tenure" (Jaansoo, 2019, p.59). The gains from following national and or transnational policies about CBC refers to the economic gains of CBC (ibid.). Therefore, following these policies could mean getting access to supporting funds for the CBC projects. CBC is also driven by governments seeing CBC as a way to increasing efficiency and effectiveness (ibid.)

The last gain from CBC is solving shared and interrelated problems. Therefore, CBC takes place when governments identify problems that need to be addressed jointly and are of benefit to both parties (ibid.)

### 2.2.3 Resources for CBC

Another driver for CBC are the available resources namely, human resources, the material infrastructure and financial resources. Therefore, a higher availability of these resources makes CBC more likely to occur (ibid.)

### 2.2.4 Transaction costs for CBC

Transaction costs for CBC are information, negotiation, enforcement, and agency costs. The number, proximity, and comprehensive knowledge of the partners as well as overall knowledge of administrators are the causes for these transaction costs (ibid.). Proximity refers to both the physical as well as the "cultural-linguistic proximity, similar sets of goals, shared history, economic proximity and proximity of administrative system" (Jaansoo, 2019, p.76).

In that sense information deficiencies, deciding on mutual gains and monitoring the agreements are factors that either drive or hinder the CBC.

Having discussed what CBC is, and what its drivers are, the next chapters will focus on looking at what the challenges in transboundary river managements are, and which of these challenges or obstacles can be affected by CBC.

## 2.3 Challenges with Transboundary River Management

Transboundary rivers are inherently characterized by collective action problems and obstacles as they are by nature crossing state lines and therefore borders (Baranyai, 2020). These obstacles are different in nature but can be put into three main categories: geographic-, security-, and economic obstacles. Within these categories six specific obstacles that are affected by CBC can be identified.

For the theoretical framework in this thesis the six obstacles, geographic asymmetry, geopolitical setting, sovereignty, availability of water, domestic issues and economic differences will be discussed separately from each other. These obstacles are the ones most affected by CBC, since they can be eliminated by engaging in CBC, and will be discussed in this context. Following this, the impact of the obstacles on transboundary river management will be discussed.

"The primary objectives of TWM can be divided into three categories: 1) maximum utilization of the common good (utilitarian approach); 2) conflict prevention; 3) maintaining ecological sustainability." (SIWI, 2021). Therefore, transboundary river management can be seen as any cross-border action that aims at aligning "social, environmental, and economic objectives" (Zeitoun et al., 2013, p. 332) of the riparians.



Since there are currently “competing uses and users of water” (ibid.) transboundary river management takes place in the context of conflict of diverging interests and aims at managing these conflicts. Reasons for conflict of riparians over shared rivers differ from case to case. According to Baranyai (2020) conflict can occur because of geographic asymmetries, availability of water, sovereignty, geopolitical setting and non-water related political integration as well as the level of economic development and the economic importance of the river (ibid.). Furthermore, domestic issues, capacity shortages and cultural factors have an impact on the transboundary river management (ibid.). The transboundary nature of the river also makes it a security issue (Zeitoun et al., 2013). Therefore, more cooperation hence integration and harmonization are needed to successfully manage rivers and avoid security issues (Bréthaut & Pflieger, 2020, p. 12).

Seeing as more cooperation is needed for a successful transboundary river management, the next step will be to look at what obstacles there are to transboundary river management and which ones are most affected by cooperation.

## 2.4 Obstacles most affected by cooperation

Given that rivers are characterized by collective action problems, they also require collective action of its riparians to solve them (Baranyai, 2020). So, the next step will be to identify the obstacles that are most affected by cooperation. The following obstacles could be managed through cooperation or would else remain a potential reason for conflict. Concepts presented here will be strongly based on the argumentation of Baranyai (2020) who elaborated them in detail.

### 2.4.1 Security Obstacles

#### **Sovereignty:**

Sovereignty refers to a nation’s independence in their decision making as well as their state power. This means that countries are free from any interference of other nation in both internal as external matters. It supposes that all sovereign states are equal meaning that any interference would be unlawful. When talking about sovereignty in the context of transboundary river management it means that countries would be allowed to use the river in any way that they would want to. However, sovereignty on the rivers can also be seen as a challenge to cooperation, since upstream riparians could assert their sovereignty by using the river in any way that they needed it without considering the downstream riparians (Sindico, 2021). In this way they could pollute it and create scarcity which would be a potential reason for conflict. Furthermore, according to Baranyai (2020, p. 23):

*riparians with “high political tensions or a history of unilateralism, entering into legally regulated or institutionalised cooperation over shared rivers may give rise to a suspicion of external intrusion or a concern to surrender decision-making power to a supranational entity”*

Therefore, riparians could perceive cooperation as restricting their sovereignty when it limits their access and usage of the river. However, when seeing cooperation as mutually beneficial e.g., flood or pollution management it is not perceived as restricting their sovereignty.

#### **Domestic Issues:**

Another obstacle to transboundary river management is whether the riparians are experiencing domestic issues. These include political rivalries, identities or national values (Baranyai, 2020). In some cases, there is water nationalism, which leads to a lack of communication between riparians and is an obstacle to transboundary river management.

### 2.4.2 Geographic obstacles:

#### **Geographic asymmetry – availability of water:**

Geographical asymmetries relate to issues resulting out of upstream and downstream dynamics (ibid.) and must be considered when managing rivers (ibid.). When one riparian is positioned at the top of the river and

the other at the bottom of it, there is a Through-Border<sup>1</sup> relation between riparians (Dinar, 2008). As such there is then an upstream and downstream dynamic between riparians. The river, starts at the upstream country and any riparian state following would be seen as a downstream country. This upstream-downstream dynamic has the consequence, that e.g., pollution of an upstream riparian state has a great impact on the pollution of the river in downstream riparian states, putting the upstream riparian in a higher position to influence water quality (Baranyai, 2020; Just & Netanyahu, 1998; Ho, 2017). Therefore, in a Through-Border situation the downstream riparian is exposed to all the pollution of the upstream riparian. Meanwhile, in a Border-Creator<sup>2</sup> relation both riparians are exposed to the same negative or positive consequences of the usage of the river (Dinar, 2008).

Besides the geographical asymmetry the availability of water also plays a determining role. The availability of water can be seen as a twofold concept defined by the supply in the context of hydro-climatic conditions and the resources available to a nation in the sense of the infrastructure to access water (Baranyai, 2020). This is important in the sense that an increase in demand, say from an upstream country, could lead to scarcity for the downstream riparians.

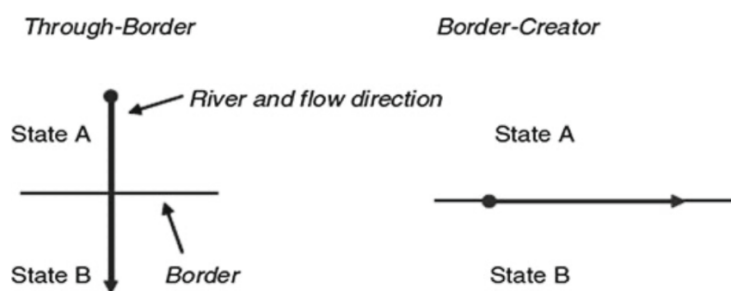


Figure 1, Source: Dinar 2008

### Geopolitical Setting:

Similarly, to the obstacle of sovereignty the geopolitical setting is influenced by different power dynamics. Therefore, a power relationship based on equality between riparians would be more likely to foster cooperation, then when there is a regional hegemon present (ibid.).

#### 2.4.3 Economic Obstacles

##### Economic Development:

When looking at the obstacles to transboundary river management, the economic development as well as the role of the river for the economy of the riparians must be considered (ibid.). Riparians that are going through a fast development will compete for resources such as water which could be a cause of conflict (Just & Netanyahu, 1998). Therefore, if the river is important for the economic development of a riparian, issues of water allocation and availability start arising.

As the management of transboundary rivers is an issue involving high costs, riparians available resources or lack thereof is also a potential concern. Capacity shortages whether administrative, financial, or technical impose a serious issue when negotiating. The biggest perceived threat here is that without the resources, negotiations will not lead to a satisfying outcome for all parties involved

## 2.5 Types of Cross-border cooperation

There are six obstacles to transboundary river management that are most affected by CBC, as previously mentioned. Depending on the obstacles to transboundary river management that are present, a selection of a

<sup>1</sup> A Through-Border relation refers to a river crossing a border directly. The flow direction goes, like depicted in figure (1), from State A to State B crossing the border of the two states (Dinar,2008).

<sup>2</sup> A Border-Creator relation is present when a river flows along the border of two or more states. Therefore, representing the actual border of the riparians (Dinar, 2008).

specific type of CBC has to be made. To this end the following theoretical discussion will lay out the four different types of CBC available namely awareness raising cooperation, mutual aid cooperation, functional cooperation, and common management of public resources or services (Sousa, 2012).

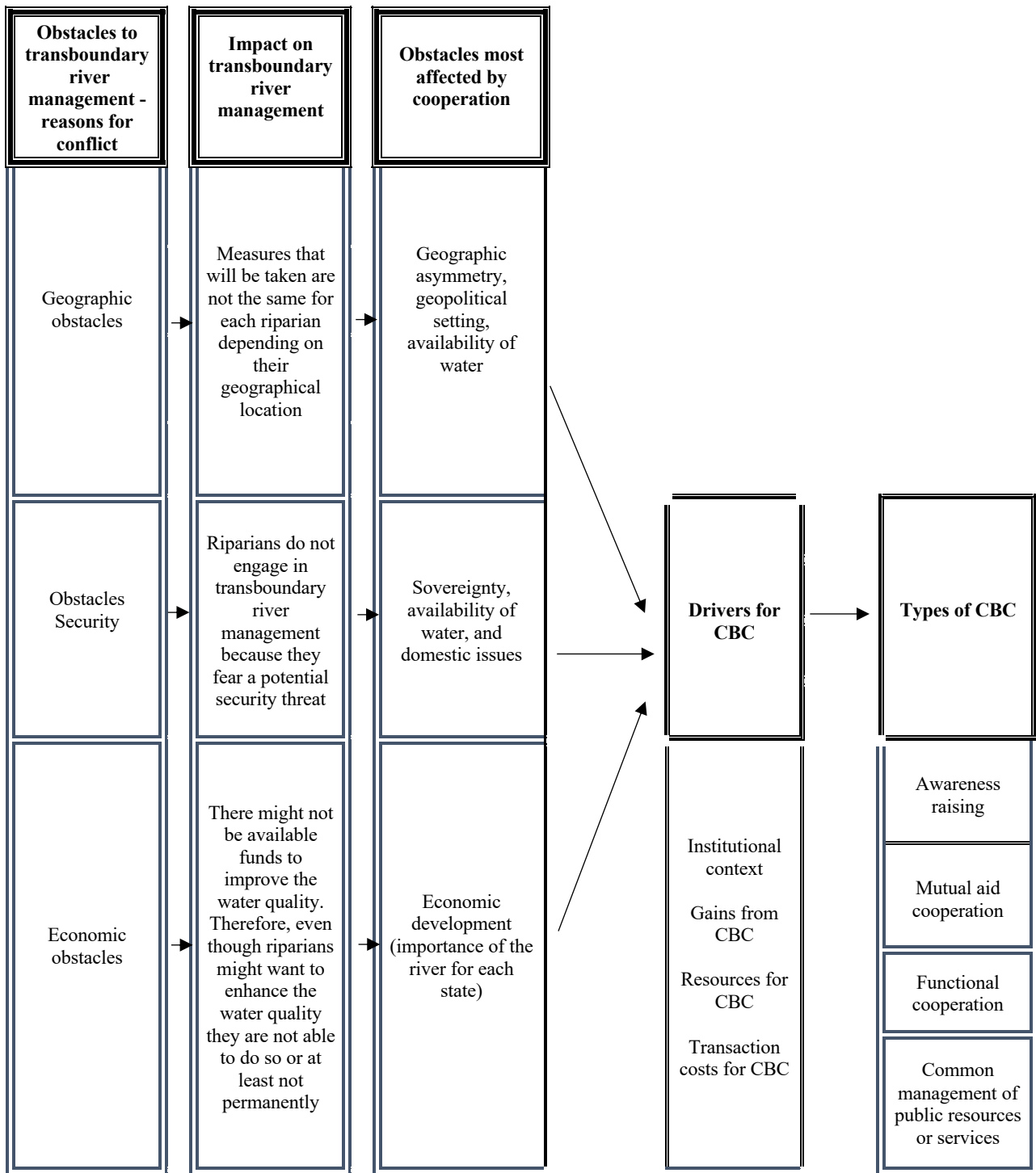
The importance of looking at these different types, is that the type of cooperation is case specific. Meaning that the type of CBC that is to be applied depends on what issues or obstacles are to be addressed in the cross border area. Thus, the distinction between these four types is of importance when deciding on the extent and aim of the cooperation.

Awareness raising cooperation is a process in which cities at the cross-border region engage in regular information exchanges when they are facing similar problems. This includes examples like town twinning arrangements; however, the level of political engagement is low (ibid.).

The second type of cross border cooperation is mutual aid cooperation which revolves around the coordination of emergency responders. In case of e.g., natural disasters emergency personnel from different countries will come and help when the local emergency response is no longer sufficient. Mutual aid cooperation can happen with or without a previous arrangement, meaning that countries can agree on an “arrangement for cooperative risk or emergency management” (ibid.) beforehand or they can help when requested, even without a previous arrangement.

Thirdly, functional cooperation which “aim at solving problems, creating business opportunities, promoting cultural exchanges and reducing non-visible barriers to labour mobility through the implementation of joint co-operation projects” (Sousa, 2012, p.6). Functional cooperation is hence characterized by a higher amount of commitment and need for resources.

Lastly, cooperation for the common management of public resources and/or services, which seeks to develop joint strategies across borders to state services etc.



## 2.6 Theoretical Framework

Based on the gathered information, I have developed the depicted theoretical framework, compiling all of the findings. In the table above the first column identifies the general obstacles to transboundary river management. The second column then shortly summarizes their impact on the transboundary river management. After classifying both the obstacles and their impact the third column shows which specific obstacles can be affected the most by CBC and the next column identifies what drivers there are to even engage in CBC. Lastly, the fifth column lists the types of CBC there are in the case that CBC takes place.

### 3. Methods

In order to answer the research question, a single case study approach is used. Qualitative data is gathered and analyzed through desk research.

#### 3.1. Case description

The Tisza River is a transboundary river that has been polluted by its riparians. With its riparians being both the EU and non-EU members, issues of its joint management arise. The selection of the Tisza River has multiple reasons. Firstly, due to its transboundary nature it is an opportunity to explore cross border cooperation between EU and non-EU countries. Secondly, sustainability and clean water are becoming increasingly relevant and although agreements like the WFD are in place the pollution is still ongoing. So, looking into the specifics of this case, it is important to draw conclusions on possible issues of transboundary river management between EU and non-EU countries. Lastly, the lack of research that is conducted in the case of the Tisza River and on Eastern European waters in general, is another reason for the selection of this case.

#### 3.2 Method of data collection

For the data collection of both transboundary river management and cross border cooperation, literature from google scholar was selected and analyzed. The analyzed literature was either written in English or German. and can be categorized as follows, firstly, scientific articles were selected for the theoretical framework, by looking for keywords such as “Cross Border Cooperation” and “Obstacles to transboundary river management”. Some of the examples for the literature that was found and used under these key words were the work by Baranyani (2020) “Theories of Conflict and Cooperation Over Transboundary River Basins” and Sousa’s work with the title “Understanding European Cross-border Cooperation: A Framework for Analysis” (2012). Both of which are key works for developing the theoretical framework. Secondly, for the analysis, more case specific literature was collected, using keywords such as “Tisza River cooperation” and “Pollution Tisza River”. The main body of literature that was used here was the “Integrated Tisza River Basin Management Plan” (Interreg Danube Transnational Programme JOINTISZA, 2019), which provided information on present obstacles to transboundary river management in the Tisza River as well as measures that are being taken by its members. However, not only scientific literature was collected for the analysis, but another important source of data was the WFD, as well as the EU-Ukraine Association Agreement. Further data for this thesis originate from the website of the European Commission concerning sustainability, water management, waste management, and cooperation of the EU.

#### 3.3 Method of data analysis

The data analysis relies on a document analysis following the previously developed theoretical framework. In this sense the first step is to collect documents on the obstacles to transboundary river management, their impact on transboundary river management and which ones are most affected by CBC in the case of the Tisza River. These will be laid out in a descriptive manner. The next step will be to analyze these documents more in depth and to look for what the drivers for CBC are in this context. This will be done by systematically looking at different CBC programmes, that the riparians of the Tisza River are a part of and identifying what drives the riparians to engage in these CBC programmes. On this basis, the last step of the analysis will be to bring all the findings together and identifying the specific drivers for CBC in the case of the Tisza River.

Accordingly, the analysis will be structured following the structure of the theoretical framework, and derive explanations based on the case specific documents.

## 4. Analysis

In this analysis chapter I will apply the theoretical framework to the case of the Tisza River.

### 4.1 Geographic obstacles to the transboundary river management of the Tisza River

Geographic obstacles are caused by the geography or location of the riparians and though are inherently present. As the theoretical framework indicates the geographic asymmetry, availability of water and the geopolitical setting are the obstacles that can be affected by CBC (Baranyai, 2020). This chapter will analyze whether or not these obstacles are present, and what impact they have on the transboundary river management of the Tisza River. The next step will be to analyze what type of CBC if any is taking place in the context of the obstacles and what the drivers for the CBC are.

#### 4.1.1 Geographic asymmetry in the Tisza River

The Tisza River begins in Ukraine, flows, through Romania, Slovakia, Hungary and finally Serbia. Given that the Tisza River is a transboundary river crossing borders, a through border geographic asymmetry is inherently present. The geographic asymmetry majorly impacts the transboundary river management, this can be seen by looking at the pollution of the Tisza River. The pollution of the river by Ukraine e.g., through solid waste is causing oxygen depletion of the water which in turn endangers the ecosystem of the water of the downstream riparians and lowers the water quality for the downstream riparians (Interreg Danube Transnational Programme JOINTISZA, 2019).

The JOINTISZA program, an Interreg program of the EU, identifies some significant and relevant water management issues (SWMI) in the case of the Tisza River namely, the pollution through organic substances, nutrients, and hazardous substances as well as hydro morphological alterations (Interreg Danube Transnational Programme JOINTISZA, 2019). To highlight the impact of the geographic asymmetry the pollution through organic waste in the Tisza River will be used as an example. The cause for this pollution is “the untreated or not sufficiently treated municipal waste water from households, industries and major agricultural farms.” (Interreg Danube Transnational Programme JOINTISZA, 2019 p.VII).

The issue here is that although the pollution is caused by organic substances that are biodegradable, the process of the biodegradation requires oxygen. Therefore, it causes oxygen depletion in the river which in turn endangers the ecosystems within the river. However, as pointed out by the Integrated Tisza River Basin Management Plan (2019) the solid waste pollution is mostly taking place in the Upper Tisza Basin (Interreg Danube Transnational Programme JOINTISZA, 2019, p.96). The Upper Tisza Basin refers to both Ukraine and Slovakia as well as Hungary. It was found, that “in the Upper-Tisza region several hundred waste dumps and illegal landfills are mapped containing several million tons of waste that poses a risk on downstream countries.” (Interreg Danube Transnational Programme JOINTISZA, 2019, p.96). Hence, downstream riparians measures to manage the pollution of the river, might improve the water quality but without measures of the upstream riparians the pollution will be ongoing.

#### 4.1.2 Availability of water

The next geographic obstacle that will be discussed is the availability of water. The water supply of the Tisza River is used for multiple purposes which range from public supply to the industrial usage. It was found that the water supply for the current usage of the riparians amounts to 1,409.84 Mm<sup>3</sup>, however the water demand of the riparians highly exceeds this amount by around 54% therefore, reaching 2,585.67 Mm<sup>3</sup> (Interreg Danube Transnational Programme JOINTISZA, 2019). Furthermore, due to increasing droughts and floods through the human made climate change as well as the ongoing pollution, the water quality and quantity have been highly affected. So the availability of water can be seen as an obstacle to the transboundary river management of the Tisza River.

#### 4.1.3 Geopolitical Setting

The third and last geographic obstacle to transboundary river management is the geopolitical setting. Given that three of the riparians are EU members and both Ukraine and Serbia have EU candidate status there is

currently no power asymmetry present. All riparians are seen as equal without a clear hegemon. Consequently, the geopolitical setting does not impose an obstacle to the transboundary river management of the Tisza River.

#### 4.1.4 Conclusion – Geographic Obstacles

It can be observed that out of the three geographic obstacles two are present in the case of the Tisza River. Both the geographic asymmetry and the availability of water must be managed in order to successfully engage in transboundary river management.

## 4.2 Security Obstacles

The next group of obstacles to the transboundary river management of the Tisza River, that are to be discussed are security obstacles. Security obstacles that are affected by CBC are both sovereignty and domestic issues.

### 4.2.1 Sovereignty

Given that, Hungary, Romania and Slovakia are MS of the EU and Ukraine and Serbia now both have the candidate status for the EU they now also have certain responsibilities e.g., implementing the WFD and reaching a good status of all water bodies (European Commission, n.d.-c).

Nonetheless, the access to the river is not hindered in any way and riparians are still able to access the river freely and use it just as long as the usage does not cause any further pollution. Hence no issues with sovereignty can be identified in the current transboundary management of the river, therefore, no impact on the transboundary river management can be found

### 4.2.2 Domestic issues:

Similarly, to the obstacle of Sovereignty, the already established CBC framework of EU and non-EU MS, are the reason for the lack of domestic issues (European Commission, 2022a) (European Union & Ukraine, 2014). The ongoing harmonization and integration of common policies is currently eliminating the possibility of any domestic issues of the riparians in the context of transboundary river management.

### 4.2.3 Conclusion – Security Obstacles

Both Sovereignty and domestic issues cannot be considered obstacles to the current transboundary river management of the Tisza River. The reason for this is, that the current framework for CBC is adequately addressing these obstacles by developing CBC based on equality of the riparians. In this sense, each of the riparians stays in control of the implementation of measures.

## 4.3 Economic Obstacles

The last obstacle that is to be discussed following the theoretical framework, is the economic obstacle, relating to the economic development of the riparians. The overall budget for the JOINTISZA amounted to a total of 2.254.126,8€ with 1.702.467,9 € of its funding coming from the European Regional Development Fund and further 213.539,86€ coming from Instrument Pre-accession Assistance Contribution (Interreg Danube Transnational Programme JOINTISZA, 2019). The Project was funded 85% by the EU's contributions through the Danube Transnational Programme and to a 15% through its members contributions (ibid.). Due to the fact that big investments are needed it can be seen that the riparians are not able to fund the management of the Tisza River alone.

## 4.4 Drivers and Types of CBC in the case of the Tisza River

To answer the research question in what extent the pollution of the Tisza River can be managed between EU and non-EU MS through CBC, the types of CBC that will be analyzed are focused on this same issue, the pollution. In this sense, CBC of the Tisza Rivers riparians can be characterized as functional as it aims at solving common problems such as the pollution and floodings. In this context, the most important programs and frameworks for CBC that need to be analyzed are the Interreg Cooperation Program of the EU namely the JOINTISZA, as well as the WFD, as it is the main directive for the management of waters in the EU. Furthermore, SDG 6 related to the transboundary river management and lastly the Association Agreement of the EU and Ukraine must be analyzed.

#### 4.4.1 Cross Border Cooperation – JOINTISZA

One of the main ways in which CBC between EU and non-EU countries takes place is through Interreg, a project funding program of the EU, one of the corner stones of EU cohesion policy (Solly & Berisha & Cotella, 2018). The Interreg program aims “to jointly tackle common challenges and find shared solutions in fields such as health, environment, research, education, transport, sustainable energy and more.” (Interreg, 2020). It has both an internal and external dimension as it seeks to enhance cooperation between EU MS but also cooperation between MS and non-member states and general cooperation to non-member states. The three Interreg Programs are Interreg-A Cross border cooperation, Interreg-B Transnational Cooperation, and Interreg-C Interregional Cooperation (ibid.). Since the programme related to the transboundary river management of the Tisza River is Interreg B, the other programs will not be elaborated further.

Interreg B takes place on both the national, regional and local levels. It is aimed at cooperating in transnational territories as well as around sea basins (European Commission, n.d.-a). As part of the cooperation program, riparians aim at achieving environmental and climate change goals “especially sustainable green and blue economy, water resources, flood management “ (ibid.). Amongst other things, Interreg B aims to enhance digital connectivity, innovation, and sustainable regional development.

As the Tisza is the Danubes main tributary, its pollution has a big effect on the latter’s ecosystems. Which is why the development of the JOINTISZA project was part of the Interreg Danube Transnational Programme (International Commission for the Protection of the Danube River, n.d.). So far, the JOINTISZA programme is the only large-scale effort of the riparians to better the ecological status of the Tisza River jointly. Therefore, at this moment the JOINTISZA can be considered the framework for the transboundary river management of the Tisza River.

The JOINTISZA programme was developed to foster cooperation around the river and reaching environmental goals. The 1<sup>st</sup> of January of 2017 marked its start and it went until the 30<sup>th</sup> of September of 2019 with the five members being Ukraine, Hungary, Romania, Slovakia and Serbia. In these 2 years the Overall Budget was a total of 2.254.126,8€ with 1.702.467,9 € of its funding coming from the European Regional Development Fund and further 213.539,86€ coming from Instrument Pre-accession Assistance Contribution (Interreg Danube Transnational Programme JOINTISZA, 2019). That means that the Project was funded 85% by the EU’s contributions through the Danube Transnational Programme and to a 15% through its members contributions.

The JOINTISZA projects aim is to “strengthen transnational water management and flood prevention” (JOINTISZA, n.d.) and to achieve this both the WFD and the Floods Directive of the EU are to be included, since they are an integral part of the EUs transboundary river management. The integration of the WFD into the JOINTISZA programme can also clearly be seen in the river basin management approach as laid out in the directive.

With a total length of 966 km the Tisza River is mainly used for, “agriculture, forestry, industry, navigation and energy production.” (Interreg Danube Transnational Programme JOINTISZA, 2019 p.1). However, as part of the JOINTISZA programme some significant and relevant water management issues (SWMI) have been identified mainly the Pollution through organic substances, nutrients and hazardous substances as well as hydromorphological alterations (Interreg Danube Transnational Programme JOINTISZA, 2019).

#### 4.4.2 Drivers for CBC – JOINTISZA

##### Institutional Context of the JOINTISZA

The JOINTISZA programme can be placed into the international context of the EU. In this context riparians are expected to and animated to participate in CBC. Riparians are therefore, enabled to participate in CBC in a common space that eliminates obstacles. Their engagement in CBC is explained by the perceived benefits. Hence, the institutional context is favorable for the CBC and highlights the gains of CBC, which will be elaborated upon next.



### Gains from JOINTISZA:

The JOINTISZA program aims at putting an end to the pollution of the Tisza River, by creating a river basin management plan based on CBC. The joint action increases coordination of measures which in turn positively impacts the efficiency of the transboundary river management. Issues of geographic asymmetry are addressed, by developing measures depending on the impact of both upstream and downstream riparians, which in turn increases the availability of water. Lastly, the participation enables the riparians to access the funding of the EU.

### Resources for CBC

One of the gains of the JOINTISZA programme are the monetary incentives. As outlined above, 85 % of the funding is provided by the EU. The high financial support that riparians can access through their participation in the JOINTISZA, and the low national financial support can be seen as another driver for CBC along the Tisza River.

### Transaction Costs for CBC

The last drivers for CBC are the transaction costs. Both the physical proximity of the riparians involved in the JOINTISZA as well as the level of perceived proximity are drivers for riparians to take part in the JOINTISZA programme.

#### 4.4.3 Water Framework Directive

The SWMI that have been identified are to be managed through the implementation of the JOINTISZA which is strongly based on the WFD, the main body of the EU's Water Policy. This directive 2000/60/EC of the European Parliament and the Council was released in October of 2000. According to the European Commission its aim is as follows:

- *“expanding the scope of water protection to all waters, surface waters and groundwater*
- *achieving "good status" for all waters by a set deadline*
- *water management based on river basins*
- *"combined approach" of emission limit values and quality standards*
- *getting the prices right*
- *getting the citizen involved more closely*
- *streamlining legislation“*

*(European Commission, n.d.-b)*

Since the WFD is a directive, the Members States (MS) of the EU are given a goal that they must reach, in this case a good status for all waters until the year 2027 (Kaika, 2003). However, they are given the freedom on deciding which tools they want to use to achieve this goal. Although the directive leaves the implementation up to the MS, the EU does provide a clear timetable on goals that have to be achieved in a certain timeframe as can be seen in Figure 2 (European Commission, n.d.-d). Furthermore, the MS are required to “set up policy plans for river basins and to write programmes of measures to improve the chemical and ecological status of surface waters and the quantitative and chemical status of ground waters” (Lieverink et al., p.713. 2011). Therefore, the approach, in this case the river basin management plans is also set. Nonetheless it does not imply that the organizational framework is set. MS are given the freedom to either take a centralized or decentralized approach (ibid.). They are also allowed to decide on the participation and integration. Therefore, how they organize participation of stakeholders, and the public is up to them, as well as the degree of integration of the WFD into related policy fields e.g., waste management. Nonetheless, as set out by the European Commission the management and

Year	Issue	Reference
2000	Directive entered into force	Art. 25
2003	Transposition in national legislation	Art. 23
	Identification of River Basin Districts and Authorities	Art. 3
2004	Characterisation of river basin: pressures, impacts and economic analysis	Art. 5
2006	Establishment of monitoring network	Art. 8
	Start public consultation (at the latest)	Art. 14
2008	Present draft river basin management plan	Art. 13
2009	Finalise river basin management plan including programme of measures	Art. 13 & 11
2010	Introduce pricing policies	Art. 9
2012	Make operational programmes of measures	Art. 11
2015	Meet environmental objectives	Art. 4
	First management cycle ends	
	Second river basin management plan	
2021	Second management cycle ends	Art. 4 & 13
2027	Third management cycle ends	Art. 4 & 13
2033(and every 6 years thereafter)	Revision of river basin management plan	Art. 4 & 13

Figure 2, Source: European Commission, n.d.-d

implementation of the WFD shall be done through the development of river basin management plans as stated in Art.3 of the WFD. To develop the river basin management plans the WFD asks the MS to assign the river basins within their territory to individual river basin districts (RBD) Art.3(1) WFD. Within these RBDs a competent authority is established that oversees the implementation of the directive (Jager et al., 2016). River basin authorities in the EU are then given both executive powers and a budget (Yara et al., 2018). After establishing these RBDs, river basin management plans and programs of measures (PoM) (Art.11 WFD) are published and adapted every six years, which promotes cooperation because they are developed together by the riparians (Jager et al., 2016). Nonetheless, in the case that the goals are not achieved in time each riparian carries the responsibility for the waters on their territory (ibid.). Therefore, the EU's approach to the implementation of their measures in transboundary river management is not based on single national strategies. Instead, the CBC of the riparians is promoted and required for the management of the rivers.

#### 4.4.4 Drivers for CBC – WFD

##### Institutional Context

Once again, the institutional context is the international context of the EU. The WFD aims at achieving a good status of all water by promoting CBC through a river basin approach. Although the WFD promotes CBC, it still allows a high level of autonomy, considering that it is mainly about setting goals and leaving the implementation up to its parties.

##### Gains from CBC

As the WFD is the basis of the JOINTISZA, many of its gains concerning efficiency and the availability of water are similar to the JOINTIZA. However, the WFD has a stronger aim at harmonizing the policies and legislation of its riparians, which on the one hand, mean the elimination of security issues and on the other hand, lead to a better management of geographic obstacles.

##### Resources for CBC

One of the main resources that can be gained through the participation in the WFD are the human resources in the sense of knowledgeable staff. Given that the WFD is also based on exchanging best practices riparians are able to exchange information and work more efficiently.

##### Transaction Costs for CBC

Lastly, given that the WFD is a programme of the EU and in the case of the Tisza River is also to be adopted by all its riparians it creates an administrative proximity. Hence the transaction costs are low.

#### 4.4.5 Sustainable Development Goals

Developing sustainability in internal and external actions, is one of the main objectives of the Treaty of the European Union as can be seen in Art.3 (5) TEU. Given that sustainable development is a global concern the United Nations (UN) released the 17 Sustainable Development Goals (SDG) in 2015 (United Nations, n.d.-b) (United Nations Department of Economic and Social Affairs, n.d.). And as a common objective of the UN and the EU, the EU committed to all the SDGs and decided to add them into all their policies.

The 17 SDGs are part of the UN's 2030 Agenda for a sustainable development and touch upon a range of topics such as human rights, like reducing poverty and developing health care systems to environmental issues, including clean water and sanitation as well as affordable and clean energy (ibid.).

Since the focus here is the transboundary river management the most important SDG to look at here is the SDG 6, which aims at ensuring the availability and sustainable management of water and sanitation for all (United Nations, n.d.-a). As the UN outlines in their 2021 SDG report, up to 129 countries are currently not on track to reach the 2030 goal of sustainable management of water resources. Instead, they would need to double their progress to reach the goal (ibid.).

In order to reach their goal, the SDG 6 outlines six targets that are to be met by 2020 and 2030. Out of these six targets, target 6.3, 6.4, 6.5, 6.6 a and b are of relevance since they are related to transboundary rivers (ibid.). The relevance of outlining the SDG 6 is that it has been adopted by the MS of the EU as well as by Ukraine and Serbia and it is therefore an important part of the transboundary river framework. Given that all countries have committed to these goals it could facilitate the cooperation.

#### Target 6.3:

Starting with the target 6.3 which seeks to better the water quality through the reduction of pollutants, this includes “eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally” (ibid.) by 2030. There are two indicators that must be checked to see whether this target is being met. Firstly, how much of the domestic as well as industrial wastewater is being treated safely (ibid.). Secondly, how many water bodies have reached a good water quality (ibid.).

#### Target 6.4:

This next target is focused on preventing water scarcity by enabling an efficient usage of water in all sectors by 2030. Indicators for this target include checking on changes in water use efficiency and the level of water stress. The water level stress relates to “freshwater withdrawal as a proportion of available freshwater resources“ (ibid.).

#### Target 6.5:

Target 6.5 directly aims at developing integrated water resource management on all levels. Meaning that this shall be done also by making use of transboundary cooperation (ibid.). To check whether this goal is being met, the degree of integrated water resource management, as well as the amount of operational water cooperation’s in transboundary basin areas must be checked (ibid.).

#### Target 6.6:

This target was to be met by 2020 and relates to the restoration and protection of water bodies and their ecosystems. In this sense these water bodies are monitored, and their changes will serve as an indicator on the progress of this target (bid.).

#### Target 6a and 6b:

Both target 6a and 6b concern the cooperation on water management issues, however, they differ in their levels. Target 6a, takes place on a government level and aims at increasing international cooperation until 2030 in the areas of “water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies” (ibid.). Which is measured in government spending plans and the “Amount of water- and sanitation-related official development assistance“(ibid.).

Target 6b however, takes place on a local level and aims at improving local participation on water related issues such as sanitation. This target is measured through the amount of local administrative units that are functional and working on the aforementioned goal, through developing policies.

What became clear is that the EU aims at achieving its sustainability goals through CBC. Instead of tackling the issues of the pollution of transboundary rivers from a national perspective, both the WFD, and the SDGs aim at finding joint solutions and developing common frameworks on the river basin level. Therefore, national borders are not the relevant level of analysis, instead looking at the RBDs is of relevance when developing sustainable and innovative policies. In this sense the WFD can be identified as the basis for the EU’s transboundary river, since it provides the main guidelines for the transboundary river management and sets the tone with its aim to achieve a good status of all waters.

#### 4.4.6 Drivers for CBC – SDG

##### Institutional context

The institutional context for the SDGs is the international context. The involved actors are states that are to engage in CBC The institutional context can be identified as a driver for CBC here since, it also promotes CBC as can be seen in target 6.5.

##### Gains from CBC

The main identifiable gains from the SDGs are that if implemented they should ensure the availability and sustainable management of water and sanitation for all. Furthermore, as set out in target 6.5 the goals shall be achieved.

### Resources for CBC

Concerning the resources for CBC the SDGs also enable access to loans and grants of the UN, meaning that the participation would also have a monetary incentive.

### Transaction Costs for CBC

Lastly, given that the analysis is focused specifically on the Tisza River the transaction costs for SDG 6 are low. The reason for this is that CBC is to take place between the relevant parties in this case the five riparians of the Tisza River. Hence, as previously established there is a close physical and administrative proximity between them, meaning that there are low transaction costs.

#### 4.4.7 Cooperation between Ukraine and the EU in transboundary river management

Since the Tisza River, originates in Ukraine and its pollution begins there, the next step will be to see what the framework for cooperation between Ukraine and the EU looks like in the transboundary river management. To this end it is important to know that although Ukraine is no MS of the EU it does have a framework for cooperation with them, namely their Association Agreement from the year 2014. With the establishment of this agreement the Ukraine and the EU commit to work more closely in areas of mutual interest and enhance cooperation as well as the political dialogue as set out in Art.1 of the Agreement. One of these areas of mutual interest is the environment as established in Chapter 6. Art. 360 of this same chapter states that “Parties shall develop and strengthen their cooperation on environmental issues, thereby contributing to the long-term objective of sustainable development and green economy.”. Hence cooperation shall take place in e.g., water resource management (Art.361(d)), and waste management (Art.361(e)). To this end Art.363 aims at a “Gradual approximation of Ukrainian legislation to EU law and policy on environment shall proceed in accordance with Annex XXX to this Agreement.”.

Therefore, Ukraine is expected to include a total of 29 Directives and Regulations into their own legislation (Yara et al., 2018). This inclusion does not have to happen immediately, instead the agreement provides a timeframe. One of the directive that is to be included into Ukraine’s legislation that is of relevance for the further analysis is the Water framework Directive 2000/60/EC (Ladychenko & Golovko, 2017). So Ukraine is committed to reach the EU’s standards and implement the directive into its legislation (ibid.). Additionally, Ukraine is part of the Interreg Danube Transnational Programme of the EU which also supervises the management of the Tisza River.

The analysis of the EUs and Ukraine’s cooperation in the sector of transboundary water management showed a clear harmonization and approximation between them. Through the Association Agreement, Ukraine commits to following the EUs environmental policies and to take part in cooperation with its MS. The next part will be to look at the drivers of CBC that can be identified in this CBC program.

#### 4.4.8 Drivers for CBC – Association Agreement

##### Institutional Context

The institutional context is the international regime. Ukraine has been taking steps towards a further approximation to the EU. In the context of this thesis, the aim of this CBC that is the most important is the development of a green economy and the enhancement of the sustainable development. The Association Agreement forms the legal basis for further CBC between the EU and Ukraine and can be seen as a long-term tool to manage CBC, since it also promotes the further harmonization of Ukraine’s environmental policies to those of the EU.

##### Gains from CBC

Main gains from the CBC of the Association Agreement, are once again the joint management of environmental issues, which for Ukraine means access to knowledge and best practices developed by the EU. Additionally, the harmonization of policies, also reduces security obstacles between the riparians.

### Transaction Costs for CBC

The engagement in the Association Agreement can be seen as an approximation between the EU and Ukraine, which now lowers transaction costs. It creates an administrative proximity of the riparians, by identifying common goals and responsibilities.

#### 4.5. Identified Drivers and Types of CBC in the case of the Tisza River

Having analyzed the different programmes of the riparians for CBC, related to either transboundary river management in general or specifically for the Tisza River SQ2 can be answered. SQ2 goes as follows: What are the drivers for CBC in the case of the Tisza River?

To this end, the analysis showed that the institutional context plays a major role, given the involvement of both EU and non-EU-MS. CBC takes place in the international context in which the EU has made strong efforts to foster CBC e.g., JOINTISZA. The aim is in improving the CBC between the riparians and to mitigate the current pollution. Therefore, the support for CBC through the EU and the riparians is present and it can be said, that the institutional context is one that promotes CBC. This is further supported, by the EU's approach to transboundary river management through a river basin approach as set out in the WFD.

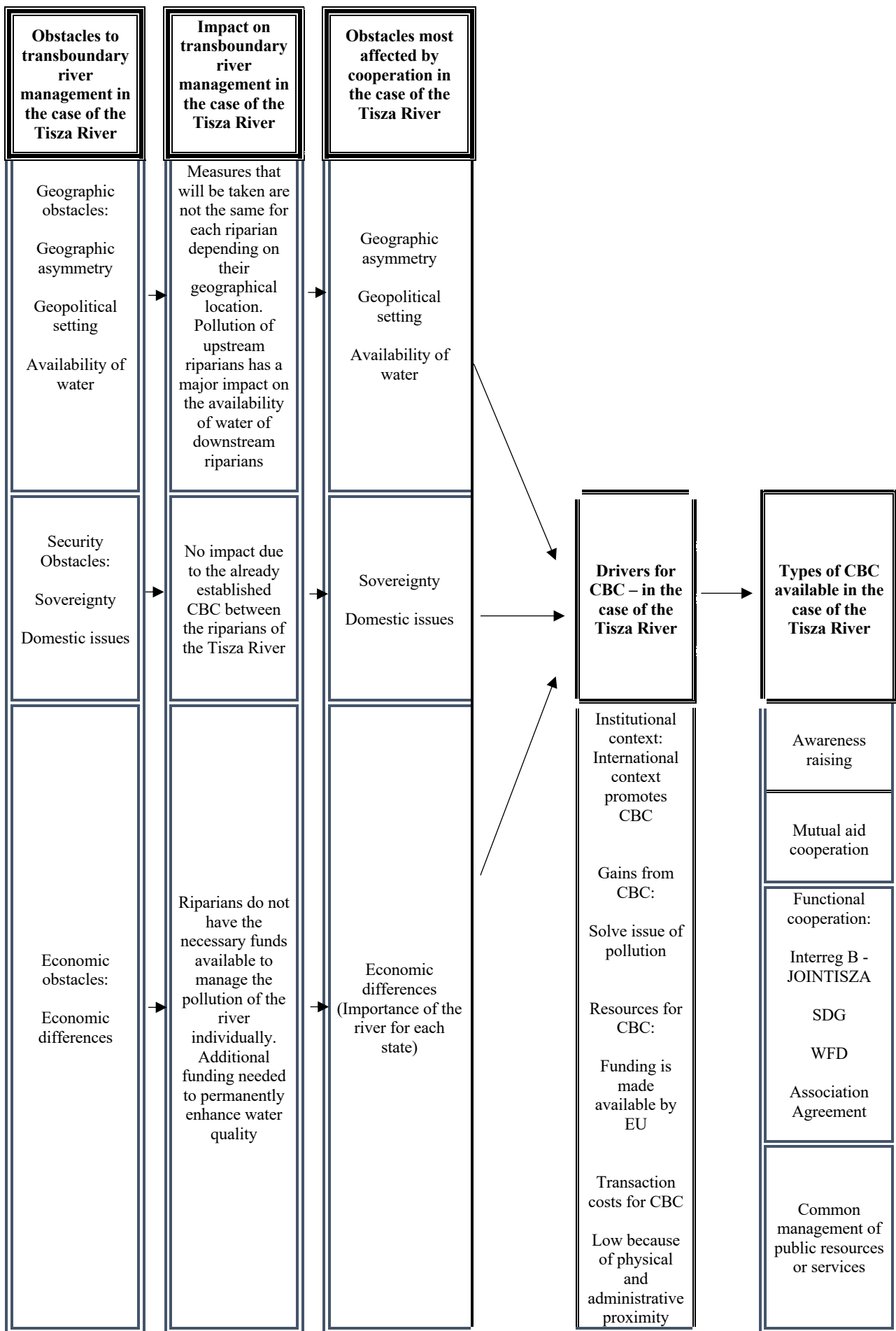
Next, the gains from CBC in the case of the Tisza River. Gains highly relate to solving shared problems. Given the transboundary nature of the river, the joint management is the only way to solve the shared issue of the pollution. The geographic asymmetry that is inherently present in the case of the Tisza as well as the availability of water are obstacles that can only be managed through CBC since they require clear communication and joint measures of the riparians. Furthermore, engaging in CBC would help increase efficiency in the management of the river. The reason for this is, that coordinating the measures would mean that upstream riparians are also working in reducing the pollution thereof, leading to less measures that need to be taken by the downstream riparians. Another gain that can be identified results out of the compliance to national and transnational policies. By engaging in CBC riparians of the Tisza can access funding through the EU's Interreg programme JOINTISZA, which helps reduce economic obstacles. Lastly, the approximation through the legislation e.g., WFD and Association Agreement, reduce issues concerning sovereignty and domestic issues between riparians.

As laid out in the economic obstacles, the Tisza River, lacks national and regional funding, instead it relies on the funding by the EU. Furthermore, given that most of the waste is getting into the river through the lack of urban waste management clearly shows the need for more knowledge on how to build the infrastructure as well as the need for funding of the related projects. Since engaging in CBC would give the riparians access to the funding and planning of e.g., urban waste management it can also be identified as one of the major drivers for CBC in the Tisza River.

Lastly, the transaction costs are also low in the case of the Tisza River. There is an already established administrative proximity of the riparians, due to the fact that they are EU-MS or have the EU candidate status. Additionally, the Ukraine's Association Agreement with the EU can also be seen as an administrative approximation, which lowers the transaction costs.

All in all, the drivers for CBC are clearly present and the approximation between the riparians is already ongoing. Therefore, functional CBC would be an appropriate tool to manage the Tisza River. Functional CBC aims at solving shared problems, which in this case would be the pollution of the river. Hence it can be said that functional CBC is the extent to which the pollution of Tisza River can be managed between both EU and non-EU-MS.

One example in which this is already taking place is the previously mentioned JOINTISZA programme which is a joint co-operation project aimed at solving a common problem, namely the pollution of the river.



The above table can now be seen as a summary of the findings in the Analysis. Based on the previously developed theoretical framework it now gives an overview for the case specific findings of the Tisza River.

## 5. Conclusion

The conclusion will be structured as follows. Firstly, SQ1 on the role of CBC in transboundary river management will be answered. Secondly, SQ2 relating to the drivers for CBC in the case of the Tisza River will be answered. After answering both SQ the next step will be to answer the actual RQ, and to give an outlook on both practical implications as well as possible limitations of the thesis.

### 5.1 Result SQ1

Regarding the first SQ about the role of CBC in transboundary river management the theoretical framework showed that transboundary river management is faced with many obstacles related to the geography, security, and economy of its riparians. CBC can be seen as the tool to eliminate these obstacles.

On the one hand CBC can help to build trust between parties. In this sense the security obstacles could be eliminated by engaging in common treaties and communicating regularly to maintain transparency on the common issue. On the other hand, CBC can also help with the economic obstacle. Even if a riparian does not have the funds available to engage in transboundary river management CBC could lead to access to supporting funds which would then in turn make them able to participate. Lastly, the geography of the riparians cannot be changed and the upstream downstream dynamic will remain, however, CBC could play an important role to counter the geographical obstacles in the sense that the riparians can decide on mutually beneficial treaties to improve the usage of the river. CBC could therefore, help develop treaties on the pollution of the river and better the relation between riparians.

### 5.2 Result SQ2

The Results of the second SQ showed that all of the drivers for CBC are being met in the case of the Tisza River. There is a supportive institutional context for CBC, the EU promotes and encourages CBC and offers funding, whilst the riparian's maintain autonomy in implementing the measures. This can be seen with the WFD. Furthermore, there are clear gains from engaging in CBC in this case. For once, additional funding is made available e.g., JOINTISZA, which supports the efforts to build the necessary infrastructure to manage the rivers pollution. And seeing that, because of the clear administrative proximity, there are low transaction costs for CBC so there is nothing standing in the way for the riparians to engage in CBC.

### 5.3 Answer to Research Question

The main RQ was:

To what extent can the pollution of the Tisza River be managed through the cross-border cooperation between the EU and non-EU countries?

After answering both SQ it has become clear that CBC is an adequate tool to address the obstacles to transboundary river management, and that there are clear drivers for CBC to address the obstacles to transboundary river management, in the case of the Tisza River. All the drivers are promoting CBC between the riparians thus, functional CBC between the riparians can be seen as the extent to which the pollution can be managed through CBC between the EU and non-EU countries. However, as outlined in the analysis, the only CBC project along the Tisza River on the EU level, that attempted to promote CBC and to lower the pollution was the JOINTISZA programme. This programme, ended in the year of 2019, and since then no more joint measures have been taken.

### 5.4 Limitations

Given that the area of analysis includes five countries that all have different official languages, there was a clear language barrier and limitation to the findings during this research since the analyzed literature was solely German or English.

Additionally, given the lack of research that is being done in the case of the Tisza River, there was not much literature available which diffculted finding scientific literature concerning the management of the river.

A further limitation is the lack of interviews conducted with people working with the management of the Tisza River. This could have helped to evaluate how far the findings in the literature can be backed up by practitioners. This leads me to the last point of the thesis, the practical implications.

### 5.5 Practical Implications

I am hoping that this research can be seen as a step to reduce the current scientific gap concerning the lack of research being conducted on the management of the Tisza River. Furthermore, given that no interview was conducted additional research could examine in how far the findings of this thesis can be supported by people involved in managing the river. As the answer to the RQ showed, the framework to manage the Tisza River through CBC is there but no action is being taken.

Given the current war between Ukraine and Russia, it is not to expected that any measures to manage the Tisza River will be taken in the near future. Nonetheless, when the political context allows it and the focus can be set on issues of sustainability again, awareness for the pollution of this river should be increased and efforts to manage it e.g., through additional funding should be considered.



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