

Domestic institutions and international collective action problems: International water rights conflicts

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ABSTRACT

To what extent do domestic institutions affect the solution of collective action problems in international waters? Dwindling water resources and dire climate change projections make the determination of water rights in international rivers a major source of contention among states. If the states cooperate based on integrated water resource management principles, they could achieve social equity, economic efficiency, and sustainability. Yet, many international rivers remain subject to unilateral exploitation. This paper explores the role of domestic institutions in facilitating the emergence of international water rights. Adopting a political economy approach, it presents a case study analysis of the dispute over the Euphrates and explores the complex interaction of governing institutions in achieving efficient water management. I argue that the solution to the collective action dilemma in water rights is the creation of property rights institutions, which requires high levels of trust and reciprocity among highly motivated actors, who are accountable to their people.

Key words: Collective action problems, Domestic institutions, International cooperation, International water rights, The Euphrates

HIGHLIGHTS

- The nature of domestic institutions has an important role in the solutions of international collective action problems, especially the emergence of international water rights.
- We need to rethink the relationship between the regime type and public good provision.
- The democratic nature of domestic institutions matters in the emergence of international water rights and resilient societies.

INTRODUCTION

To what extent do domestic institutions affect the solution of collective action problems in international waters? In the face of dwindling water resources, frequent droughts, and dire climate change projections, the determination of water rights in international rivers has become a major source of contention among watercourse states. In this paper, I focus on the complicated nature of the international collective action problems in governing international waters which are subject to unilateral exploitation by the states. As early as the 17th century, writing during the English Civil War (1648–51), Thomas Hobbes argued that a Leviathan, a state with the authority to restrict individuals' unrestricted pursuit of self-interest, was needed for there to be social order (Hobbes, [1691] 1972). Though Hobbes captured the primal need for a central authority, it was Jean Jacques Rousseau who

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gave a more accurate presentation of collective action problems in his story of a group of stag hunters (Rousseau, 1984). If the hunters coordinate their actions and cooperate they could catch a stag, which could feed all of them and more. If one of them defects and goes after a hare, he will only feed himself and the rest will go hungry. The defector will receive a higher payoff regardless of what the others do, but all the hunters will be better off if they cooperate. In international watercourses, if the watercourse states coordinate their actions and cooperate based on the principles of integrated water resource management, which treats the basin as a whole and aims to coordinate the development and management of water, land, and other resources, they could achieve social equity, economic efficiency, and ecological sustainability. If they pursue unilateral exploitation of the resources in their portion of the watercourse, the upper watercourse states will have a higher payoff especially if most of the water originates within its borders, but the watercourse would be better off if they cooperate. Pulling off such collective action presents one of our time's most challenging bargaining problems.

A political economy approach offers two analytical steps to understand the problem: the first focuses on *the specification of state interests*. The examination of the formation of states' interests presents clues to the varying intensity of incentives among watercourse states to settle water rights. This intensity, in turn, is determined in large part by how the domestic stakeholders are organized and the size of their stakes in the status quo. For example, if powerfully concentrated and organized interests within the watercourse state benefit from the current status quo, i.e., the continuation of a lack of clearly defined water rights, reaching an international agreement would be more difficult. Diffuse and unorganized interests, on the other hand, would have the opposite impact due to collective action problems. Since societal interests are mediated through states' governing institutions, their nature has an impact on the formation and intensity of the watercourse states' interests. Institutions are defined broadly as a set of formal or informal rules that govern relations among states (North, 1981; Eggertsson, 1990; Ostrom, 1990). The more inclusive the governing institutions, the more incentives for the government to undertake infrastructure projects and provide public goods, such as access to safe drinking water and developing efficient irrigation networks serving the needs of unorganized diffuse interests like farmers. This also indirectly lessens the conflict over water rights, since these societies are more capable of finding solutions to challenges like long droughts, climate change, and so on. In these institutional settings, governments are also more likely to consider local conditions and incorporate users into the decision-making process, and by doing so adopt more appropriate bottom-up approaches to problems. The more exclusive the governing institutions, on the other hand, the lower the incentives are to provide public goods, the greater the likelihood of top-down approaches to water problems with no regard to the local context, and the more likely those in power are to blame external forces for the problems and plights of citizens.

The second step following the specification of watercourse states' interests is *the specification of the strategic setting* in which the bargaining takes place. The nature of the parameters of watercourse states' choices is crucial for understanding international water rights conflicts. Concerns over state capabilities likely become increasingly disabling in the face of a continuously shifting context, especially if most watercourse states do not have institutions, formal and informal, that facilitate the credibility of their commitments and the solution of collective action problems. The volatility of the context of inter-state bargaining adversely affects the outcomes by contributing to uncertainty. In general, two immediate types of uncertainty could imperil watercourse states to reach an agreement: (1) uncertainty about each other's preferences, goals, and capabilities and (2) the causal relationship between the policies adopted and the desired outcomes. Uncertainty is one of the reasons behind the conflicting expectations of watercourse states.

The nature of domestic institutions has far-reaching important implications for the specification of the state interests and the strategic setting. It forces us to rethink the relationship between the regime type and the provision of public goods and common goods. The prevalent formal and informal institutions largely determine

the capacity of societies to deal with conflict and negative shocks emanating from not only economic and financial crises but also environmental crises. The solution to collective action problems in the provision of goods benefiting unorganized and diffuse interests of large majorities often requires inclusive institutions. The congruence between inclusive institutions and the democratic regime type suggests that democratic norms, culture, perceptions, and practices allow compromise and the peaceful resolution of conflicts. Democratic liberalism sustains the belief in the value of freedom, democratic ideals, and freedom from foreign intervention, while also creating high trust in society, which is better overall for solving collective action problems. Democracies have a higher chance of reaching peaceful resolutions in domestic and international conflicts. There is also less opportunity for outside actors to exploit domestic dissidents for their interests.

The solutions to the collective action dilemmas in international resources in essence are about the provision of international public goods. It involves creating institutions, namely rules and regulations delineating rights, duties, and liabilities. High levels of trust and reciprocity and a strong community among the actors are essential in solving international collective action problems. In this paper, I explore the role of domestic political institutions in facilitating the emergence of such a community and the solution of collective action problems in international watercourses. I argue that international water rights do not emerge in a vacuum and watercourse states' domestic institutions play an important role in achieving Pareto efficient water resource management. In the following sections, I shall first discuss the problem of international water rights conflicts and then present the theoretical case for the importance of domestic institutions followed by the case study evidence of the Euphrates conflict and conclusions.

THE CONFLICT OVER INTERNATIONAL WATER RIGHTS

What is an international watercourse? The 1977 Law of Non-Navigational Uses of International Watercourses defines international rivers, or 'international watercourses,' in article 2, as follows:

An international watercourse is a watercourse parts of which is situated in different states, and 'watercourse' here means a system of surface waters and ground waters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus.

This definition relies on a single criterion, a watercourse is an international watercourse if it has parts in different states. The next step is to determine the type of goods international waters are since they can be classified as private goods, public goods, and common pool resources. The main distinguishing characteristics of public goods are non-excludability and non-rivalry in consumption. International waters do not have these characteristics. However, water is often provided by the state free of charge or with a minimum charge to the public. The tradition of treating water as a public good presents challenges. Common pool resources, on the other hand, are defined as 'natural or man-made resource systems that are large enough to make the exclusion of potential users from obtaining benefits from its use prohibitively costly, and the benefits obtained from its consumption by one individual user are sub-tractable from those available to other potential users' (Ostrom, 1990, p. 51). Since benefits are not excludable and someone's consumption is another's loss in common pool resource situations, the overexploitation of resources to the extent of a resource's devastation becomes likely. International watercourses have some of these characteristics. For instance, it is difficult for a watercourse state to legitimately deny the benefits that are obtained from the development of water resources regardless of other watercourse states' contribution to projects like dams that prevent flooding by regulating the flow. This is a classic example of positive externalities or spillovers. Alternatively, pollution affects all watercourse states, but not equally. Lower watercourse states often bear the costs of pollution disproportionately. Upper watercourse states may choose actions with negative spillover

effects imposing costs on other users while benefiting from the resource. The rivalry in the consumption of international waters is also more intense in the arid and semi-arid regions. Due to sequential access, appropriation, and usage, international watercourses have a close resemblance to private goods. International watercourses are impure common pool resources with strong private good characteristics (Yetim, 2016, p.22).

Property rights, in general, refer to the authority of individuals over goods to choose any use from an un-prohibited class of uses. If one is to define freedom as the ability to do anything one wants without causing harm to others, then it also establishes liability in case of a breach of rights. In the 19th century, Marx was the first scholar to develop a theory of property rights based on scarcity. The political philosophers of the 17th and 18th centuries, Hobbes, Locke, Hume, and Rousseau, also addressed the origins of property rights. Hobbes' analysis rests on the idea that property rights do not exist in the absence of a sovereign power that can enforce them. At first glance, this implies grim prospects for international water rights. In the Hobbesian state of nature, which is a war of every man against every other man, individuals use all the available resources to ensure their survival. The social contract theories developed by Hobbes, Locke, and Rousseau suggest that individuals who live in a state of nature, whether it is riddled with violence or happy in peace, have solved the initial collective action problem and have made contingent commitments to create a commonwealth – a state – in the process. Much later, Ostrom also argued that individuals are capable of making a contingent commitment: 'I will commit myself to follow the set of rules we have devised in all instances except dire emergencies if the rest of those affected make a similar commitment and act accordingly' (Ostrom, 1990, pp. 99–100). Thus, similar to individuals who live in a state of nature, watercourse states could enter into a contract with each other by surrendering some of their rights to protect their long-term benefits and ensure the sustainability of common pool resources.

Water scarcity has been the primary driving force behind the attempts to develop an international legal framework, bilateral and multilateral, on international water rights. An actual or projected scarcity of water forces states to clarify water rights in shared resources, but it does not necessarily lead to the emergence of formal water rights. Currently, all Middle Eastern and African international water resources are subject to unilateral exploitation in a competitive fashion with no common property regime.

In the absence of an external authority above states, states will agree on property rights institutions only when they have a mechanism to enforce such agreements. This might be achieved in different ways: by the creation of an external authority, such as a supra-national institution with the authority to govern all the water resources; by agreeing to abide by the authority of the International Court of Justice or a similar third party institution to adjudicate the conflicts arising from the implementation of the agreement; or by a self-regulation mechanism that ensures the enforcement of property rights. One primary task then for resolving international watercourse issues is to design a suitable property regime, specifically to delineate the rights and duties of each watercourse state concerning consumptive and non-consumptive uses of the water and its maintenance and sustainability. The property regime could be a combination of different ownership categories since there is no such thing as absolute/allodial ownership (Coase 1960). We can describe it as a common property regime (Dahlman, 1980; Bromley, 1991; Cole, 2002). In international watercourses, the choice is often between a less desirable but relatively easier-to-achieve private property regime and a more desirable common property regime.

One of the earliest accounts of the problem of collective action within the context of the subversive incentive structure of common resources dates to the 4th century BC. In *Politics*, Aristotle observed that what is common to the greatest number has the least care bestowed upon it (Aristotle, 1988). Few are surprised when we read about the current overfishing or overexploitation of groundwater aquifers for example. Often, the incentives created by an open-access or non-property regime are to blame and the suggested solutions range from regulation by governments to privatization and include voluntary self-government by the users. The unilateral exploitation of international watercourses regardless of their long-term sustainability has caused a tragedy of commons in

many of the shared water resources in water-scarce regions. The lack of coordination among the watercourse states causes undue stress on the limited water resources and endangers the natural resource's long-term existence.

Understanding the process through which states determine water rights also requires taking into consideration the natural distinction between surface and groundwater resources. The International Law Commission's definition of international watercourses includes groundwater resources due to the complex nature of water systems in any given watercourse. Indeed, underground aquifers are often linked to surface waters and excessive water withdrawal from aquifers will likely influence surface waters. The fact that watercourse states face different degrees of threats and have different priorities due to the differences in the natural characteristics of ground and surface water resources also plays a crucial role and therefore must be accounted for in determining the likelihood of emergence/non-emergence of water rights in any given water conflict. The most important distinction between surface and groundwater resources lies in their differing degrees of vulnerability to the tragedy of commons.

The tragedy of commons is more detrimental to international groundwater resources than international rivers because groundwater resources carry more of the characteristics of common pool resources than international rivers (Yetim, 2002, p. 307). The unilateral exploitation of underground water resources beyond their replenishment rate is likely to result in a tragedy for all. Regardless of their geographic position in the basin, all users will suffer from the decrease and contamination of the resource; none of the users will be able to enjoy the benefits of the resource any longer. Thus, this joint/simultaneous use scenario of groundwater aquifers suggests different implications for the possibility of cooperation and the emergence of water rights. This symmetrical distribution of detrimental effects can be a blessing since it might be instrumental in bringing basin states together to avoid a tragedy for all.

On the other hand, 'a tragedy for all' is not precisely the situation in international rivers as they flow through different national territories sequentially. In this sequential use scenario, the nature of the relationship among users is determined by one's geographic position as an upper, middle, or lower watercourse state. The asymmetrical distribution of the detrimental effects as well as upper watercourse states' capabilities to decrease the quantity and quality of water available for downstream use without being subject to the harmful effects of its own and downstream states' water projects separate international rivers from other common pool resources. This lack of a full-fledged tragedy of common situation in which all users suffer from unconstrained unilateral actions and subsequent deterioration of a resource requires the inclusion of different considerations in the analyses of international water conflicts, and it also drastically alters the conditions for cooperation in sharing and managing international rivers.

INSTITUTIONS AND INTERNATIONAL COLLECTIVE ACTIONS PROBLEMS: THEORETICAL FOUNDATIONS

At the end of the 5th century BC, when Thucydides presented an account of the Peloponnesian War between the democratic Athenians and oligarchic Spartans, for the first time on record, the differences in national character and institutions came to the fore (Strassler, 1996, pp. 38–41). Differences in the forms of government, ideology, and institutional capacity have attracted considerable scholarly attention in the centuries since and are suggested as sources of conflict among states (Putnam, 1988, 1993). Over the last decade, several important studies underlined the importance of domestic institutions in dealing with negative shocks, such as economic crises, droughts, natural disasters, climate change, and frequent and extended droughts. Institutions have become the central foci of the scholarship on long-term economic development and by extension on sustainable development and

environmental protection (North *et al.*, 2009, 2013; Acemoglu & Robinson, 2013). Here, I present the theoretical evidence on the importance of domestic institutions.

One of the most creative explanations of how incentive structures are created by domestic institutional settings is provided by Bueno de Mesquita *et al.*'s selectorate theory. The key is the ratio of the size of the winning coalition (the minimal set of individuals in the selectorate whose support an incumbent requires to remain in office) relative to the size of the selectorate (the part of the population that is eligible to vote) for understanding government policies. This ratio is high in democracies forcing leaders to win the support of a majority of the population to remain in office, while it is small for authoritarian regimes where the authoritarian rulers can retain office by keeping the support of a very small number of individuals. *Ceteris paribus*, democratic leaders are incentivized to provide more public goods and to adopt policies beneficial to most citizens to remain in office (Bueno de Mesquita *et al.*, 2003; Bueno de Mesquita & Smith, 2011).

In a landmark 2009 study, North, Wallis, and Weingast also concluded that the difference between the economic performances of limited-access and open-access societies reflects the differential ability of the two social orders to deal with change, including a wide range of sudden changes or shocks. In the limited-access orders, personal relationships among the elite form the basis for political organization. A dominant coalition rules these societies and people outside the coalition have limited access to organizations, privileges, rents, and valuable resources and activities, indicating the exclusionary nature of economic and political institutions. Open-access orders emerged in the 19th century and are associated with the development of impersonal relationships and the lack of restrictions on the ability to form organizations by meeting a set of minimal and impersonal criteria. The expansion of suffrage, the use of elections to select governments, constitutional arrangements to limit and define the powers of government, and unbiased application of the rule of law represent the transition from limited- to open-access societies. These two social orders have varied performances in economic and political development. Modern developed societies have become wealthier than any other in human history by reducing their episodes of negative growth through their transition to open-access order institutions.

Acemoglu and Robinson have also presented a compelling case for how the nature of institutions weighs on the success of societies (Acemoglu & Robinson, 2013). They argue that political institutions that concentrate power in the hands of a few without constraints, checks, and balances, or rule of law on the one hand, and economic institutions that lack law and order have insecure property rights, and present entry barriers and regulations, on the other hand, can simultaneously create an incentive structure inimical to development. The opposite holds for societies that have political institutions that allow broad-based participation and pluralism that have a rule of law and constraints and checks on politicians, and that have economic institutions that ensure secure property rights, uphold contracts, offer state support in the form of public services and regulation for markets, and provide access to education and opportunity for the great majority of citizens. These inclusive economic and political institutions facilitate economic growth by encouraging investment, innovation, and the better allocation of resources in competitive markets with low barriers to entry and broad-based participation.

Overall, the most important implication of these studies suggests that institutional make-up has a strong correlation with the ability of societies to deal with both endogenous problems, such as rapid population growth and urbanization, and exogenous challenges, such as those induced by the international economic system, climate change, and so on. The more inclusive the governing institutions, the higher the state's capacity is to handle distributional and other types of conflicts without the outbreak of violence. Since no man is an island, conflict is an inevitable feature of societies; this makes the nature of domestic institutions crucial for peace and stability.

More directly on the relations between natural resources and conflict, Kahl identified the nature of institutions as one of the two key intervening variables, the other being the existence and the degree of societal cleavages or groupness (Kahl, 2006). Institutional inclusivity and groupness have bearing on whether demographic and

environmental stress (DES) will push a state toward failure or exploitation, the two causal pathways to conflict. Here, *institutional inclusivity* refers to the degree to which key social groups are institutionally empowered to participate in, and influence, decision-making by state elites. Institutional inclusivity reduces the probability of conflict. Groupness refers to the degree to which clusters of individuals depend on distinct identity groups (ethnocultural, kin-, tribe-, religious-, or class-based) for physical and economic security, as opposed to several overlapping and cross-cutting identity groups. DES is a composite variable of rapid population growth, environmental degradation, and unequal renewable resource distribution. In countries with high degrees of groupness and exclusive state institutions, the likelihood of conflict is greater. Exclusive institutions also facilitate conflict by providing opportunities and incentives for state elites to engage in violence. When a narrow group of state elites makes decisions that advance their narrow interests, resource scarcity and societal divisions present an opportunity to further narrow interests. Kahl draws our attention away from the dominant state failure hypothesis that sees weak state institutions as the main culprit behind the breakdown of order. He suggests that state elites could exploit demographic and environmental pressures to engineer conflict in highly divisive societies characterized by exclusive state institutions and the Syrian civil war provides confirming evidence for the state exploitation hypothesis (Kahl, 2006, pp. 50–51). The spread of democracy and the development of strong cross-cutting civil society are inversely related to the risk of DES-induced violence. Inclusive domestic institutions, again, hold the key to peace.

I argue that the nature of domestic institutions plays a key role in the resolution of conflicts. To the degree that domestic institutions are inclusive, conflicts are more likely to be solved through peaceful means. Here, institutions are broadly defined to include both formal and informal types such as norms and play a critical role in how society will deal with its current problems and face new challenges. Incentives matter and these are largely determined by domestic institutions. The nature of institutions of democracies contributes to the peaceful resolution of conflicts in four ways: (1) facilitating the solution of credible commitment problems; (2) reducing uncertainty through information-revealing capabilities; (3) creating an incentive structure for elected officials, so that they provide public goods to improve the quality of life for the majority of the people rather than adopting adventurous and harmful foreign policies; and (4) making these societies more resilient and immune to the exploitation of ethnic and religious divisions by other actors.

Domestic institutions of democracies condition decision-makers to use peaceful means for the resolution of conflicts. Elected officials are subject to both vertical and horizontal accountability and peaceful means of government turnover are available. Democratic states are less prone to Lord Acton's proposition that absolute power corrupts absolutely, and also have strong incentives to address problems that society faces, like economic and environmental crises. The incumbent parties and the opposition have strong incentives to find solutions to problems. Democratic institutions make commitments more credible and flexible. The built-in system of checks and balances ensures that the government's commitments to protecting property rights, for example, are credible. This is a more difficult problem for authoritarian regimes, given the strong incentives for arbitrariness and the lack of checks on power (Olson, 1993).

The practice of dealing with domestic political conflicts via peaceful means among competing elites also strengthens the preference for peaceful international conflict resolution. In democracies, ruling elites are cultivated in an environment where differences of opinion and conflicting interests are settled by negotiations and compromise, and the threat of the use of force and/or the actual use of force to get concessions from the opponents as legitimate options are rejected. Indeed, democratic conflict resolution mechanisms that rule out both the threat of the use of force and the use of force as viable means to resolve domestic political conflicts certainly have similar effects on the conflict resolution mechanisms of international conflicts.

Political and economic institutions in these countries are inclusive and facilitate innovation, adaptation to changing circumstances, and investment. As Olson argued, the conditions necessary for a lasting democracy are the same needed for the security of property and contracts that generate economic growth (Olson, 1993). In addition, the greater respect for legal principles and the legal system in democratic states leads to a greater reliance on and trust in the legal system to solve disputes. Accordingly, democratic states would be more willing to submit their disputes to international arbitration and adjudication rather than use force. In the final analysis, the democratic governance system functions in such a way that it reduces the legitimate means of bargaining for states. Thus, if nothing else, it helps to reduce uncertainty about possible state actions.

Domestic institutions are instrumental in generating domestic audience costs and forcing decision-makers to be selective and engage only in the conflicts they are likely to win. The audience cost also makes their commitments more credible. Whether democracies are pacifist in general or only toward other democratic states is a contentious issue (Ray, 1995; Rousseau *et al.*, 1996). Democratic institutions, such as elections, legislatures, judiciary, independent commissions, and so on, constrain the executive branch's ability to embark on foreign policy adventures. The incentive structure created by democratic institutions constrains the executive to adopt policies that are costly to the public.

Democratic societies are also more transparent. The public is more likely to resist strategic mythmaking as they have access to information from multiple sources. The existence of a free press, democratic freedoms, and liberties create conditions for the public to question the validity of strategic myths advanced by politicians. An informed public watching foreign policy is vital to restraining democratic governments even though foreign policy is seemingly insulated.

The informational revealing properties of democratic institutions facilitate the conveyance of the rulers' intentions behind policy choices. They are less likely to engage in bluffing and the threats made by them are genuine and thus more credible (Schultz, 1999, 1998, 2001). The competition between the incumbents and the opposition to serve the interest of citizens acts as a constraint on adventurous foreign policies. Open discussion of alternative means to achieve goals or the different terms of settlement reduces uncertainty. Wars are costly and too risky, yet reaching a mutually acceptable agreement is hard. Democratic states are at an advantage due to the incentive structure created by the democratic institutions that enable free, fair, frequent elections, and access to multiple sources of information. The internalization of democratic norms of conflict resolution facilitates the spread of trust and reciprocity and solutions to the treacherous collective action problems in inclusive societies. We now turn to our case study.

WATER RIGHTS CONFLICT IN INTERNATIONAL WATERCOURSES: THE EUPHRATES

The Euphrates river extends from Turkey to Syria, Iraq, and Iran, creating one of the most fertile regions in the world, Mesopotamia, the cradle of the first advanced civilizations. Given the long history of the region, it comes as no surprise that it has repeatedly suffered from the same patterns of conflict over the competitive exploitation of water resources and environmental destruction. The first recorded war that was fought over water took place in Mesopotamia around 2500 BC between the Sumerian city-states of Lagash and Umma. Though Umma's infringement of an age-old boundary agreement over a canal along the Tigris was the cause of warfare between the two city-states, the history of this early conflict underscores how water has been used as a *casus belli* since the dawn of the first civilizations in conjunction with larger territorial disputes (Barton, 1929).

Aside from the destructive periodic spring flooding and the deposition of silt, historical records indicate that Mesopotamia has suffered from recurrent environmental disasters following intensive agricultural activity and irrigation. The rapid evaporation of surface waters causes the salinization of the soil. The application of water to the parched soil drastically increases agricultural output in the short run, but it increases the salt content of

the soil and consequently hinders agricultural activity triggering political crises. This is a formidable challenge of irrigated agriculture in arid regions where high evaporation rates and poor drainage lead to the formation of salt layers on the surface of the soil rendering the land unusable for long periods.

Modern inhabitants of the watercourse face similar challenges to that of the ancient inhabitants. Soil quality and salinization remain critical problems, especially for the modern lower watercourse states, Iraq and Syria. The technology, population sizes, scale and intensity of human-induced environmental change, and international relations have increased the complexity of the risks involved in the failure to cope with the collective action dilemmas facing watercourse states.

Social, economic, technological, geographic, environmental, and more importantly political factors play an important role in determining the cost of defining and imposing property rights on international watercourses. The cost has been quite high as the history of failed negotiations over international water resources attests. Indeed, after years of negotiations before the Syrian civil war, the three watercourse states of the Euphrates, Turkey, Syria, and Iraq, still do not have a common standard for measuring the quality and quantity of their shared water resources, as their experts disagreed on the data during the Joint Technical Meetings held in the 1980s and 1990s. The failure to reach an agreement on even basic metrics among watercourse states indicates the magnitude of challenges facing watercourse states.

The prerequisite for the emergence of water rights institutions is a consensus about its desirability among the watercourse states. As is the case with the Nile and the Jordan Rivers, with the Euphrates, there is no such consensus among the watercourse states (Waterbury, 2002). Furthermore, watercourse states need to agree on the object of the conflict, the purpose of the negotiations, and the terms of the settlement. This has also not been the case in the Euphrates. Turkey, Syria, and Iraq have yet to agree on the definition of an international watercourse, whether the Euphrates is an international watercourse or constitutes a single one, and whether the subject of the negotiations is only the Euphrates' waters or includes the Tigris and the Orontes?

Water scarcity has been the primary driving force for the struggle to develop an international legal framework and to specify water rights by the watercourse states in arid or semi-arid regions. The rulers, even in democracies, suffer from myopia and almost always respond to clear and current problems rather than the projected ones. The Euphrates watercourse states have yet to experience the effects of acute water scarcity due to the unilateral exploitation of water (man-made changes) in the upper reaches of the watercourse. The conflict had been driven by a perception of water scarcity in the future when Turkey will have completed the Southeast Anatolia Project (GAP) and Syria will have completed the Euphrates scheme. The upper watercourse state, Turkey, has claimed that there is enough water to meet the needs of the lower watercourse states if they do not waste water and use the water efficiently. Both lower watercourse states have had highly inefficient water and agricultural management practices that are detrimental to the long-term sustainability of the resource and the environment. This has been consistent with low-quality public goods provisions prevalent in authoritarian regimes. Flood irrigation is a common practice that wastes a lot of water and causes widespread salinization of soil and water. These quality problems are augmented by widespread inadequate wastewater treatment that has released raw sewage and industrial discharge into the rivers. The construction of dams held great appeal for newly independent states as the dams symbolized power and capability and helped to legitimize authoritarian regimes throughout the Third World during the second half of the 20th century. The maintenance and management of water and land resources, such as drainage and conservation measures, are costly and do not have a similar appeal. The problem worsens in exclusionary political systems like those that have ruled both Syria and Iraq. The inefficient management of water resources has been a symptom of overall poor institutional quality.

Turkey's GAP was the primary reason for worries about impending water scarcity in the Euphrates when Syria's Euphrates Scheme has proven improbable. During the current civil war, it has become obvious that the

Euphrates basin is not considered an essential area for the Syrian regime. In retrospect, Turkey's growing energy need was the primary driving force of GAP, which requires minimal water consumption. Indeed, the realization rate of the project indicates that almost all dams with hydroelectric power plants were completed while the rate of completion for irrigation projects remained low around 22%. The irrigation projects are making slow progress and are subject to economic rationality and new legislations adopted as part of aligning Turkey with the EU *acquis* on environmental protection, water quality, industrial pollution, and climate. The implementation of new water laws and environmental regulations has put Turkey on the path to adopting the best water practices lessening the worries about quality problems in the Euphrates.

Turkey stated that water demands on both the Euphrates and Tigris for irrigation purposes are also much more than what is needed to irrigate the proposed area of land and suggests that it might include the water needed to deal with salinization problems, evaporation losses, and unforeseen future demands. The actual amount of water used when all the irrigation schemes are completed would likely be less than the proposed amount. Furthermore, water use in irrigated areas will likely decline over time. The irrigation of the Harran plain initially led to increased water use, but 10 years of irrigated agriculture caused a steady decline in evaporation rates and decreased water use (Yesilnacar & Uyanik, 2005, pp. 300–306; Altinbilek & Tortajada, 2012, pp. 171–199). If a similar pattern continues, it is predicted that there will be a 40% decline in water use in the planned irrigation areas (Özdoğan *et al.*, 2006). This has positive implications for both water quantity and quality and sustainable land and water management in the watercourse. GAP is not just about irrigated agriculture as it was transformed into an integrated sustainable development project. The dam construction in the region brought investment in transportation and communication networks. The region has experienced high rates of urbanization around urban growth industrial centers spurred on by employment and education opportunities. If this development trend continues, agriculture in the region will become more technologically oriented and efficient, minimizing water use and alleviating water quality problems. More importantly, the region will be economically stronger and able to weather any negative shocks like prolonged droughts.

A watercourse state's institutions in dealing with resource depletion and degradation in their portion of the watercourse have a significant effect on the strategies that states adopt internally and externally concerning water rights. The crises in the Euphrates have roots in the structural composition of state–society relations encompassing both politics and economics. The watercourse comprises one of the less developed and ethnically religiously sensitive parts of Turkey, Syria, and Iraq, which automatically politicizes the water rights conflicts.

The study of the crises that have broken out over the Euphrates and Tigris reveals that the water rights crisis was often the side effect of other issues of conflicts among the watercourse states. The choice of a strategy in dealing with the depletion or degradation of water resources is influenced by the states' expectations about their adversaries' actions and the overall impact of policy choices on the economic, political, and strategic balances among the watercourse states. The existing political and ideological conflicts prevent states from reaching an agreement and contribute to crisis outbreaks over water rights.

The crisis of 1975, which brought Iraq and Syria to the brink of war, nicely illustrates the significance of the existing political conflict on the outcome of negotiations. The previous acrimonious political conflict between the exclusionary Ba'athist rulers of Syria and Iraq was one of the major reasons for the failure of the negotiations. Both Syria and Iraq were seeking to undermine each other and were rightly suspicious of each other's subversive activities. The tension increased significantly when Iraq nationalized the Iraqi Petroleum Company, rejected the Syrian demand for an increase in royalties in early 1973, and signed an agreement with Turkey for the construction of an oil pipeline to transport Iraqi oil. Strategically, this was not a welcome development for Syria and it responded by instigating Shi'i unrest. A policy of limited crisis with Iraq also served the Syrian Ba'ath regime's interests as it provided an opportunity to expel regime dissidents on charges of plotting against the government

and of being sympathetic to the historic leadership of the Ba'ath in exile in Iraq. The dwindling amount of the Euphrates' water and conflicting water data constituted a good opportunity for the watercourse states to settle scores. The bitter political conflict between the Ba'athist rulers of Syria and Iraq over the leadership of the Middle East was the reason for the transformation of the dispute over the Euphrates waters into a major issue of contention. The 1975 crisis provided the first example of how water rights issues among states become entangled with other issues of conflict in bilateral and regional relations. If the crisis was truly over the dwindling Euphrates waters, it could have been avoided by examining the data, since the decrease in the water flow could not be explained by the impounding of the Tabqa dam in Syria. The examination of the strategic context provides a better understanding of the breakout of crises over water rights and the inconclusive nature of such conflicts. Iraqi and Syrian involvement in other protracted conflicts and the ensuing conflicting interests in these other conflicts have helped to block discussion over the water rights on the Euphrates along with Turkish interest in maintaining the status quo. Turkey also enjoyed stronger military and economic capabilities and domestic political stability compared to the lower watercourse states.

In bargaining with a reluctant upper watercourse state, the lower watercourse states have several strategies at their disposal to change their disadvantaged bargaining situations. These strategies are creating artificial incentives and issue linkages, taking the issue to international arbitration institutions, and forming a common front against the upper watercourse state. The history of the Euphrates and Tigris conflict suggests that the negative issue linkage strategies did not work and undermined the watercourse states' chances of reaching a voluntary contract and the emergence of a community of watercourse states. Throughout the period under consideration, Syria routinely supported clandestine organizations in both Turkey and Iraq and its efforts to link Syrian support for clandestine organizations to the water issue have failed. Syria underestimated Turkey's resolve to separate water issues from the other issues of conflict in bilateral relations. Turkey eventually forced Syria to sign an agreement that stipulated the termination of Syrian support for the Kurdish Separatist movement in October 1998. The better strategy for reaching a voluntary contract on water rights is positive issue linkages, like oil, trade, and economic and political cooperation. Iraq, for example, succeeded in securing Turkish concessions on the Euphrates water and collaboration against the Kurdish threat in exchange for oil in 1975. Indeed, economic interests have typically driven Turkey's policies in the region, and close economic and commercial ties are likely to produce positive outcomes.

At the current levels of instability in the Middle East with the ongoing civil war in Syria and with unrest in Iraq, the chances of an emergence of a water rights regime soon are low. As we saw earlier, due to sequential access, appropriation, and usage, international watercourses are impure common pool resources with strong private good characteristics. The most likely outcome in the mid-to-long term is going to be the formalization of the current de facto regime on the Euphrates. This would create a less desirable private property regime with each watercourse state responsible for the management of the water within their borders rather than a common property regime that would create a supra-national structure with watercourse states governing the entire watercourse as co-owners. The polluter pays principle guide quality concerns and as for the quantity, though the formalization of the flow of 500 m³/s (in a percentage form) on the Euphrates is less than the two-thirds of the flow demanded by Iraq and Syria, it is likely to be an acceptable amount under the principle of *equitable and fair use*. The World Bank, which is committed to the protection of *acquired rights* in its funding decisions for the dams, funded the Karakaya dam based on the view that the Turkish guarantee of 450 m³/s on the Euphrates was appropriate and sufficient to prevent *appreciable* or *significant harm*. The current international law on non-navigational uses of international watercourses gives priority to *equitable and fair use* over any other principles of international law that watercourse states claim in advancing their interests.

Given the history of the Euphrates conflict, the outcome of bargaining over water rights that falls short of cooperation is less puzzling. The rules of the game that the Euphrates watercourse states have played so far were not conducive to the emergence of such cooperation. No cooperation, however, does not mean that states will wage wars over scarce water resources. Water neither constitutes a natural resource that could have an enormous impact on the relative power capabilities of the watercourse states nor does it justify the use of force. Not only are the underlying causes of the various crises over the Euphrates watercourses related to other international conflicts that the states are involved in but also water scarcity due to an upper watercourse state's exploitation is not an acute problem. The properties of the type of contract that is needed for the emergence of water rights also require *the voluntary cooperation* of watercourse states. Furthermore, technological developments in dry-land farming methods, irrigation techniques, drought-resistant crops, and desalination could significantly reduce overall water consumption. In comparison to the cost of war, the cost of better management of waters is very low and also better for the long-term sustainability of the resources, given the looming threat of climate change.

The efficient management of resources, however, is closely tied to the quality of the governing institutions. Amartya Sen's reasoning for the disappearance of famines applies here as well since efficient water and land resource management could be achieved if there is an effort to do so, and the institutional features of democracies, like electoral accountability, a free press, and transparency, force rulers to exert such efforts (Sen, 1999). It takes time for inclusive institutions to set in and to deepen as the initial prevalent informal institutions, i.e., norms and rules, may not always be conducive. Only such institutions create an incentive structure favorable for political and economic development and build resilient societies that can adapt to change (Yetim, 2016, pp. 115–187).

CONCLUSION

Changes in the global climate and the increasing occurrences of multi-year droughts in the late 20th and early 21st centuries have put increased pressure on governments. The end of the Cold War also did not bode well for the exclusionary governments of Middle Eastern states dependent on their outside patrons for support. As people have protested the quality of government and have demanded better, freer lives for themselves, the victor of the Cold War, the United States, has come under intense pressure to cut its support for oppressive regimes, while Russia has lost most of its clout along with the objective basis of its power, namely its economic and financial resources. Following changes in the global economy and the global financial crisis of 2007, the pervasive poor economic management of resources has increased the risk of internal conflict. Though ethnic and sectarian conflicts are not the cause of the civil wars raging in the two lower watercourse states of the Euphrates watercourse, they are symptomatic of the prevalent exclusionary institutions that govern politics and economics in these countries. The incentive structure is such that rather than tackling governance problems and addressing the concerns raised during the Arab Spring, the leaders, especially in the most oppressive regimes, like Libya and Syria, have encouraged ethnic and sectarian conflicts leading their people into civil violence to stay in power.

Any stability in the Euphrates and Tigris watercourse and the sustainable exploitation of its land and water resources will depend on the elimination if not the improvement of the socio-economic and political conditions that led the way to the civil war and subsequent rise of the Islamic State of Iraq and the Levant (ISIL) and other similar non-state actors. The US's Iraq war prepared fertile ground for Islamic extremists around the world to find a place to grow in strength and numbers. The fledgling Iraqi state has been mired with corruption and capacity problems on the one hand, and economic problems exacerbated by the severe droughts from 2006 to 2011, on the other hand, have been an ideal place for widespread discontent to foment and spread from Iraq and into Syria. There are large-scale population dislocations due to the worsening economic conditions in rural areas following the drought intensified urbanization problems and crippled the economy with a lack of electricity and water

putting more pressure on the authoritarian Syrian state. Not only did the unemployment rate rapidly increase, but inflation also went haywire with housing prices going up significantly. If one thinks of inflation as a regressive tax, as it is, the worsening economic marginalization fed into further social marginalization against the dangerous background of diverse sectarian and ethnic cleavages within the Syrian society and of the exclusionary political and economic institutions benefiting a small ruling coalition of Assad supporters. The story of Syria and Iraq in the 21st century is a cautionary tale about the dangers of exclusionary political and economic institutions for all of us.

The solution to the collective action dilemma in international watercourses requires high levels of trust and reciprocity, in other words, a strong community among the actors. There is no such community of watercourse states in most international watercourses, including the Euphrates watercourse. The closest the watercourse states came to achieve such a community was in 2009 marking the Turkish AKP government's attempts to reinvigorate its long-neglected relations with Middle Eastern states emphasizing their commonality of shared religion. This attempt failed in the face of concrete incompatibilities in the logic of political survival dictated by the prevalent domestic institutions.

When the community is not possible, the next best alternative is the delineation of property rights on water specifying ownership, corresponding duties and liabilities among watercourse states. It requires watercourse states to reach a voluntary self-enforcing incentive-compatible contract. Accomplishing such an endeavor requires trust and reciprocity and involves a costly and long bargaining process that often gets mired in failures. Indeed, the competitive unilateral exploitation of international watercourses regardless of their long-term sustainability has been pretty much the norm in semi-arid and arid regions. Out of the civil and sectarian violence raging in the region, we can hope that there will come the establishment of more inclusive political and economic institutions in Syria and Iraq. The emergence of inclusive institutions ultimately rests on the warring elites' agreement on the democratic rules of the game. The inclusive nature of democratic institutions will facilitate the peaceful resolution of conflicts and strengthen a society's capacity to solve difficult collective action problems and respond to adverse shocks like water scarcity, droughts, and climate change. Should it happen, the inclusionary governing institutions in the lower reaches of the Euphrates watercourse and a reversal of the authoritarian trend in Turkey could make the emergence of common property water rights institutions possible at long last.

DATA AVAILABILITY STATEMENT

All relevant data are included in the paper or its Supplementary Information.

CONFLICT OF INTEREST

The authors declare there is no conflict.

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