

RESEARCH ARTICLE

Conflict and Cooperation in Global Commons: Theory and Evidence from the Caspian Sea

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The conventional literature on the commons involves small, local resources such as coastal fisheries, community forestry, small-scale irrigation, and community pasture. We focus on conflict and cooperation in the Caspian Sea – a global commons – involving five claimant countries as well as interests of major powers (the United States, European Union, and China). Building on the work of Stern and Young on the study of conflict and cooperation in global commons, we model the case as a prisoner’s dilemma game with the two different outcomes. In the North Caspian Sea, competing claimant countries – Russia, Kazakhstan, and Azerbaijan – have agreed to cooperate and solve their differences over ownership of oil fields. In contrast, claimants in the South Caspian Sea – Azerbaijan, Iran, and Turkmenistan – have failed to cooperate despite decades of trying. Using analytic narratives, we suggest that politics (or strategic calculations) could help explain these two different outcomes. In making these calculations, countries will act in their rational self-interest, given the prospects of international anarchy. We suggest that this realist account can be partly explained by the convergence of economic interests, geopolitics, and cultural distance. We argue that the study of global commons would benefit from understanding realist theories of international relations.

Keywords: Caspian Sea; commons; conflict; cooperation; prisoner’s dilemma; oil

1. Introduction

The conventional literature on the commons involves small, local resources such as coastal fisheries, community forestry, small-scale irrigation, and community pasture. Scholars have studied more than twenty variables associated with the governance of local commons and have provided empirical support for Ostrom’s design principles governing the commons (Hinkel et al., 2015). In contrast, the literature on global commons is not as extensive as the local commons. Building on Ostrom’s principles, Stern (2011) proposed a set of principles for governance of the global commons while Young (2002) argued that regime systems that govern global commons are dynamic and evolve over time.

Our paper adds to the works of Stern and Young on the governance of global commons. We build on Stern’s design principles by showing – through game-theoretic reasoning – that politics (or strategic calculations based on various interests) could explain variations in outcomes of a certain type of global commons, in this case, oil and gas resources. We also build on Young’s regime systems theory (i.e., governance regimes matter) by showing how the governance regime for the Caspian Sea has evolved over time.

We use the Caspian Sea as a relevant case study for several reasons. First, there are five countries (Azerbaijan, Iran, Kazakhstan, Russia, and Turkmenistan) competing over valuable common pool resources (oil, gas, and fishery) and pipelines connecting Asia with Europe. Oil, gas, and fishery are common pool resources because they are both rivalrous in consumption, and it is difficult to exclude others from exploiting them (Araral et al., 2019). Two of these claimant countries have powerful militaries – Russia and Iran – and have long histories of conflict in the Caspian Sea. In addition, China, the European Union, and the U.S. all have vital interests at stake in the region, especially with regards to access to oil, shipping lanes, and pipelines.

With the appearance of the three new claimants around the Caspian Sea in the post-1991 period, the littoral states had to redefine their maritime borders. The agreement on the status of the Caspian was an acute issue for all coastal states because the implementation of several major oil projects, including pipeline infrastructure, was linked to this matter. Since hydrocarbon reserves distributed unevenly along the coastal line of the Caspian, it was particularly difficult to find a common solution to the problem. The most promising oil and gas reserves were found in Central and Northern parts of the Sea, close to Azerbaijan, Kazakhstan, and Turkmenistan.

The controversy evolved over the legal status of the Sea, as this influences how the hydrocarbon, water, and fishery resources would be shared. The key question debated by the littoral states is whether Caspian is a 'sea' or a 'lake'. The labeling is contested because it determines which international treaty applies in regulating the ownership rights over the Sea and its resources.

If the Caspian would be formally defined as a 'lake', norms of international customary law apply. From the beginning of the dispute, Iran and Russia expressed solidarity in advocating the 'lake' classification of the Caspian. They argued that prior to Soviet disintegration, it was owned jointly by the riparian countries and, such a regime should continue to govern. The two countries further claimed that joint ownership is needed in order to protect the local ecosystem from environmental damage, caused by the irresponsible development of hydrocarbon resources.

Alternatively, if the Caspian would be given the status of a 'sea' the relations between the riparian states would be regulated by United Nations Convention on the Law of the Sea (UNCLOS). According to UNCLOS, each state can claim the 12-mile territorial sea area as well as 200 miles of the exclusive economic zone. Because the width of the Caspian does not exceed 200 miles, its exclusive economic zone will not extend beyond the median line. In addition, articles 69 and 124–132 provide that landlocked states can claim access to high seas (UNCLOS, 1982). In this situation, Azerbaijan, Kazakhstan, and Turkmenistan would potentially be able to claim access to the Baltic Sea (through the Volga river) and the Black Sea (through channel connections).

Second, the Caspian Sea is an interesting case because it illustrates successful and unsuccessful examples of cooperation over valuable oil, gas, and fishery resources. Claimants of the North Caspian Sea had managed to set aside their differences and cooperate to explore and develop their resources jointly. In contrast, this is not the case for the South Caspian neighbors. We identify the similarities and differences between the North and the South and explain different outcomes by using a prisoner's dilemma as our conceptual analysis framework.

The case of the Caspian Sea is a prisoner's dilemma because each country has an incentive not to cooperate and become greedy, hoping that they can get more benefits from exploiting the resources. However, riparian states would all become worse off if they do not cooperate. First, in terms of environmental impact, the lack of cooperation leads to increased pollution due to irresponsible offshore development and oil transportation. Second, uncertainty discourages foreign investment as some of the oil deposits are still waiting to be developed because two or more parties have reciprocal claims. Finally, disagreement between the riparian states leads to worsening bilateral relations, while in the worst-case scenario, escalating tensions could lead to military conflict.

Third, in theory, the governance dilemmas of local and global commons are similar – i.e., potential for competition and conflict, free riding, congestion, over expropriation, credible commitment issues, monitoring and enforcement (Araral, 2013). However, Stern argues that the issue of scale, distribution of powers, and ability to learn changes the dynamics of collective action in large-scale, transboundary commons. While we recognize these differences, we argue that from a game theoretic standpoint, the structure of dilemmas between local and global commons are fundamentally the same. In our paper, we use a stylized prisoner's dilemma to frame the 'game' being played by various countries in the Caspian Sea.

Fourth, the sparse literature on the global commons has focused on arctic wildlife, whaling, and outer space (Buck, 2017; Young, 2002). Our paper focuses on a salient common pool resource – oil and gas reserves. We argue that the salience and strategic importance of the resource matters in the evolution of the global commons regime. It matters because countries may go to war over oil and gas resources but not likely in the case of biodiversity, whaling, arctic wildlife, global atmosphere, and outer space.

Finally, the conventional literature on the global commons (see Stern, 2011) provides for a set of design principles – modified from Ostrom's (1993) principles – to govern the global commons. Stern's principles, however, do not consider economic interest and geopolitics of the global commons as key variables, although he recognizes that the distribution of powers and interests would vary between local and global commons.

In this paper, we make an attempt to explain the two different outcomes in the North and South Caspian Sea over the control of oil fields, gas, and pipelines. We suggest that differences in the governance of the

commons in the North and the South can be explained by economic interests, geopolitics (security interests) and cultural distance (historical and personal ties) between states. In this regard, a review of historical events will shed light on factors that influenced government policies.

As to the structure of this paper, the next section provides a review of the relevant literature on the issue of commons and the regulation of global commons in international law. In section 3 we present a case study of the Caspian Sea with an in-depth historical and analytical account of events in the North Caspian Sea, where countries managed to solve the conflict and engage in cooperative relations. The following section then compares it with the South Caspian Sea, where countries are still struggling to resolve their conflict despite decades of trying. The fifth section compares and contrasts the two cases. The final section summarizes the main findings and theoretical implications for the study of the global commons.

1.1. Local and Global Commons

Stern (2011) suggests that global and local commons differ in terms of geographic scale, number of users, salience (or actor's awareness of degradation), distribution of interests and power, cultural and institutional homogeneity, regeneration of degraded resource, feasibility of learning, ease of understanding resource dynamics and stability of resource dynamics (**Table 1**).

For these reasons, Stern (2011) points to the challenges in applying Ostrom's design principles to the global resource commons. These challenges include: 1) the problem of devising rules congruent with ecological conditions; 2) defining boundaries for resources and appropriators; 3) monitoring and enforceability of rules; 3) the size of appropriators; 4) the disconnect between users and losers of resource use, and 5) circumstances when science may not be credible to stakeholders, among others.

Because of these differences, Araral (2014) suggests that Hardin's prediction of the tragedy of the commons seems justified in the case of large, transboundary commons. Examples include the unabated destruction of corals and overfishing in the coral marine triangle in the southeast Pacific Ocean (WWF, 2009) and the massive degradation of the marine ecosystem in the South China Sea (Hughes et al., 2013). Araral also points to the underground water crises in Northeast China (Xie, 2008), the desiccation of the Aral Sea in Central Asia, one of the world's worst environmental disasters (Micklin & Aladin, 2008; Murzakulova et al., 2019), the unabated degradation of forests in Borneo in Indonesia (WWF, 2013) and the unregulated use of the global atmosphere and oceans as a global sink.

Table 1: Comparison of local and global commons.

		Local natural resources	Global commons
1	Geographic scale	Local	Global
2	Number of resource users	Tens to thousands	Millions to billions
3	Salience: actors' awareness of degradation	Resource use is conscious purpose: resource provides major portion of livelihood	Resource degradation is unintended byproduct of intentional acts; actions causing degradation are of low importance for most users
4	Distribution of interests and power	Benefits and costs mainly internal to group of appropriators	Significant externalities between appropriators and others across places and generations; differences of interest and power among classes of appropriators
5	Cultural and institutional homogeneity	Homogeneous	Heterogeneous
6	Feasibility of learning:	Good	Limited
6a	Regeneration of degraded resource	Renewable over less than a human generation	Regeneration over more than a human generation
6b	Ease of understanding resource dynamics	Feasible without extensive scientific training	Scientifically complex with limited predictive ability
6c	Stability of resource dynamics	Stable, though variable	Dynamic systems with changing rules
6d	Ability to learn across places	Possible	Difficult

Source: Stern (2011).

Likewise, because of these differences, Stern (2011) concludes that the governance of the global commons requires a different set of principles from those proposed by Ostrom. Stern suggests the need to invest in science to understand the resource and its interactions with users and those affected by its use as well as establishing independent monitoring of the resource and its use that is accountable to the range of interested and affected parties. He also suggests having more meaningful participation of the parties in framing questions for analysis, defining the import of scientific results, and developing rules. Moreover, he argues for integrating scientific analysis with broadly based deliberation while engaging and connecting a variety of institutional forms from local to global in developing rules, monitoring, sanctioning and planning for institutional adaptation and change. Notably, Stern does not put significant emphasis on politics or the strategic calculations of nation-states in relation to the global commons.

In contrast, Young (1994, 2002) provides a more nuanced and optimistic view on the governance of global commons based on the regime theory. In essence, the theory argues that regime systems that govern global commons are dynamic. They evolve over time, some successfully into problem-solving organizations such as the case of the Arctic commons, the Third Law of the Sea Convention, the deep seabed, whaling, and marine pollution regimes, Antarctica and outer space regimes for weapons. In addition, there is also a handful of what can be considered as relatively successful governance of large-scale, *national and regional commons*: China's Yellow River Basin (Giordano, 2004); Colorado River Basin, the Murray Darling Basin in Australia (MDBA, 2013), and cooperation in the Arctic (Young, 1994). Strictly speaking, however, these are not open access commons in the sense that property rights to these resources are relatively well defined and exclusion to the resource system and resource unit is feasible.

1.2. International Law and the Global Commons

The literature on international law offers some insights involving conflicts in international waters. The main governance mechanism is UNCLOS, which aims (as summarized in its preamble) to create 'a legal order for the seas and oceans which will facilitate international communication, and will promote the peaceful uses of the seas and oceans' (UNCLOS, 1982).

Beckman et al. (2013) argued that UNCLOS could provide a framework for the joint development of hydrocarbon resources in territories with overlapping claims. In particular, UNCLOS provides two principles for joint development that avoids the contentious issue of sovereignty and boundary delimitation. First, it encourages claimant countries to enter into provisional arrangements of a practical nature in territories with overlapping claims without prejudice to the final delimitation. The need for provisional arrangements is in recognition of the fact that delimitation negotiations could be time-consuming. Second, UNCLOS encourages claimant countries to observe mutual restraint during the transitional period, which should not hamper reaching a final agreement on delimitation. These two principles help claimant countries to manage their otherwise contentious relations. As more countries resolve their differences in this manner, other claimant countries build up the confidence and use this as a norm that joint development is possible without a threat to their sovereignty.

In addition to UNCLOS legal framework, Beckman et al. (2013) identified several factors conducive to joint oil development based on lessons from at least ten cases of conflicting claims in the resource-rich South China Sea. These factors make it possible to set aside differences and resolve conflicts with or without the Convention. In the case of the Caspian Sea, the conflicts were, in fact, resolved without reference to the UNCLOS as a legal framework. UNCLOS is not a necessary, nor a sufficient condition for the joint development of oil resources as the case of the Caspian Sea would suggest.

The first and foremost factor is the economic reason – the pressing need for energy security and the need for oil revenues. Economic interests are the primary drivers that led to at least ten joint development projects in contested maritime territories in the South China Sea. This is clearly the case for the 1974 Japan-South Korea arrangement; the 1979 Malaysia-Thailand Agreement; the 1989 Australia – Indonesia Arrangement; the 2002 Australia-Timor Leste arrangement; 1992 Malaysia-Vietnam arrangement; the 2009 Malaysia-Brunei arrangement, among others.

Another factor is the relationship and degree of trust among the political leaders of the claimant countries. We argue that this is a necessary but not sufficient condition. Beckman et al. (2013) point to the examples of Prime Minister of Thailand and Malaysia in their 1979 MOU; between Brunei and Malaysia, among others. Trust building among political leaders has been made possible through their numerous face-to-face encounters during regular meetings of the Association of Southeast Asian Nations (ASEAN). ASEAN made it possible for countries to trust one another even without the benefit of the UNCLOS. For Ostrom (2003), trust is at the core of a set of variables that could explain variations in the outcomes of the commons.

The next factor is the presence of uncertainty. In some cases, claimant countries suspect that there are significant energy resources within an overlapping claim, but their precise location and amount is unknown. This can motivate them to set their differences aside and enter into joint exploration arrangements. In this paper, we examine whether the two different outcomes in the North and South Caspian Sea could be partly explained by factors identified by Beckman et al. (2013).

2. The Case of the Caspian Sea

In this paper, we examine the conflict over oilfields in the Caspian Sea – a water body between Eastern Europe and Central Asia (**Figure 1**). For more than two centuries until 1991, only two states formally possessed the resources of the Caspian – the Soviet Union (Russia) and Iran. With the disintegration of the Soviet Union, the number of riparian states increased from two to five: Azerbaijan in the south-west, Iran in the south, Kazakhstan in the northeast, Russia in the north-west and Turkmenistan in the south-east.

As the newly independent former Soviet Union states began reinvigorating their economies by inviting foreign direct investment, the 1990s saw a revival of oil production in the Caspian Sea. This transformed the region into one of the most strategically important places in the world not just because of oil but because it is located between Europe and Asia, offering the littoral states access to naval and pipeline routes. The vast oil reserves and the strategic value of the Caspian Sea became a source of conflict among the five claimant states. We examine how the states in the North have managed to cooperate among themselves while those in the South have failed to do so despite years of trying.

Two camps emerged from the beginning of the dispute – proponents of the 'lake' status (joint ownership) and proponents of the 'sea' status (sectoral division). By the end of 1997, Russia and Iran found their interests converging, whereas Kazakhstan, Azerbaijan, and Turkmenistan maintained the position that the Caspian should be divided into national sectors. As the parties refused to make concessions, the littoral states found themselves in a deadlock. The joint ownership approach would threaten the political and economic

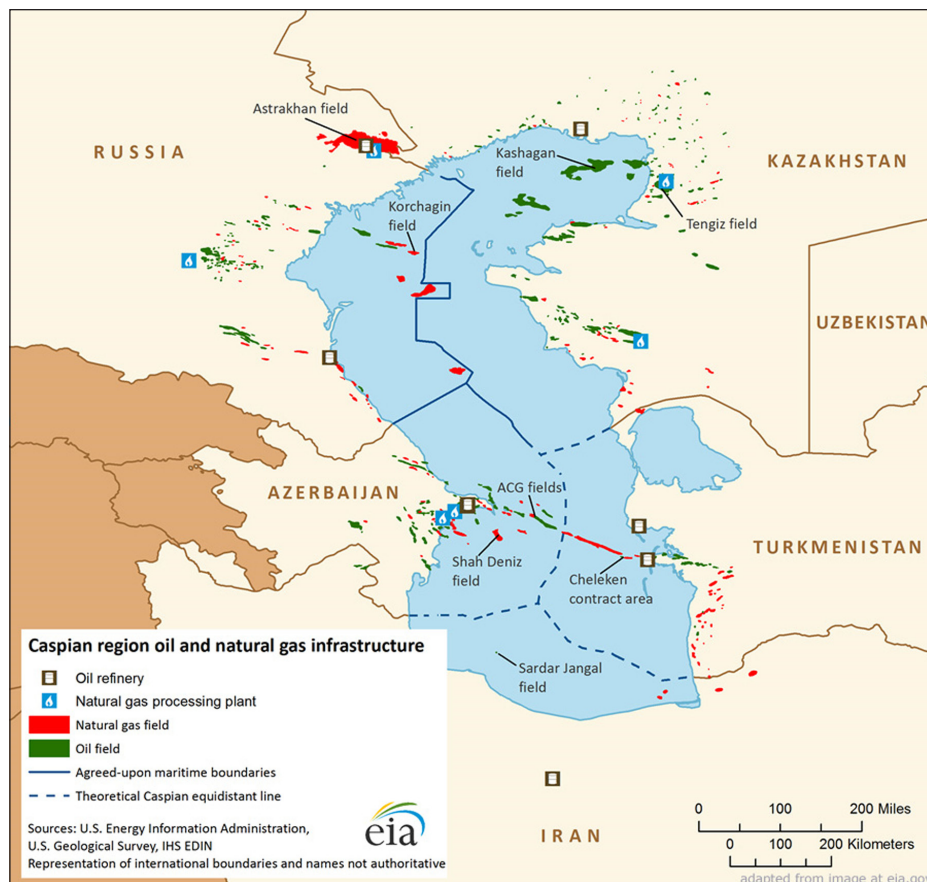


Figure 1: Caspian Sea with oil and gas deposits and claimant countries.

Source: U.S. Energy Information Administration, <https://www.eia.gov/beta/international/regions-topics.php?RegionTopicID=CSR>.

independence of the former Soviet states. The local actors realized that no move could be made forward with developing the Caspian hydrocarbon resources if there will be no compromise on the issue.

2.1. The Caspian Sea as a prisoner's dilemma

The dispute in the Caspian Sea can be analyzed using a prisoner's dilemma analogy (**Table 2**). As originally formulated:

'Two members of a criminal gang are arrested and imprisoned. Each prisoner is in solitary confinement with no means of communicating with the other. The prosecutors lack sufficient evidence to convict the pair on the principal charge. They hope to get both sentenced to a year in prison on a lesser charge. Simultaneously, the prosecutors offer each prisoner a bargain. Each prisoner is given the opportunity either to: betray the other by testifying that the other committed the crime, or to cooperate with the other by remaining silent. The offer is: 1) If A and B each betray the other, each of them serves two years in prison; 2) If A betrays B but B remains silent, A will be set free and B will serve three years in prison (and vice versa); and 3) If A and B both remain silent, both of them will only serve one year in prison (on the lesser charge) (Poundstone, 1992)'.

In a Prisoner's dilemma game, players are locked into a situation in which the best outcome for everyone is to cooperate (each serves only one year of jail time) but individually their dominant strategy is not to cooperate (no jail time). If the parties choose not to cooperate because that is in their self-interest, the result will be that both will be worse off (each serves two years in jail).

We recognize that there are certain strong assumptions behind the Prisoner's Dilemma model, namely: 1) that this is a one-off game; 2) that players cannot communicate, and 3) they cannot make credible or binding commitments. While the prisoner's dilemma analogy is a highly stylized simplification of an otherwise complicated situation, it does capture the strategic choices that claimant countries in the Caspian Sea are facing. An important point to make, though is that the Caspian Sea situation is not a single-shot game and that players can, and have been communicating with each other over time, but the outcomes have been different.

Nevertheless, for the purposes of analysis, the logic of the prisoner's dilemma can be extended to the Caspian Sea. Each claimant country, thinking its own interest, may cooperate with other claimant hoping that they can get more benefits from exploiting resources from the Caspian Sea. This is what initially happened when no country was willing to compromise on their positions.

However, the riparian states would all become worse off if they do not cooperate. First, in terms of environmental impact, the lack of cooperation leads to increased pollution due to irresponsible offshore development and oil transportation. Environmental activists claimed that the population of rare sturgeon has declined by 90% since the 1970s (ICTD, 2003). Media often reports about seals found dead along the coast of the Caspian due to the increasing pollution. Pollution problems in the Caspian regularly raised by environmentalists, but little can be done in the absence of delimitation agreement.

Next, disagreement between the riparian states leads to worsening bilateral relations and lack of regional (economic and political) cooperation. In the worst-case scenario, escalating tensions can lead to military conflict. By the end of the 1990s, the militarization of the Caspian had become an apparent trend. Recognizing the strategic importance of the Sea, the littoral states considerably strengthened their naval forces.

Finally, uncertainty discourages foreign investment, and as a result, claimants are unable to reap the benefits of oil exploration. Indeed, some of the oil deposits in the South Caspian are still waiting to be developed because two or more parties have reciprocal claims. These fields include Alov (Alborz) and Kyapaz (Serdar) located between Azerbaijan, Iran, and Turkmenistan. If the Caspian dispute would be resolved, the littoral states will be able to exploit the full potential of their natural resources, attracting more investment

Table 2: Prisoner's dilemma.

	Prisoner B (cooperating)	Prisoner B (not cooperating)
Prisoner A (cooperating)	Each will serve one year	Prisoner A: serves 3 years in prison Prisoner B: released
Prisoner A (not cooperating)	Prisoner A: released Prisoner B: serves 3 years in prison	Each will serve 2 years

and constructing new export pipelines. As the region has the potential to become one of the largest energy suppliers in the world, the agreement on the legal status of the Caspian would improve the investment climate and political stability.

In the next sections, we employ analytic narratives to explain why and how the North Caspian Sea states have managed to change their situation from one of conflict to one of cooperation while the South Caspian Sea states are not yet able to. Analytic narratives use game theoretical analysis (in this case Prisoner's Dilemma) along with historical accounts (narratives) (Bates et al., 2000). This methodology has the advantage enabling to explain outcomes based on a rational choice account of historical events (Levi, 1997). Furthermore, this approach examines the situation from the perspective of a calculating actor and makes decisions taking into account their costs and benefits.

2.2. Successful Cooperation in the North Caspian

It is not surprising that Azerbaijan and Kazakhstan opposed the idea of joint ownership and advocated the sectoral division of the Sea since the two countries have the biggest proportion of the oil reserves of the Caspian. Furthermore, Azerbaijan and Kazakhstan were genuinely interested in the speedy resolution of the issue. First, they were eager to entrench their sovereignty over their territorial possessions and natural resources in the Caspian Sea. Secondly, they desperately needed foreign investment to rebuild their devastated economies.

Unwilling to share its oil wealth, Azerbaijan rejected the proposal of the condominium approach. Baku appealed to the fact that in the 1970s, the USSR Ministry of Petroleum formally divided the 'Soviet part' of the Caspian, assigning exclusive sectors for each littoral Soviet republic. Kazakhstan's position was similar to Azerbaijan's in supporting a 'sea' status of the Caspian. Since Kazakhstan's share of the Sea contains about two-thirds of the region's energy reserves, the country actively supported the idea of dividing the Caspian into national sectors.

Beginning from early years of independence, the two northern neighbors actively engaged in oil operations attempting to *de facto* demarcate the Sea. In December 1993, Kazakhstan signed a contract with multinational companies to conduct exploration works in the Kazakh sector of the Caspian. Seven companies joined the Kazakhstankaspiyshelf joint venture, including AGIP, BG, BP-Statoil, Mobil, Shell, and Total. Meanwhile, Azerbaijan concluded \$8 billion contract with foreign investors to develop its biggest Azeri-Chirag-Guneshli deposits in 1994. This agreement, notoriously known as the 'contract of the century' formed the AIOC joint venture with the key partners represented by Azeri national oil company SOCAR and British company BP.

Although Russian oil company Lukoil was also a member of the AIOC, Russian foreign ministry expressed an open discontent with Azerbaijan's unilateral decision to commence oil operation in the Caspian. As BP was amongst the major investors, Russia sent a demarche to the British Embassy in Moscow in 1994 stating that:

'By its very nature the Caspian Sea is an enclosed water reservoir with a single eco-system and represent an object of joint use, within those boundaries all issues of activities, including resource development, have to be resolved with the participation of all Caspian countries. Taking the above into account, any steps by whichever Caspian state aimed at acquiring any kind of advantages with regard to the areas and resources of the Caspian Sea run counter to the interests of other Caspian states and cannot be recognised ... [and] ... any unilateral actions are devoid of legal basis' (cited in Brzezinski & Sullivan, 1997: 139).

Russia asserted that the condominium regime established in the Caspian between the Soviet Union and Iran prevails in the absence of the new agreement. Moscow insisted that the Soviet-Iranian Treaty of 1940 is still valid because Russia, Kazakhstan, Turkmenistan, and Azerbaijan are signatories to Alma-Ata declaration, which provided that the parties recognize the validity of all treaties signed by the Soviet Union. Based on this, Russia asserted that until the new agreement is reached, the littoral states should not act without mutual consultation.

By the end of the 1990s, the claimant states in the North Caspian had realized that the move must be made towards finding a solution. Kazakhstan started bilateral negotiations with its nearest neighbors on the delimitation of maritime borders in the Sea. During the visit of Turkmenistan's President Niyazov to Almaty in February 1997 the two countries signed a joint declaration, which stipulated that 'until there is an agreement with the states of the Caspian region on the status of the Sea the parties will adhere to the demarcation of administrative and territorial boundaries along a middle line' (Nazarbayev, 2008: 109).

The dynamics of the dispute changed after Russia altered its position from demanding joint ownership to agreeing to demarcate the seabed. The long-standing dispute between Russia and Kazakhstan on oilfields in the Caspian was eventually resolved when President Boris Yeltsin and President Nazarbayev met in April 1998. This meeting proved to be a turning point for cooperation in Northern Caspian and ushered in cooperative projects between Russia and Kazakhstan. The parties agreed to jointly develop (on a 50/50 basis) Kurmangazy, Khvalynskoe, and Tsentralnoe deposits in Central and Northern Caspian (Kommersant, 1998). Following the new arrangements, Lukoil and Kazakhoil companies continued together operations in the North Caspian.

Consequently, Russia and Kazakhstan signed the landmark Agreement 'On delineation of the bottom of the northern part of the Caspian Sea with respect to the sovereign rights to subsoil use' on July 6th, 1998. The document entrenched the principle of sharing the northern part of the Caspian Sea along the median line, which runs at the same distance from the opposite shores. While the agreement provided grounds for delimitation of the seabed, the surface remained under the joint control. On the same day as the bilateral agreement on Caspian maritime borders was signed between Russia and Kazakhstan, the countries signed a treaty 'On eternal friendship and alliance, oriented for the XXI century'. Finally, in May 2002, the governments of Russia and Kazakhstan signed a protocol setting geographical coordinates of the median line between the two countries.

Azerbaijan, on the other hand initially rejected Russia's proposition to sign a similar bilateral agreement. Baku demanded full delimitation, with the division of not only the seabed but also water surface. Following the protracted negotiations, Russia and Azerbaijan finally signed an agreement on the delimitation in January 2001. President Putin and President Aliyev met in Baku and announced that the two states reached the consensus on delimitation using 'a stage by stage approach'. The first phase included demarcation and division of the Caspian seabed by drawing a median line.

Likewise, Azerbaijan and Kazakhstan signed an agreement on the delimitation of the Caspian seabed in November 2001. Two years later the two countries signed a protocol establishing geographical coordinates of the median line. The countries also agreed on utilization of the Baku-Tbilisi-Ceyhan (BTC) pipeline for exports of Kazakh oil to global markets. The agreement was mutually beneficial for both countries as Azerbaijan expected rents from transit fees from oil exports, while for Kazakhstan, the BTC pipeline offered access to the Western energy markets.

By the beginning of the second post-Soviet decade, there have been signs of intensification of bilateral and multilateral negotiations, which indicated the mutual willingness of states to settle the issue. Subsequently, the Caspian states held several meetings: Russian-Turkmenistan meeting (January 2002), Azerbaijan-Iran negotiations (March 2002) and the summit of all five countries in Ashkhabad (April 2002). During the Second Caspian Summit in Tehran (2007) and the Third Caspian Summit in Baku (2010), the states signed several agreements mainly concerning questions of security cooperation and stability in the region.

The abovementioned bilateral agreements changed the layout of the confronting powers in the Caspian region. In the period between 1991–1998, Azerbaijan, Kazakhstan, and Turkmenistan insisted on a sectoral division of the Sea, while Russia and Iran found themselves in the camp supporting the shared ownership of the resources. However, the post-1998 events led to the formation of the two different blocks: the Northerners comprising the states who had formally agreed on the demarcation of the seabed namely Azerbaijan, Kazakhstan, and Russia and the Southerners, i.e. the states that have not formally agreed on delimitation of the Sea (Azerbaijan, Iran, and Turkmenistan).

2.3. The Difficulty of Cooperation in the South Caspian

In contrast to the successful resolution of conflict among the North Caspian States, claimant states in the Southern part – Iran, Azerbaijan, and Turkmenistan – have failed to agree. There are several reasons for this. First, there was an international law issue of how to decide ownership of the sea among the three claimant states. Iran insisted that until a unanimous agreement has been reached, the Soviet-Iranian Treaty should be the basis for deciding the ownership of the sea. Tehran favored the 'condominium approach' stating that all resources in the Caspian should be developed jointly. Iran was unhappy with the 'sea' definition of the Caspian as the 12-mile coastal zone would not offer possibilities for oil extraction. They also opposed the idea of dividing the Caspian into national sectors – something they claimed did not exist during the Soviet period.

Turkmenistan's position initially was similar to the Iranian stance, although later the differences prevailed. Ashgabat proposed that each state should have its coastal fishing zone, whereas the area beyond this zone should be used jointly by all littoral states. During the First Caspian Summit in 2001, Turkmenistan insisted on moratorium for oil exploration until coastal states agree on demarcation. Azerbaijan was Turkmenistan's

main opponent in debates as both countries claim Azeri and Chirag (known as Khazar and Osman in Turkmenistan) oilfields in Southern part of the Caspian (see ACG in **Figure 1**). Turkmenistan argued that these deposits lie beyond the median line closer to the Turkmen border. The country's appeal to the UN in 1997 to settle the dispute was not successful.

The Azeri-Turkmen relations worsened as the tension heated over the ownership of Kyapaz/Sardar Jangal oilfield (**Figure 1**). Turkmenistan attempted to call for tender to develop the area but suspended works soon since no company agreed to enter the consortium. Azeri SOCAR and Russian Lukoil started exploration works in the area in 1997. Following the notes of protest from the Turkmen side, Russia withdrew from the consortium. Turkmenistan continued to claim that Azeri and part of Chirag oilfields are being developed illegally by Azerbaijani consortium. However, the latter continued oilfield exploration works. The confrontation had led to worsening of diplomatic relations, and in 2001 Turkmenistan closed its embassy in Baku.

Azerbaijan found itself in arguably the most difficult situation because it had disputed territories with the both of the southern neighbors. Iran rejected the proposal to jointly develop Araz/Alov/Sharq fields also located in the South Caspian Sea. Similarly, Azerbaijan was not able to make progress in bilateral negotiations with Turkmenistan as none of the parties was willing to make concessions. The two countries were close to resolving a dispute in 1998, as they announced the agreement to divide the Caspian along the median line but they disagreed on where exactly the central line should lie.

Witnessing that the littoral states started to develop the hydrocarbon deposits in the Caspian, Iran in 1998 signed a contract with Royal Dutch/Shell and LASMO to develop Alborz deposit (named Alov in Azerbaijan). Azerbaijan immediately reacted by sending protest notes and claiming that the exploration works commenced in the Azeri part of the Caspian. Following this, Azerbaijan signed an agreement with BP in 1998 to conduct exploration works in the same area. In 2001, the tension escalated as the Iranian armed vessel forced Azerbaijani oil exploration platforms operated by BP-Amoco away from the disputed area (Lee, 2005). Subsequently, Iran sent military aircraft into the disputed areas and territories close to the Azeri coast.

With the escalation of the conflict, the geopolitical actors reacted immediately as Turkey, and the U.S. announced their support for Azerbaijan. Turkey sent its air forces to the Azeri border, whereas Washington offered financial assistance. Russia also criticized Iran's actions during the Caspian summit in July 2001 (Granmayeh, 2004). Eventually, the conflict was prevented from further escalation with Azerbaijan terminating oil operations, while BP announced the suspension of activities in the area of overlapping claims.

The upsurge in oil prices by the end of 1990-s meant that the littoral states defended their individual interests more fiercely, which led to rising tensions between the neighbors. Furthermore, external players started to play a more active and visible role in the region. Conflicts and the threat of military actions affected the level of political stability in the region as well as plans to build the new pipeline routes through the Caspian Sea. Conflicting geopolitical interests and lack of economic cooperation, therefore, made cooperation in the South Caspian Sea almost impossible.

3. Analysis and Discussion

In the following sections, we speculate on various factors that had led to a cooperative solution among the North Caspian States and a non-cooperative outcome in the South. We look at factors such as security and economic interests, historical ties (Fukuyama, 1989; Owen, 1994), geopolitics and geography (Brzezinski, 1997; Kissinger, 1994) and personal chemistry among leaders (Hermann & Hagan, 1998; Nye Jr, 2008). These factors are relatively well known in the literature on international relations but not in the commons literature.

We grouped the factors into three general categories, namely economic interests, geopolitics (security interests), and cultural distance (historical and personal ties). These are the variables of interest to governance regime scholars (see (Mitchell, 2013) for a review of the literature). It might be the case that there are other factors at play, but these are reasonable starting points for our analysis. **Table 3** summarizes the mechanisms driving these factors and our stylized assessment of the relative effects of these factors to explain successful cooperation in the North Caspian but not in the South Caspian (as of July 2018). We discuss these factors in the sections that follow.

3.1. Cooperation among the North Caspian States

After years of competition and major disagreements, claimant countries in the North Caspian Sea by the late 1990s have entered into various kinds of cooperative arrangements, especially joint oil exploration. Here we explore the factors that led them to cooperate with each other – economic interest, geopolitics (security interests), and cultural distance (historical and personal ties).

Table 3: Stylized comparison of factors affecting cooperation and non-cooperation in the Caspian Sea.

Cooperation determinants	North Caspian states (Russia, Kazakhstan, Azerbaijan) (successful cooperation)	South Caspian states (Iran, Turkmenistan, Azerbaijan) (non-cooperation as of July 2018)
Economic interest	All three states suffered from severe depression in the mid-1990s; both badly needed hard currency; this motivated them to strike a compromise. Azerbaijan and Kazakhstan were motivated to secure a deal with Russia as all their oil export pipelines traversed through Russian territory. All northern states needed political stability in the region to attract investments and reinvigorate their economies.	Sanctions against Iran prevented the neighboring countries to trade with each other and engage in joint investment projects. Turkmenistan and Kazakhstan could not secure investment for building oil export pipelines via Iran. Iran and Turkmenistan were generally known to be hostile towards foreign direct investment.
Geopolitics (security interest)	Both Azerbaijan and Kazakhstan are landlocked countries that heavily rely on Russia in terms of trade, oil exports, and regional security. For Azerbaijan, the ongoing conflict with Armenia meant that the country attempted to build alliances with Caspian neighbors to maintain their support.	Iran was alienated in the international arena and became an isolated player in the region. In foreign policy, Turkmenistan upholds 'positive neutrality' position, according to which the country does not participate in any regional or global security organizations.
Cultural distance (historical and personal ties)	All three northern states are Former Soviet Union (FSU) republics as well as members of the Commonwealth of Independent States (CIS). Well-established trade links between the North Caspian states. State leaders are former Communist party members	Iran is not an FSU country, nor is it a member of CIS, while Turkmenistan and Azerbaijan are FSU states and members of CIS. No established trade links between South Caspian states. Rivalrous and non-cooperative relations between leaders of states.

The trigger for a cooperative solution to the North Caspian Sea started with the compromise agreement between Kazakhstan and Russia to jointly develop the projects through a 50:50 joint venture (section 4.1). This agreement was crucial as it eventually paved the way for a deal with Azerbaijan and many other bilateral deals between Russia and Kazakhstan.

The compromise agreement made sense from the point of view of Kazakhstan's national interest. First, without Russia's agreement, the country could not fully realize the benefits of oil exploration as its crude export pipelines at that time traversed Russian territory. Second, Kazakhstan badly needed the revenues from the oil and gas after suffering from severe economic depression in the mid-1990s. Third, Kazakhstan is faced with a security dilemma, being located between Russia and China. As a new republic (born in 1991), and given the uncertainties in Russia and China in the 1990s, Kazakhstan needed some security guarantees from its giant neighbors.

Russia had earlier rejected Kazakhstan's draft of the Caspian Convention and stuck to their own position in the hopes of getting a bigger share of the revenue. However, Russia's energy sector companies lobbied politicians intensely. Most importantly, in the mid-1990s, the Russian economy was reeling from a great depression and running out of dollar reserves to import its needs. Russia needed hard currency and it made economic sense for it to agree to Kazakhstan's compromise.

With the support of the home government, Lukoil joined several oil projects in Azerbaijan and Kazakhstan. For example, in Azerbaijan Lukoil purchased 10% stake in the major the AIOC consortium (developing Azeri, Chirag and Guneshli oilfields) and 10% in the Shah Deniz project. In Kazakhstan, Lukoil entered Tengiz (5%) and Karachaganak (13.5%) mega projects. In the Caspian Sea Lukoil is a joint operator with Kazakhstan's companies in several projects such as Severnyi and Tsentralnoe in northern and central parts of the Caspian Sea. The company is a shareholder in the Caspian Pipeline Consortium (CPC), which is Kazakhstan's main export route to the world markets. The alignment of Lukoil's interests in Russia, Azerbaijan and Kazakhstan had a strong effect on these countries agreeing to cooperate with each other.

In international relations, geopolitics is a well-studied determinant of conflict or cooperation (Brzezinski, 1997; Kissinger, 1994; Mahan, 1914). Geographic proximity – sharing the land and maritime borders – ties countries together in terms of trade, culture, and geopolitics. When the economies of neighboring countries are closely linked together, their economic interests are aligned such that their dominant incentive is to cooperate. This does not mean though that there are no conflicts (there could be many because of proximity such as border issues, migration, transboundary issues) but both countries have incentives to cooperate.

We see this kind of dynamics in the North Caspian – between Russia, Kazakhstan, and Azerbaijan – which are bound by multiple ties, including shared history and cultural connections. Both Azerbaijan and Kazakhstan share a land border with Russia as well as the maritime boundary in the Caspian Sea. This made it difficult for the newly independent Caspian states to disengage fully from the influence of their northern neighbor, Russia.

After the collapse of the Soviet Union, Russia remained the main trade partner for former Soviet republics including Kazakhstan and Azerbaijan. Trade relations between the North Caspian triangle remained strong after the collapse of the Soviet Union. In 1994 Kazakhstan's President Nazarbayev proposed an idea of establishing Eurasian Economic Union (EEU) to facilitate economic integration in the region. The initiative was supported by Russia although it took another two decades until the EEU was formally established in 2014 with founding members including Belarus, Kazakhstan, and Russia.

Historical ties among countries help to promote cooperation through social networks among leaders. This mechanism is similar to the network mechanism discussed by Humphreys (2005). The elites of former colonies are often educated in top universities of colonial countries and speak the language of colonizers. It is through these ties – historical and cultural – that these networks of trust are built which makes communication, trust and eventually cooperation possible. This is the case that we see in the relations between Russia, and its former satellite states Kazakhstan, Azerbaijan, and Turkmenistan, which all share common ties during the Soviet Union.

Finally, scholars of international relations suggested that good working relations among leaders are important, though not sufficient condition, to the resolution of disputes (Hermann & Hagan, 1998; Nye Jr, 2008). Good working relations among leaders increase the likelihood of repeated face to face communication and negotiation to sort out contentious issues. They may not be able to solve problems immediately, but if they continue to communicate over time, there is a higher likelihood of finding a solution. In game theory, this is well known as iterated prisoner's dilemma game (Wu & Axelrod, 1995) in which iteration of the game increases the likelihood of cooperation in dilemma situations. In the commons literature, repeated face to face communication is widely regarded as a necessary condition for cooperation in solving collective action problems.

We see such dynamics in the case of Kazakhstan, Russia, and Azerbaijan. Both Azerbaijan's President Aliyev and Kazakhstan's President Nazarbayev were former leaders of the USSR Communist Party and served as heads of their respective regional governments prior to the dissolution of the Soviet Union. Just after few months after the collapse of the Soviet Union President Yeltsin and President Nazarbayev met in Moscow in May 1992 to sign a Treaty 'On friendship, cooperation, and mutual assistance'. This was followed by several more high-level meetings that culminated in a resolution of the Caspian Sea dispute.

The meeting of Yeltsin and Nazarbayev in January 1998 was fruitfully concluded by the joint statement in which the governments of the two states were commissioned to draft an agreement on the status of the Caspian Sea. The result of the consequent governmental negotiations was the signing (on July 6, 1998) of an agreement between Russia and Kazakhstan 'On the delineation of the bottom of the northern part of the Caspian Sea with respect to sovereign rights to subsoil use'.

After the signing ceremony, President Nazarbayev remarked that: '...oil gives either wealth or blood' (Informburo, 2015) and emphasized that the signed documents provide for mutual assistance of the parties in case of external military aggression. He also noted that the existing oil in the Caspian can be extracted only by solving the issue of political stability in the region. The document opened prospects for closer Kazakh-Russian interactions, but also enabled participation of foreign investors in exploration and exploitation of mineral resources of the Sea. Importantly, it also introduced a precedent for other riparian countries to follow the case by signing bilateral agreements on demarcation.

In summary, the impasse in the North Caspian Sea was resolved when Kazakhstan and Russia agreed to divide maritime borders as well as to share joint oil exploration and production contracts. For Kazakhstan, it made sense to offer a fair and acceptable deal to Russia so that it can realize the gains from high oil prices at a time when the country sorely needed finances following the economic depression in the 1990s. Kazakhstan's interests aligned with the interest of Russia's business groups, especially in the powerful oil

and gas industries. Without a cooperative agreement with Kazakhstan, they would not reap the benefits from the Caspian resources. With the alignment of economic interests, the prospects for cooperation was facilitated by the geopolitical environment, historical ties as well as good working relations between the leaders of former Soviet Union republics.

3.2. Failure of cooperation in the South Caspian Sea

The conflict in the South Caspian Sea features similar determinants of non-cooperation or conflict described by Giordano, et al. (2005): (1) resource ownership is ill-defined or non-existent (unclear maritime border and undefined status of the Sea), (2) existing institutional regimes are destroyed by political change (Soviet-Iranian treaties could not be enforced), and (3) rapid changes in environments outpace the capacity of existing institutions to deal with the issue (development of oil deposits required settlement of property rights).

Despite many years of trying, claimant states in the South Caspian Sea have yet to agree on the delimitation line in the Caspian Sea. We hypothesize that several factors could explain this failure to cooperate. It started with the breakdown of formal institutional arrangements in the Caspian Sea as a result of the collapse of the Soviet Union. Iran opposed changes in rules that would affect its strategic and economic interests in the Caspian. The country claims oilfields in the South Caspian such as the Alov/Alborz. As an aspiring regional power, and a rival to Turkey, Iran harbors strategic and security interests in the Caspian.

Because of these core interests, Iran insisted that until the gridlock is resolved the Soviet-Iranian Treaty should be the basis for deciding the ownership of the Sea. Tehran also stood against the classification of the Caspian as a sea because it possesses only about 13% of the shoreline, which would leave it with the smallest part of the territorial waters.

While the economic and security interests pushed North Caspian states towards cooperation, the same cannot be said about the South Caspian states. Iran and Turkmenistan were generally known to be hostile towards foreign direct investment and attracting investment was not on top of their agenda. Sanctions against Iran prevented the neighboring countries to trade and engage in joint investment projects. For example, Kazakhstan and Turkmenistan explored the option of constructing a transit pipeline via Iran to the Persian Gulf but failed to secure investments from oil multinationals and international financial organizations (Orazgaliyev, 2018).

The next equally important and related factor is geopolitics. Iran was alienated in the international arena and became an isolated player in the region. When the conflict between Azerbaijan and Iran escalated, the U.S. and Turkey got involved in the Caspian issue because of their distrust over Iran. Turkey and Iran as neighbors were also competing as regional powers. Azerbaijan had become a de facto a proxy in the Iran-Turkey/US/NATO conflict. Moreover, Turkmenistan had other border issues with Iran that complicated discussions over the Caspian. All of this suggests that geopolitics in the South Caspian prevented claimant countries from arriving at a cooperative solution to the Prisoner's Dilemma.

Another South Caspian state Turkmenistan upholds the 'positive neutrality' position in its foreign policy, according to which the country does not participate in any regional or global security organizations. The policy, which is entrenched in the country's constitution, articulated that Turkmenistan not only will not participate in any conflicts but also will not support any of the conflicting parties in the regional or international arena.

Nevertheless, Turkmenistan had several disputes with Iran over gas supplies, as media reported that Ashgabat suspended gas delivery to Iran in the winter of 2007-2008. Similarly, gas trade cooperation between Moscow and Ashkhabad have worsened over time, and Turkmenistan's gas supplies to its northern neighbor decreased from about 45 bcm in 2008 to just 4 bcm in 2015. This is explained by Turkmenistan's increasing gas cooperation with Beijing as more than half of the Turkmen gas exports was delivered to China by 2012 (Stegen & Kuszniir, 2015).

At the beginning of the 1990-s Azerbaijan sought to break ties with Russia and allied closely with the U.S. and Turkey. The country distanced itself from Russia because the latter supported Armenia in the conflict over Nagorno-Karabakh. At the same time, Azerbaijan welcomed oil majors because multinationals had the technology and capital to invest in offshore oil and gas fields. In doing so, Azerbaijan aimed to secure Western support in its continuous confrontation with Armenia. However, after failing to find such support, Azerbaijan restored its diplomatic and trade relationships with Russia eventually cooperating in resolving control over oil resources in the Caspian.

Despite geographic proximity, the South Caspian states not only lacked established trade links but also failed to build ones after the collapse of the Soviet Union. Besides issues of international law and geopolitics, it did not help that historical and political ties in the South Caspian were weak unlike those in the North.

Likewise, personal chemistry and fraternal ties among leaders in the South Caspian were not as strong as those in the North whose leaders would frequently meet face to face to sort out difficult issues. International and regional geopolitics turned Iran into an isolated state which has led to a deep distrust among South Caspian states. In short, politics continued to trump economics the South while in the North, pragmatic economics trumped politics.

3.3. Recent developments on the Caspian dispute

After we submitted this paper for initial review, the leaders of Caspian riparian states met at the fifth Caspian summit in Aktau, Kazakhstan on August 12, 2018. The summit resulted in the signing of the Convention on the legal status of the Caspian Sea. The Convention stipulated that each state shall have its national sector of the seabed, while the surface of the sea should be treated as international waters.¹ Although the convention is regarded as a breakthrough in resolving the dispute that lasted for more than a quarter of a century, the countries still must agree on a bilateral basis on maritime borders.

The same way as the conflicting interests prevented the Caspian states from reaching the agreement for many years, the convergence of geopolitical interests pushed the countries towards more cooperative behavior. The consensus on the legal status of the Caspian Sea was reached mainly due to the two exogenous geopolitical factors. First, the introduction of Western sanctions against Russia and Iran led to the convergence in positions of these two countries on many issues, including the Caspian dispute. Secondly, the increasing participation of China in Central Asia and the Caspian region prompted Russia and Iran to re-establish regional cooperation to counterbalance China's influence. It is further expected that China's Belt and Road initiative (BRI) and the fruitful cooperation between the Caspian states will foster closer economic integration in central Eurasia.

4. Conclusion

In conclusion, our paper offers two contributions to the literature on global commons. First, we highlight the importance of realpolitik in the governance of the global commons – the reality that countries first and foremost pursue their economic and geopolitical (security) interests over other considerations. In the case of the North Caspian, economic and geopolitical considerations were the main drivers of cooperation. In the case of the South Caspian Sea, geopolitical factors hampered cooperation. Perhaps to a lesser extent, cultural distance (historical ties along with interpersonal relations between leaders of states) seem to have made the difference between the North and South Caspian.

Second, our paper also adds to Young's (2011) regime theory i.e., governance regimes for the global commons are not static and can change over time as a result of interplay of economic and geopolitical factors. The high demand for energy driven by the rise of China and the geopolitics involving Iran, Turkey, the US, and Russia were two of the dynamics at play in the Caspian Sea.

We concede that our Caspian case study may not provide universal implications for generalizing to other global commons. In fact, it is a special case because economics and politics of oil and gas resources and pipelines are certainly different from other global commons such as biodiversity, arctic whaling, climate, oceans, and international rivers. However, framing the study of global commons from the perspective of international relations theory – in particular, realpolitik – can help to shed light on conflict and cooperation in the global commons.

Competing Interests

The authors have no competing interests to declare.

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¹ Convention on the Legal Status of the Caspian Sea, August 12, 2018, <http://en.kremlin.ru/supplement/5328>.

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