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Multi-level hegemony in transboundary Flood Risk Management: A downstream perspective on the Maritsa Basin

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ABSTRACT

While the literature takes a neutral to optimistic view of cooperation between the riparian countries Bulgaria, Turkey and Greece on Flood Risk Management (FRM), floods in the Maritsa Basin have been increasing over the last decade. Considering the inherently political nature of transboundary rivers, this article investigates the role of power in FRM in the Maritsa Basin using an adapted hydro-hegemony conceptual framework. Interviews with actors at different levels, regional and central, in transboundary FRM and field visits to the Maritsa Basin in Greece and Turkey provided a downstream multi-level perspective of hydro-hegemony in the basin. Contradicting hydro-hegemony literature, Bulgaria's presumed hydro-hegemonic control of the basin is found to be based on geographical and ideational power, expressed in silence and non-engagement rather than discursive and ideological power shaping perceptions. Additionally, power relations influence not just interactions at the basin level but also between the national and regional levels. The distance between the seat of power and area of disaster impact has led to a lack of understanding and interconnectivity as well as prioritisation of the Centre's agenda, and thus (in)sufficient action from the riparian countries.

1. Introduction

Known as Maritsa in Bulgaria, Evros in Greece and Meriç in Turkey, the Maritsa River is amongst the few transboundary rivers where too much water (floods) is the major issue, as opposed to too little, or water allocation (Ganoulis, 2000; Kibaroğlu et al., 2005; Kramer and Schellig, 2011). Not only is the Maritsa River flood-prone, but it is also a border between Greece and Turkey, and hence the European Union (EU) and Turkey. This border has been increasingly in the spotlight over the last 5 years as one of the two main crossing points for migrants entering the EU. A flood-prone river as a shared border complicates the already sensitive and complex issue of migration. Yet, despite its significance, the Maritsa Basin has received far less attention than other transboundary rivers in Turkey and the region (Kramer et al., 2011).

A quick overview of the literature provides a neutral to optimistic view (Supplement 1) of Flood Risk Management (FRM) in the Maritsa Basin. But when viewed through a disaster prevention and hydro-diplomacy lens, it is not a success story given the continuing floods and related losses. Over the past decade, an increase in flood frequency and related socio-economic damage has been observed on the Maritsa (Yıldız, 2015), requiring several million Euros annually for flood remediation (Skias and Kallioras, 2007). Angelidis et al. (2010), state that the reason for the increase in flood frequency, climate change or inappropriate dam management upstream, is unclear (Supplement 1). Downstream action and early warning systems are present and necessary, but not sufficient (Yıldız et al., 2019).

With multiple aspects such as land-use change, climate change, infrastructure management, and institutional capacity playing a role in exacerbating or diminishing the impact of floods, FRM is complex (Eleftheriadou et al., 2015; ODPM Office of Disaster Preparedness and Management, 2013). The river's transboundary nature brings into play actors with varying perspectives and interests operating at various scales and levels (Bakker, 2009; Wolf, 2007). This reflects the differing (geo) political and socio-economic contexts and priorities of the riparian countries. These aspects drive international policies and affairs - impacting interactions in the river basin (Kramer et al., 2011; Wolf, 2007). Thereby providing a snapshot of where the power lies and who is in the driving seat, both within the riparian countries and in the basin. Additionally, historical grievances between Greece and Turkey and concurrent challenges like the refugee crisis affect relations between the riparian countries (Alt et al., 2014; Kibaroğlu et al., 2005).

To understand why the efforts so far are seen to be insufficient to

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address the flood risk in the Maritsa Basin, we study the context and relations between the riparian countries and stakeholders (Section 3: Results). This could assist in understanding the dynamics in the river basin, created by the interaction between different countries, actors at various levels, and their perspectives and interests (Vij et al., 2020). The focus is the role of power relations, as power and its usage affect the outcomes of transboundary interactions and governance (Zeitoun and Warner, 2006).

Since the power play between riparian countries and the influences shaping these power dynamics has not been studied in the Maritsa Basin, this study aims to address the issue of continued floods in the Maritsa Basin using a power lens. An adapted circular hydro-hegemony conceptual framework (Cascão and Zeitoun, 2010; Menga, 2016) is used to address the research question: What is the role of power in the context of hydro-hegemony, and which dimensions of power influence transboundary FRM in the Maritsa Basin?

2. Materials and methods

This section focuses on data collection and analysis. It begins with an introduction of the conceptual framework, the adapted hydro-hegemony framework. Following this, the study area is described. The last sub-section focuses on the data collection methodology.

2.1. Conceptual framework

Hydro-hegemony, that is, hegemony "on the waterfront" provides a means of understanding hydropolitical power relations (Zeitoun and Allan, 2008: 10). The hydro-hegemony framework has evolved over the years, from Zeitoun and Warner's (2006) three pillars of hydro-hegemony (power, position and potential) to Menga (2016) Circle of Hydro-hegemony. Each of these frameworks informs literature addressing power and hegemony in transboundary hydro-politics (Lee et al., 2017; Zinzani and Menga, 2017).

This research looks at "hard" (geographical and material) and "soft" (bargaining and ideational) dimensions of power in the basin (Zeitoun and Warner, 2006) but further distinguishes them as four dimensions of power (Cascão and Zeitoun, 2010). This is particularly to distinguish between a riparian's geographical location which can dictate its power in a river basin, regardless of the military force or economic development (material power) and vice versa. Additionally, Menga (2016) circle of hydro-hegemony highlights the interconnected nature of the "hard" and "soft" dimensions of power. These aspects of Menga (2016) circle of hydro-hegemony and Cascão and Zeitoun (2010) revised four-pillar analysis of hydro-hegemony are the reasons this research combines the two to form an adapted circular hydro-hegemony framework (visualised and explained below - Fig. 1). The hydro-hegemony analysis of Central Asia's Syr and Amu Darya Basins (Karaev, 2005) and the Talas (Zinzani and Menga, 2017) illustrate the rationale for combining these frameworks.

2.1.1. Geographical power

Geographical power is associated with the geographical location of a country in a river basin, i.e., upstream or downstream. It is based on the advantageous ability of upstream countries to manipulate the flow of the river and downstream countries to regulate access to the sea (Cascão and Zeitoun, 2010; Zeitoun and Allan, 2008). Geographic position in turn also enhances actors' bargaining power (Menga, 2016).

2.1.2. Material power

Material power is characterised by aspects including international support, military might, economic development, technological prowess, geopolitical significance and financial ability. Control over water is often influenced by asymmetries in material power, particularly in combination with bargaining and ideational power (Cascão and Zeitoun, 2010; Zeitoun and Allan, 2008).

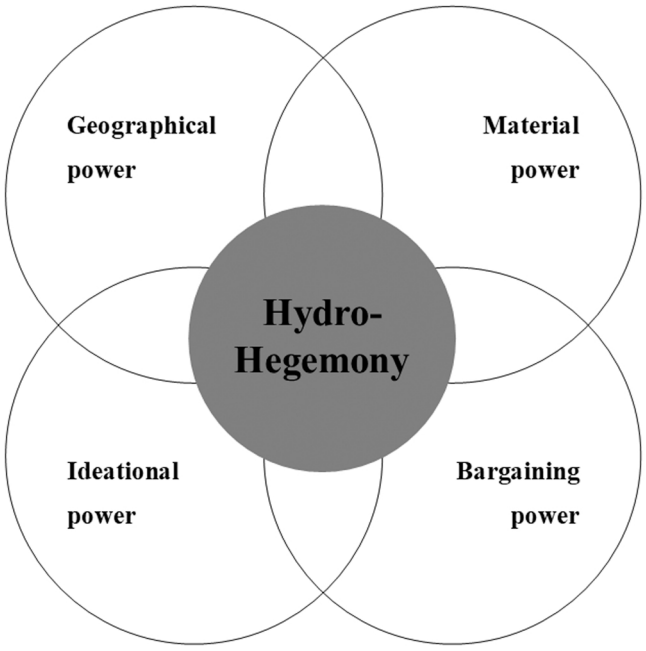

Fig. 1. The revised pillars of the hydro-hegemony framework (Cascão and Zeitoun, 2010) and circle of hydro-hegemony (Menga, 2016) combined.

2.1.3. Bargaining power

The capability of actors to define agendas and control the rules of the game: the ability to make decisions (and non-decisions). This dimension of power is evident in the ability of actors to influence negotiations and agreements by encouraging compliance using incentives. Bargaining power can also strip the capacity of the weaker actor to choose between compliance and non-compliance. It is, however, dependent on the relationship between actors: actors need to be legitimate in the eyes of the other to retain influence in interactions (Cascão and Zeitoun, 2010; Zeitoun and Allan, 2008). Non-hegemons can resort to international law or issue linkage to alter the rules or the (non)agenda (Menga, 2016; Conker and Hussein, 2020).

2.1.4. Ideational power

Reinforces legitimacy as it provides control over perceptions of water resource management in a river basin. This dimension of power is a country's capacity to legitimise and impose certain ideas, discourses, and narratives: power over ideas. It can normalise a certain state of affairs such that it is rarely challenged, and shape perceptions preventing grievances. It can be exercised using tools such as securitisation, data sharing, lack of knowledge, and/or use of ambiguity, time, over-emphasis, or silence (Cascão and Zeitoun, 2010; Zeitoun and Allan, 2008). While the ability and capacity to present the state of affairs in a particular way is significantly more "efficient" than the use of geographical or material power, with lower transaction costs than bargaining power (Zeitoun and Allan, 2008), it is not immutable. After Arts and Van Tatenhove (2004) we shall assume agents and agencies to be knowledgeable and capable, so they can react to domination and seek to resist and reframe the basin discourse to their advantage (Hussein, 2017).

2.1.5. Counter-hegemony

While the hydro-hegemony frameworks mentioned focus on power relations and hegemony, they also enable an analysis of how non-hegemons can resist hegemons: "Hydro-hegemony is not and should not be considered inevitable or unchangeable" (Warner et al., 2017: 7). Non-hegemons should not be considered powerless as they can resist and challenge the *status quo* and have done so successfully (case of Nile) (Cascão, 2008).

2.1.6. Layered hegemony

While not the primary objective, this research stumbled on hegemony as a "layered phenomenon whose multi-level interactions impinge on each other". The concept of multi-layer hegemony calls attention to the issue of scale and scale framing (Warner et al., 2008, 2014). Basin hegemony can be understood as sandwiched between hegemonic dynamics at other scales: regional hegemony in Regional Security Complexes, the overlay of great power games at the global level. In this case, EU emerges as the key external Great Power. Hegemonic structures at multiple levels may align and reinforce each other but this is not a given; a mix of cooperation and competition in the same region can happen (Deyermond, 2009). This 'realist' approach to hegemony assumes that sovereign states represent substate interests.

2.2. Study area

The Maritsa Basin is one of the major water systems in the Balkans and the second-longest river (515 km) in the region (Kibaroğlu et al., 2005). It begins in the Rila Mountains in Bulgaria and downstream, forms the border between Greece and Bulgaria for 15 km and Turkey and Greece for about 187 km, before entering the Aegean Sea (Fig. 2) (Kanellopoulos et al., 2008; Kramer et al., 2011).

The basin drains about 53,000 km^2 with approximately 66% of the catchment area lying within Bulgarian territory (Özdemir, 2015; UNECE, 2011) (Table 1). Its major tributaries are the Ardas/Arda (henceforth Arda) flowing through Bulgaria and Greece and the Tundja/Tundzha/Tunca (henceforth Tundzha) flowing through Bulgaria into Turkey (Angelidis et al., 2010). Other minor tributaries are the Ergene River and the Erythropotamos River/ Luda Reka/Kızılçay (Ganoulis et al., 1994).

Table 1
Catchment distribution of the Maritsa Basin in the riparian countries (translated from Özdemir, 2015, based on UNECE, 2011).

Riparian country	Sub-basin	Catchment area (km^2)	Relative catchment size (%)
Bulgaria	Maritsa	21,928	66
	Arda	5273	
	Tundzha	8029	
Greece	Maritsa-Arda	3685	7
Turkey	Maritsa-Ergene	14,560	27
Total		53,475	100

The geographical and climatic characteristics of the Maritsa Basin create run-off conditions that make it highly vulnerable to floods, particularly the downstream regions. The slope of the catchment area has significant variation, with high mountains in the upper course and largely plains in the middle and lower course (Fig. 2) (Tuncok, 2015; UNECE, 2011). This upstream topographical advantage allows Bulgaria to build dams and reservoirs within its territory (UNECE, 2011). The dams are largely used for hydropower generation, with some also used for irrigation (Angelidis et al., 2010; Tuncok, 2015; Yıldız, 2015). Snowmelt and intensive rainfall are the main climatic factors impacting streamflow in the basin, with a combination of the two significantly contributing to flood generation (Supplement 2).

2.3. Methodology

This study focused on understanding and analysing how actors construct and perceive floods and transboundary FRM in the Maritsa

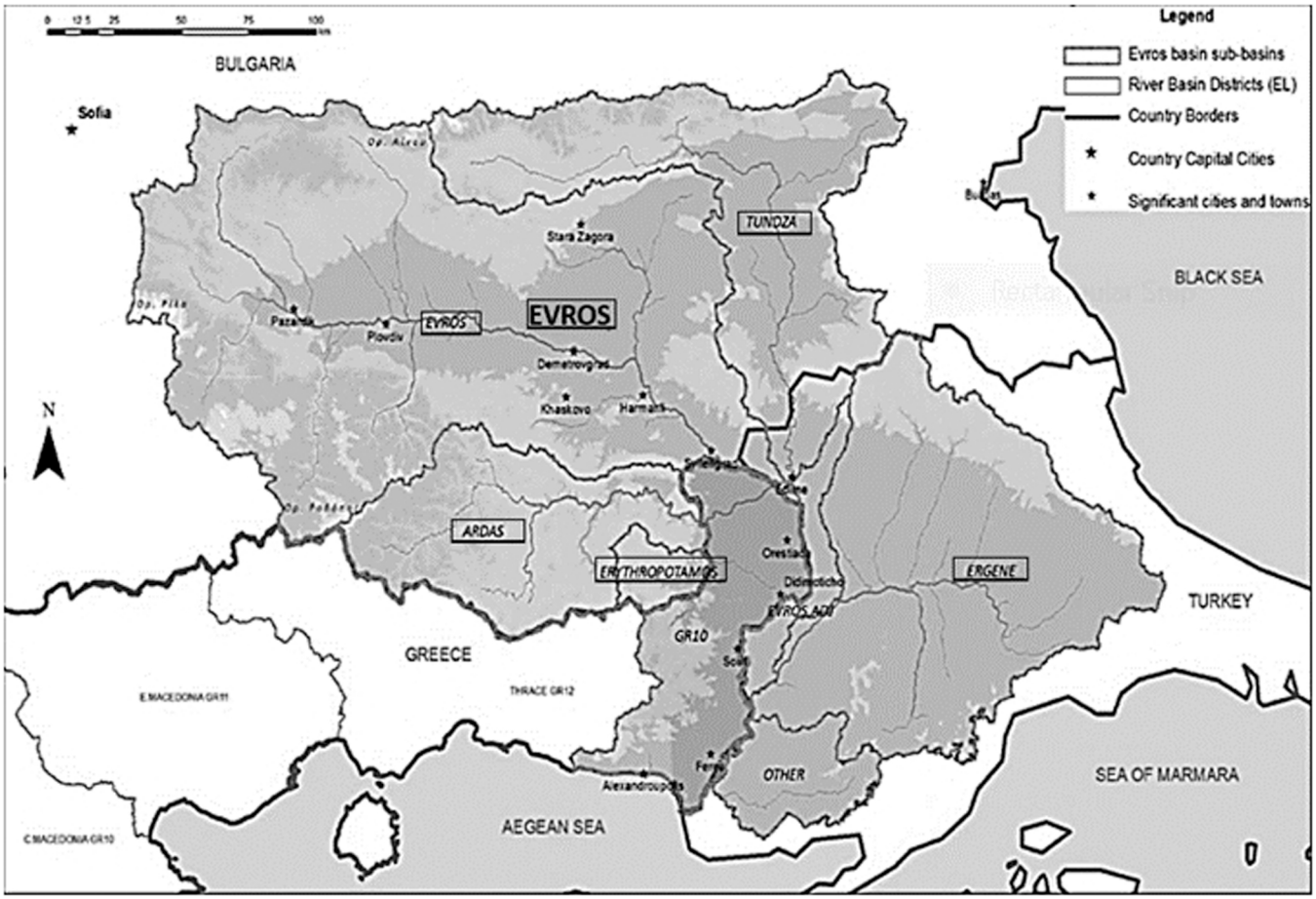

Fig. 2. Topographic map of the Maritsa River and its tributaries (Ministry of Environment and Energy, 2016)

Basin to gain insight into the priorities of the actors and the (perceived) power dynamics between various actors. The main method of data collection was semi-structured, in-depth interviews with actors involved in transboundary FRM in the Maritsa Basin (Denzin and Lincoln, 2011; Dodgson, 2017). Interviewees were selected based on their role in FRM in the Maritsa Basin and their availability/willingness to discuss the issue, with the help of "snowball sampling", in which recruits suggest future interviewees from their network.

This research is rooted in an interpretative research paradigm with a focus on understanding the perceptions of actors rather than a select stratified sample. A total of 27 actors that live and work at various levels – regional, i.e., within the basin, and national, i.e., outside the basin at the centre/capital, were interviewed over two months (Supplement 3). Only one key Bulgarian expert agreed to be interviewed, which does not provide a balanced overview of the Bulgarian perspective. This limitation necessarily biases the study as it only provides a downstream view on transboundary floods and related interactions in the Maritsa Basin. Field trips to the river were made; however, there were considerable access limitations due to the Maritsa River's securitised nature as a border. Permission was granted to only visit sections of the river that lie completely within Turkish territory, while on the Greek side of the border, a permit was required to visit the river, a long bureaucratic process.

Open-ended questions were used to gain more information on the interactions and to better understand the power dynamics (Denzin and Lincoln, 2011; Dodgson, 2017). Official documents on river basin and FRM plans for Greece and Turkey helped to ascertain and gain a better understanding of the information provided during the interviews. Literature and news articles on geopolitics, domestic affairs, socio-economic development, and the environment, particularly water, were used. This information provided an understanding of the history and context of the Maritsa Basin and interactions between these realms. The information based on the literature review was also used to gain insight into the power dynamics of the river basin. The (adapted) hydro-hegemony framework was used to analyse the data collected to answer the research question posed in this study.

3. Results

This section provides the information gathered from the interviews, field visits, and document analysis. This gives significant insight into the factors that influence and contribute to (perceived) power dynamics and interactions in transboundary FRM in the Maritsa Basin. The first subsection covers the causes of the floods according to the interviewees. The second subsection is on flood risk and infrastructure management in the basin. The third subsection covers interactions in the river basin and the last dives into historical and concurrent geopolitics in the basin.

3.1. Perceived causes of the floods

Investigating the perceived causes of the floods shines a light on the "problem" as viewed by various experts, and in many cases, the blame game in the basin, thereby influencing interactions in the basin. All the interviewed experts based in Athens, Istanbul, and Ankara stated that most dams are used for hydropower generation and are filled to their maximum capacity, including the flood storage capacity, to generate

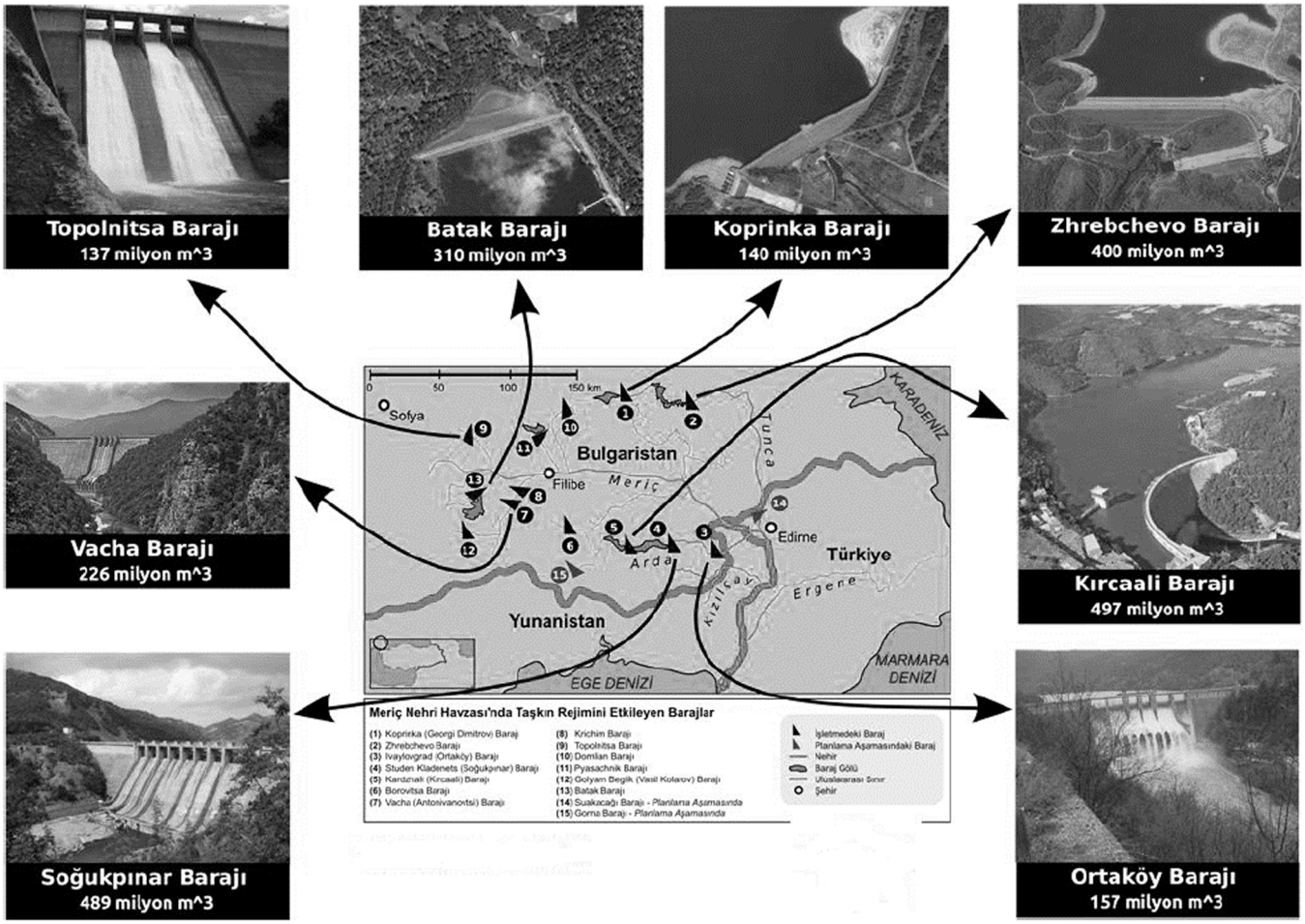

Fig. 3. Schematic used by a Turkish expert to demonstrate the lack of spillway gates in Bulgarian dams (HidropolitikAkademi, 2015)

greater profit. During periods of high precipitation, Bulgaria is believed to open the dam gates to prevent dam overflow or failure, releasing large amounts of water all at once, often without warning, and cause floods downstream. A Turkish expert mentioned the lack of spillway gates to control water that causes the floods using the Topolnitsa Baraji (= Dam) (Fig. 3) to prove his point. Assuming a 1 in 100-year flood, the spillway design discharge should be 1000 m3/s (Darama, 2009). With a view to increasing the competitiveness of its economy amongst the EU Member States, Bulgaria privatised its dams in the early 1990s

Although the literature supports dam operation and management as the cause for the floods (Supplement 1), the interviewed Bulgarian expert rejected this claim, stating that the Bulgarian government monitors and controls dam management while making efforts to mitigate the floods in collaboration with the other riparians. He mentioned that research had been conducted to prove that Bulgarian dam management is not the cause for the floods in the Maritsa Basin. Five of eight experts based in the Maritsa Basin in Greece and Turkey agree with the Bulgarian expert, stating deforestation and land-use change on Bulgarian territory; increasing urbanisation in the river basin; lack of appropriate flood protection measures; and climate change were the drivers mentioned for the increase in floods.

3.2. Flood Risk and infrastructure management

There have been bilateral cooperation in FRM in the Maritsa Basin over the years. In 1954, an engineering firm, Harza Engineering Company, was employed to draw up a flood control master plan for Turkey and Greece. However, their scoping report stated that the downstream region had a flat topography, limited rainfall and a geologic foundation (cavernous limestone) unsuitable for reservoirs. These factors made reservoir construction in the downstream region unfeasible, particularly within the economic limits set in 1954 (Meric-Evros Permanent Committee, 1954). The report stated that any reservoir "worthy of consideration" on the Tundhza River would extend into Bulgarian territory, inhibiting possibilities until 1968 when bilateral relations between Turkey and Bulgaria were established (Meric-Evros Permanent Committee, 1954: 56). Following 1968, there have been repeated requests from Turkey to construct a joint dam. This request was met in the 2002 Energy and Environment agreement (Kibaroğlu et al., 2005; Kramer and Schellig, 2011). Five Turkish experts mentioned that Bulgaria accepted to conduct an assessment on a dam planned on the Tundzha River, the Suakacağı (Tunca) Dam, to be built on the Turkish side with its reservoir extending into Bulgarian territory. However, despite scoping studies and designing of the dam, the dam was never built and the Bulgarians, a Turkish expert mentioned, "don't want to talk" when the subject of a joint dam is brought up, even today. Literature suggests the reason for not implementing the dam is disagreements on funding and land rights (Kibaroğlu et al., 2005; Özdemir, 2015).

Due to the geographical limitations of the downstreamers as well as increasing pressure on the Turkish government from the citizens of Edirne to address the issue of repeated flooding, the Turkish have attempted to implement other structural water management measures in the Maritsa Basin. These measures include a 7800 m bypass channel on the main Maritsa River, Canal Edirne (construction was ongoing in 2018 and was to be completed in 2020) (Yıldız et al., 2019) and an experiment to reduce flood water velocity tested on the Tundhza River. The €10 million bypass channel is built to divert floodwaters from upstream of Edirne to just downstream of the city, a strategic, experimental structure to ease the pressure from the citizens of Edirne, according to three Turkish experts.

Two Greek experts mentioned Greece is unhappy with the Turkish projects since it was not consulted or informed about the projects. Furthermore, they stated that the Turkish have increased or strengthened their flood protection levees since they can purchase the expensive materials required to build and maintain FRM infrastructure. This is a violation of the 1955 agreement that states that levees on both sides of the river must have the same dimensions as set out by the Harza Masterplan. However, two Greek experts admitted to Greece strengthening and raising their own levees in response to the Turkish in order to prevent greater damage on the Greek side of the river. They added that the Greek response is more "DIY" than Turkey's due to the impact of the financial crisis and low priority of FRM in Greece. Moreover, a Turkish expert stated the same reasons for the lack of investment by Greece in capacity building and common measurement of river parameters.

3.2.1. Soft FRM

Apart from structural measures, Flood Forecast and Early Warning System (FFEWS) have been set up in the river basin (Fig. 4). There are bilateral agreements between the countries regarding information exchange for the forecast systems. ARDAFORECAST, an EU-funded early warning system between Bulgaria and Greece was set up to decrease risk in the cross-border region. A European PHARE project for flood forecasting in the cross-border region between Bulgaria and Turkey was set up in 2006 for the Maritsa and Tundzha Rivers (Phare-MRDPW, 2021). An Interreg project on joint coordination to address flood risk in the Maritsa Basin (amongst others), FloodGuard, was also set up between Bulgaria and Greece in 2019 (Interreg Greece-Bulgaria, 2021). It was noted that it had taken many years to establish the FFEWS, prior to which there was no communication with Bulgaria and said to still be sparse today "because of their cold and closed culture". An interviewed Greek expert claimed that mathematical modelling of floods and river flows stops at Bulgarian borders rather than covering the entire river basin. Furthermore, the interviewed Greek and Turkish experts stated that there were 27 known dams in Bulgaria as of 2012 (Fig. 3 shows only 15 of 27 dams operated by Bulgaria in the Maritsa Basin). However, the Transboundary Water Resources Management in South-eastern Europe and the Middle East & North Africa (2012) website and UNECE (2011) state, "The total number of reservoirs in the Bulgarian part is as high as 722″ (i.e. man-made and natural). Poor access to information on the dams and the river, required for the FFEWS and emergency response, is said to be due to the partial sharing of information by the Bulgarians, generating distrust amongst the riparians. All 24 interviewed experts in Greece and Turkey believe that the floods can only be managed upstream due to the large percentage of the basin and dams lying within Bulgarian territory.

Access to datais also a problem in Greek and Turkish territory since field data or detailed maps are controlled by the military as the river is a border (Zogaris et al., 2015; Dimitriou et al., 2012). The interviewed experts working in the basin mentioned that the "securitised" nature of the border makes it difficult and, in some cases, impossible, for them as government officials, flood managers or first responders to access the data. Two Greek experts mentioned that access to data within and between countries is easier for the DSİ (*Devlet Su İşleri*: State Hydraulic Works, Turkey) since the water management and military institutions are closely linked within Turkey, giving DSİ greater access to classified knowledge and a more esteemed position amongst the state-run institutions, as opposed to the water management institutions in Greece. Additionally, according to five Greek experts, Greece proposed joint studies on dam operation and flood protection, but Bulgaria is claimed to have rejected both proposals. The Bulgarian expert stated that bilateral cooperation with Greece was mostly academic, in the form of joint research. The authors observed that, like the studies conducted on FRM in the Maritsa Basin, the implementation of FRM was also largely technology and infrastructure-based.

3.3. Interactions in the Maritsa Basin

Riparian interactions in the Maritsa Basin are largely in the form of meetings and (some) information exchange. While steps have been taken to improve cooperation between the countries on water challenges such as the establishment of the Joint Bulgarian-Greek Working Group and the ad-hoc Joint Committee between Greece and Turkey (Kolokytha

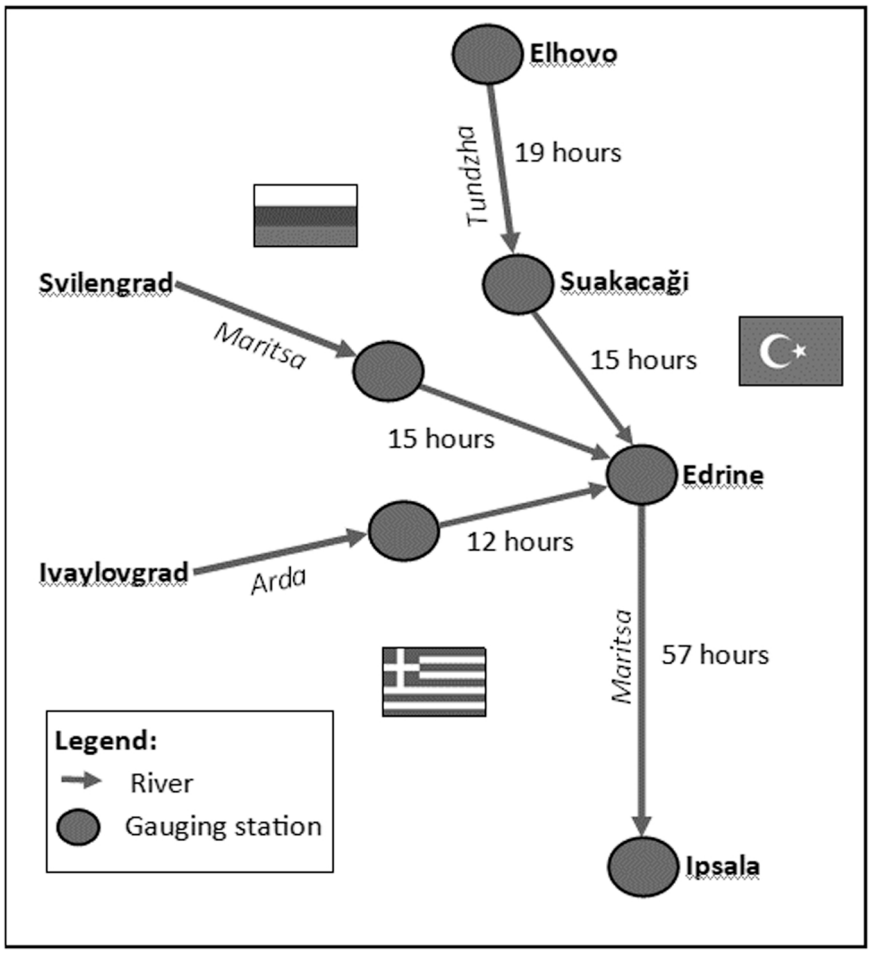

Fig. 4. Gauging stations, part of the Early Warning System in the Maritsa Basin, with the time it takes for floodwaters to travel between the gauging stations. (Adapted from Darama, 2009).

and Skoulikaris, 2019; Skoulikaris and Zafirakou, 2019), the interviewed experts based in the Evros Region and Edirne mentioned that there are no regular or follow-up meetings, but the number of meetings increases when flood events occur.

Turkey takes a proactive approach in cooperation on FRM in the Maritsa Basin considering the socio-economic and environmental damage faced by Turkey, particularly Edirne. It seeks to convince Bulgaria to "appropriately" manage its dams and proposes various flood protection and prevention measure. Turkey made two attempts at trilateral cooperation. The first in 2015; two Turkish experts mentioned that Greece and Bulgaria rejected both meetings and only Turkey and the EU Commission (in an advisory role) were present. However, two of the interviewed Greek experts claimed that they attended two 'trilateral' meetings, in Alexandroupolis and Ankara. Both Greek and Turkish experts averred that Bulgaria either did not attend meetings, bilateral or trilateral or sent one person "like a postman to Sofia" since it only wants to maintain bilateral interactions in the basin and does not want the downstream riparians to "team-up" against it. Furthermore, two Greek experts mentioned that the Bulgarians "send us fax. They don't talk", regarding early flood warnings. It was frequently claimed that Bulgaria dictates interactions in the river basin.

3.3.1. *External influences*

Interviewed experts claimed that interactions in the Maritsa Basin are also impacted by external influences. Both the FRM Plan for the Evros River Basin (Ministry of Environment and Energy, 2016) and Skias and Kallioras (2007) state that transboundary water cooperation between the riparians is governed by their relations with the EU. Several studies believe that the EU could have a positive impact on interactions and water management in the Maritsa Basin (Kibaroğlu et al., 2005; Kramer and Schellig, 2011; Maden, 2010) with Greek and Turkish experts agreeing since they believe that EU membership supports the increase in cooperation between the countries on a political level and due to a common funding source. Cooperation between Greece and Bulgaria is easier since they are members of the EU with Turkey, at least officially, still a candidate state; Turkey (attempts to) incorporate the EU water directives and exchanges discharge information with Greece (Demirbilek et al., 2020; Eleftheriadou et al., 2015). All three countries follow the EU Water Framework Directive (WFD) and Floods Directive (FD) and develop River Basin Management Plans (RBMP) which have a strong influence on domestic water policy and administration (Mylopoulos and Kolokytha, 2008).

While EU regulations have improved and streamlined water management within and, partly, between the three countries allowing for easier cooperation, it was noted that there are issues with their implementation, particularly in the case of transboundary waters. Interviewed experts mentioned that the EU regulations do not force Member States to cooperate, it "advises" them to do so. This toothlessness was stated as a reason for Bulgaria's "lack of cooperation" or "cooperation only on paper". It was frequently stated that the Bulgarians do not follow the "no significant-harm" principle. These issues are explored in Yannopoulos and Elefteriadou (2010). Five of the interviewed experts believe the EU is not doing enough and should convince the countries to align their national interests with the FRM requirements in the Maritsa Basin.

3.4. Historic and concurrent geopolitics

Past and present geopolitics in the Maritsa Basin has been tumultuous and largely played out between Greece and Turkey. All the interviewed Greek experts and two Turkish experts mentioned that historical and current affairs, directly or indirectly, influence interactions within the Maritsa Basin. This is further expanded on in Supplement 4.

4. Discussion

This section discusses the information from Section 3: Results, which is based on data gathered from interviews and field visits (Section 2: Materials and methods). Data based on document analysis and literature reviews are cited. The section begins with an analysis of the relative power position and the strategic use of power by each riparian country in the Maritsa Basin. This is followed by a discussion on the dynamics within the Maritsa Basin in order to understand the impact of power and its strategic use. The last sub-section focuses on the three forms of scale framing found during the research and the impact of power at different levels.

4.1. Strategic use of power

4.1.1. Bulgaria: the supposed hydro-hegemon

Bulgaria is the upper riparian in the Maritsa Basin, with the largest section of the catchment area lying within its territory (Fig. 2). Bulgaria's control over the water resources is further enhanced by the topographical, geological and climatic characteristics of the river basin - mountains in the upper course, within Bulgarian territory, and plains in the lower course of the river, largely on Greek and Turkish territory. This allows for dam and reservoir construction as flood control measures only upstream, within Bulgarian territory (Fig. 2), while the plains downstream do not allow for dam-building activities to hedge against upstream action. For soft FRM, information on river discharge; dam numbers, functions and management policy; slope, and cross-sectional area of the river is needed for modelling activities and FFEWS. Since a large section of the basin lies within Bulgarian territory, its role in soft flood protection vital as well.

Bulgaria's geographical advantages reinforces and increases its power and influence in the Maritsa Basin as the significance of its participation in water management in the basin has been established as a strong narrative. All the interviewed Greek and Turkish experts believe that effective FRM cannot be conducted without the participation of Bulgaria due to its role as the upstream riparian and its significant geographical power. In the eyes of all the interviewed Greek and Turkish experts, this significant geographical power allows Bulgaria to dictate the type and subject of interactions in the Maritsa Basin. From only bilateral interactions to refusal to cooperate on joint dam-building projects (such as the Suakacağı Dam), Bulgaria can control interactions in the river basin by setting the agenda on the subjects it is willing to discuss since Bulgaria's participation is seen to be necessary: "If Bulgaria doesn't want, we cannot do anything". Eleven interviewed experts from Greece and Turkey, from various levels, claimed that Bulgaria dictating and controlling interactions in the Maritsa Basin is due to its fear that, if there are trilateral interactions, the downstreamers will band together, changing the power dynamics and playing field in the Maritsa Basin.

Bulgaria's rules and approach are criticised but not contested. This stems from not just its powerful geographical position in the Maritsa Basin but also its ability to legitimise and normalise certain ideas in the basin using strategic tools. Control of type of interactions in the basin cannot be contended if they do not attend meetings or a "postman" is sent: Bulgaria's strategic use of presence/absence at meetings. Silence or sparse communication, non-action and preventing certain issues from making it onto the agenda have enabled Bulgaria to control the topic of cooperation with Turkey, avoiding and later delaying the construction of the joint Suakacağı Dam. These strategies have also allowed Bulgaria to release water from its dams when needed, without contention, since they just send fax. These strategies have been particularly useful in the face of Turkey's material power and have normalised the narrative that Bulgaria controls the interactions in the Maritsa Basin, seen from the claims of two Greek experts stating that the Bulgarian's "closed and cold culture" does not allow them to contend.

4.1.2. Turkey: mighty yet flood-prone

Almost all the material power in the Maritsa Basin lies with Turkey and it is the most significant dimension of power for Turkey. Turkey has the strongest economy in the Maritsa Basin, particularly in light of Greece's economic crisis, while FRM is prioritised higher in Turkey than the other riparian countries due to the economic losses the country faces in this region. Due to this prioritisation, FRM-related technological prowess and investment are Turkey's focus areas in the basin. Kramer and Schellig (2011) noted that Turkey's approach to FRM is technocratic rather than managerial, displayed by the experimental drag reduction procedure and €10 million Canal Edirne, making it one of its most visible indicators of material power. Moreover, both Turkish and Greek experts interviewed claimed that Turkey's FRM infrastructure on the Maritsa River is better than Greece's due to their ability to buy the right materials and maintain infrastructure.

Apart from economic factors, DSİ's influence in the country supports prioritisation, investment and prowess in technological FRM. The close link between DSİ and the Turkish military increases the ability of the DSİ to implement flood control measures and allows DSİ to access classified data and maps, an aspect of soft power that feeds Turkey's material power. Network and geopolitical significance also feed Turkey's material power. Turkey's role as the bridge between the East and West, both culturally and for energy, give it more control, power, and significance, thereby, feeding its ambitions to become a "strong country". It also helps Turkey build relations with other powerful states, helping it increase its network, and therefore, influence and power.

This influence and power are further fed by Turkey's military superiority. Turkey is ranked as one of the strongest military powers in the world, 9th out of 136 countries, as opposed to Greece (28th) and Bulgaria (60th) (Global Firepower, 2019). With military service for men compulsory in both countries (and in Bulgaria until 2007), Turkey's population of 80 million, as opposed to Greece's 10 million and Bulgaria's 7 million provides Turkey with a far larger army (Cheresheva, 2016; Trading Economics, 2018). The human resource of the country adds to its material power through its military and economy. As the regional "big brother", Turkey is also attributed a degree of ideational power. However, Turkey apparently has not utilised this position to influence interactions in the Maritsa Basin.

Instead, Turkey takes a leaf out of the EU's book using harmonising and cooperative strategies as a bargaining chip. Turkey often stresses the "no significant harm" principle and the requirement of an RBMP due to the co-riparians being EU members or candidate states to convince Greece and Bulgaria to participate in trilateral interactions (Yakış, 2012). According to the Bulgarian expert, however, the "no significant harm" card has been partially rebuked by Bulgaria, by meeting its neighbours' fears regarding dam management in the country. It has conducted studies to prove that the infrastructure, "as far as it permits", is used to protect all the riparians from flood damage. However, since Greece and Turkey seem to doubt this, it can and is still used, but with a lower impact.

4.1.3. Greece: physically weaker but positionally strong

Greece's downstream position along with its financial difficulties and low levels of significance in the international arena makes Greece appear weak with almost no power directly in the water realm. However, as the gatekeeper for Europe, it has some bargaining power, particularly due to the refugee crisis. Greece is seen to have bigger

challenges, with the refugee and financial crisis, than to address floods in a relatively low populated area filled with agriculture, and thus requiring support. This decreases its bargaining power. Yet, Greece employs its bargaining power in an attempt to influence non-water interactions in the basin. It emphasises the securitised nature of water management in the Maritsa Basin in order to maintain its distance from Turkey. Greece uses the river's role as the border to justify its lack of cooperation on cleaning the river of debris islands, said to be a war strategy. Additionally, interviewees claim the lack of cooperation ensures that the risk of capture by the Turks is lower. The (over)emphasis on the conflictual history between the two countries and Turkey's superior material power further highlights the significance of border security for the Greeks.

4.1.4. Dynamics in the Maritsa Basin

The power dynamics in the Maritsa Basin point towards Bulgaria being the supposed hydro-hegemon with high levels of geographical power, bargaining and ideational power (Fig. 5). Bulgaria's dimensions of power feed and reinforce one another, making it difficult to disturb the power status quo. This is due to the strategic employment of power, particularly how the downstreamers view Bulgaria and the absence of counter-hegemonic blocs. Thus, unless the downstream countries band together, they lack sufficient power to disturb the current balance of powers. However, this seems unlikely at the moment due to the history, priorities and possible lack of urgency/drive for Greece and Turkey to work together in the Maritsa Basin.

The downstream countries seem to have similar yet distinct causes to their interactions within the basin. It appears that Turkey has a large amount of power, mostly material and some bargaining power, said to be more influential than geographical and ideational power (Cascão and Zeitoun, 2010) (Fig. 5). However, it is either (1) unwilling to use it in this basin, due to other priorities or because it assumes that it cannot achieve much in the basin due to its view on Bulgaria's role and power position; or (2) it does not seem to have the "right" (strategy to use) power to influence interactions in the Maritsa Basin.

In the case of Greece, it may not have enough at stake to employ all its power or it does not have enough countervailing power in the Maritsa Basin. Additionally, the fraught history and concurrent geopolitics between Greece and Turkey make it difficult for them to form a long-term alliance to address FRM in the Maritsa Basin.

4.2. Reflection on the hydro-hegemony framework

The Maritsa Basin case underlines that upstream countries can be hegemons largely due to their geographical power and its strategic use as in the case of Bulgaria, with little incentive to take downstream interests into account (Lowi, 1995), unlike downstreamers who lack that luxury (Williams 2011). The strategic use of geographical and ideational power appears to be more powerful than material and bargaining power in the Maritsa Basin. This contradicts Cascão and Zeitoun's (2010) finding, based on the insight of mid-level water managers, that material and bargaining power count for more than geographical or ideational

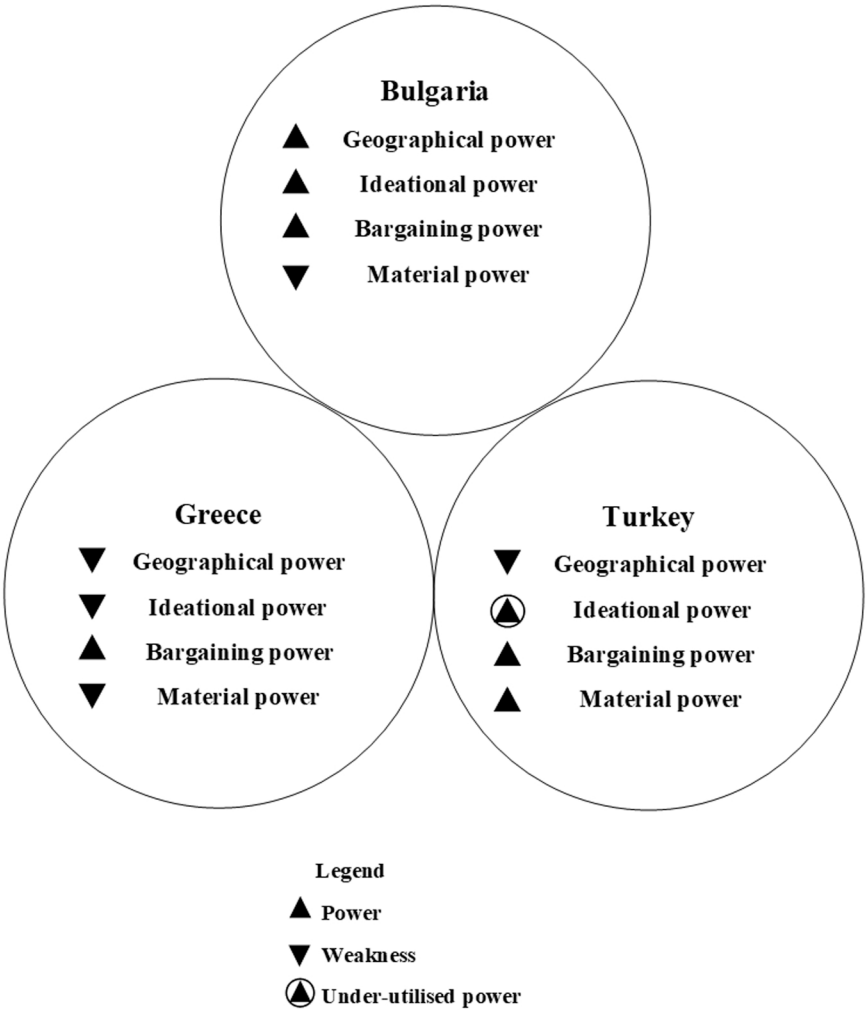

Fig. 5. Dimensions of power and weaknesses of each riparian country.

power.

Research on the hydro-hegemony framework has so far quantified the use of actions as ways to strategically employ ideational power. These include knowledge structures, impositions of narratives, and sanctioned discourses. However, Bulgaria's "non-action" (Vij et al., 2020) has had a bigger impact on controlling and shaping perceptions, ideas and narratives in the Maritsa Basin and increased its levels of ideational power than action. These non-actions include silence and absence (or limited presence) at meetings. Unlike most arid regions where water capture is an issue, it is hegemonic non-action that may result in a damaging 'let it flood' outcome for downstreamers.

4.3. Scale framing

While the hydro-hegemony conceptual framework provides an understanding of power at the river basin scale, an unexpected finding of this study is the role of power at other scales. Three examples - the causes of floods, the link between water and non-water issues, and the role of external influences - show the difference in the perspectives between the administrative centre and the river basin. A difference in perspectives based on the location of experts was found. The location of experts, i.e., where the office of the interviewee is based, often relates to their position in organisations and the (material,ideational and bargaining) power that comes with it. This allows them to influence basin-level interactions to a greater or lesser extent. Scale framing is a powerful method of shaping policy issues and governance processes concerning aspects such as responsibilities, inclusion/exclusion of actors and ideas (Van Lieshout et al., 2014). However, this location also distances them from (or brings them closer to) the reality on the ground and provides a different (over)view of the situation in the basin and country.

4.3.1. Causes of the floods in the Maritsa Basin

The main driver of this research, turned out to be subject to scale framing. The interviewed experts in Athens, Istanbul and Ankara as well as the academicians in the Evros region, i.e., the central-level experts, believed that the main cause of the floods is Bulgaria's dam management and operation due to its economic development focus. This is also the dominant perspective in both scientific literature and the news. While the interviewed officials in the Evros region and Edirne, i.e., the "regional" experts, agreed on the economic development focus of Bulgaria, they believe land-use change and climate change cause the recent increase in flood events.

4.3.2. Link between water and non-water issues in Greek-Turkish relations

Interviewed experts based in Ankara and Istanbul believed that there was no link since geopolitics do not impact FRM, particularly in the Maritsa Basin, due to its lower geopolitical significance. However, the Athens-based experts viewed water and non-water issues as linked but addressed independently, dictating the relations between the two countries. Since Turkey faces the same issues as Greece in FRM, it binds them together but the conflictual historic and concurrent relationship between the two countries prevents cooperation from going beyond basic information exchange. The academicians interviewed in the Maritsa Basin agreed with the experts in Athens. On the other hand, the interviewed basin-level experts, on both sides of the river, claimed that border security along with geopolitics played a determining role in water management in the river basin and thus water and non-water issues need to be addressed as one issue. However, since water and non-water issues are addressed separately, it impacts the regional experts' everyday work: lack of access to information around the border; inability to make changes to the riverbed/border and to approach within a certain distance of the border, encumbering rescue missions.

4.3.3. Role (or lack) of external influences (EU)

The centralised perspective in Greece and the regional perspective in Turkey aligned in this case, with the experts expressing happiness with the support they received from the EU. Turkish regional experts believed that Turkey should make more of an effort to improve its relations with the EU by abiding by EU regulations and incorporating them into national law. They felt that strong relations with the EU could improve socio-economic development, human rights, and the democratic situation in Turkey. The experts in the basin believed the river's role as a border automatically led to external influences playing a role in the basin. However, the Turkish central perspective disagreed stating that external influence did not impact interactions in the Maritsa Basin. They stated that the EU should focus on resolving issues in their territory (Maritsa Basin) as opposed to intervening in other affairs (Tigris and Euphrates Basin). Additionally, the Greek regional perspective and Turkish centralised perspective believed that the EU was not doing enough to promote trilateral cooperation in the river basin.

Interviewed officials in the Evros region believe that the reason for the difference in views between the officials in the Evros region and Athens is because "Athens is the head and the Evros region is the tail. No one cares about the tail and everyone lives in the head. Here there are only sheep". Athens was viewed as being very far away from the issue and therefore, the officials based there did not understand the reality of living and managing floods in a border zone. The different perspectives of academicians and officials in the Evros region were also explained using a similar narrative: the academicians are too far from the reality of on-the-ground management. They do not deal with the emergency response to floods or saving refugees from the river/floods.

Koukis et al. (2016) discuss how "disaster diplomacy" briefly caught the imagination after both countries sustained heavy earthquakes in 1999. They note the lack of enduring disaster-related cooperation between Greece and Turkey as well as the lack of links with other forms of cooperation and diplomacy. The above three examples shed light on a similar issue in the case of FRM in the Maritsa Basin. Particularly in the case of floods, the politics of nationalism are chosen over local, long-term or multilateral disaster risk reduction in the Maritsa Basin (Koukis et al., 2016). Thus, scalar framing has brought to the forefront the biases in diplomacy seen in the Maritsa Basin, particularly in disaster and water diplomacy.

In the migration domain, Greece willy-nilly has become a gatekeeper for the Great Power it is part of, the EU. Expectations of the EU in facilitating a solution for the Meric are considerable, but for the EU, only an explicit link with the migration crisis would likely set wheels in motion. Likewise, the regions most concerned with the river are the backwoods of the sovereign states they are part of and could only move the issue up the agenda by linking it to a national security issue. Deploying such linkage politics as "bargaining power" tactics (Conker and Hussein, 2020) will require considerable skill and could boomerang as the linked issue come to dominate the scene. The issue of scale opens an avenue to another possible extension to the framework of hydro-hegemony. The hegemony of the Westphalian state system. A view from the critical (neo-Gramscian) tradition would claim the current state system itself normalises exploitative relations (of people and nature) at the level of global hegemony and can be counteracted by solidarisation across borders. This could mean New Social Movements, but substate actors such as regions can and do act through para-diplomacy solidarising with like-minded regions across borders where states are felt not to represent the interests of communities (Häntsche, 2020); notably regions with aspirations for statehood such as Catalonia. The 'tails' on the Maritsa could reach across sovereign borders to mobilise financial and political resources to improve their position vis-a-vis their 'heads'. There are however currently no signs in that direction.

5. Conclusion

Research conducted on transboundary FRM in the Maritsa Basin has mostly been technocratic and neo-institutional with a focus on technology as a solution (Supplement 1). Furthermore, despite the research

and efforts to mitigate the floods, flooding in the river basin has increased over the past decade with serious socio-economic impacts. Thus, this research has looked at transboundary flooding and its management as an issue of international relations using a power lens conceptualised as hydro-hegemony.

This study has found that the strategic use of power seems to be just as important, or maybe even more important than the amount and dimensions of (structural) power in establishing hegemony. Contradicting Cascão and Zeitoun's (2010) finding that material and bargaining power count for more than geographic and ideational power in transboundary power relations, Bulgaria is the supposed Maritsa hydro-hegemon due to its geographical advantage. This domination of geographical power in the basin may be due to Bulgaria's strategic use of it or, in the case of floods, its upstream location in mountainous regions is more advantageous than downstream, in flat plains. Bulgaria's geographical power quietly fuels its soft power, i.e. the (intentional or unintentional) strategic use of its ideational power that allows it to control interactions in the river basin through minimal presence or absence, sparse communication or silence. Downstreamers accept this, if grudgingly. While the strategic use of ideational power is often quantified as the use of actions, interactions in the Maritsa Basin have brought to light that silence and lack of action can control perceptions too. Silence, non-engagement, is a luxury only beholden to those who can afford it; all silences are directed at somebody or something (Booth, 2007) and can be a form of oppression (Bindeman, 2017). Such strategies amplify the importance of Bulgaria's geographical power and normalise its (control of) interactions in the basin. Additionally, Bulgaria's role as the de-facto hydro-hegemon and the importance of geographical power may be further amplified due to the low levels, or use, of power by Turkey, Greece and the EU.

While the hydro-hegemony conceptual framework brought out the role of power tactics and relations at the basin level, power plays an important role in addressing transboundary FRM at other scales. A difference in perspectives, priorities and realities was found between the regional experts working within the Maritsa Basin (Evros Region and Edirne) and those outside it (Athens, Istanbul and Ankara). Three cases of scale framing shine a light on the importance of position and location in transboundary FRM: those affected by the floods and the challenges of transboundary FRM in the Maritsa Basin do not have the power to bring the issue to the table, while the actors with the power to prioritise issues are far removed from it.

The inherently political character of transboundary water interactions and the influence of the broader socio-political context on it highlights the importance of power in water diplomacy. The dimensions of power influence and shape transboundary interactions. These interactions create or reinforce asymmetric power dynamics, not just between the Maritsa's riparians but also at a lower level, between the local, regional and national level. Multi-level hegemony in the Maritsa Basin contributes to the challenges of transboundary FRM and the continued flooding in the region. Since the power and challenges are far apart, priorities of actors in power or challenges that hit closer to the homes of the powerful are put on the agenda leading to the choice of politics of nationalism over local/long-term/multilateral FRM. This distance also leads to the lack of links between different aspects of disaster and water diplomacy and cooperation. In order to address the continued issue of flooding and transboundary FRM in the Maritsa Basin, the various levels in the region, river basin and riparian countries will need to be brought closer together, balancing or at the least decreasing the ongoing asymmetric power dynamics.

Author statement

Anusha Sanjeev Mehta conducted the field research, analysis and wrote the publication. Jeroen F Warner contributed the conceptual framework, advised Anusha on conducting and writing the research, reorganised and edited the manuscript.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.envsci.2021.12.014.

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