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The Caspian Security Lacuna

Evaluating Challenges to the Energy-Transportation-Connectivity Triad

Jahangir E. Arasli

The intense transformation in the global security landscape projects its multiple effects onto a pivotal part of broader Eurasia (the Silk Road region), whose core sub-region is the Caspian Sea and its littoral areas. These effects present both regional and external actors with promising opportunities and proliferating challenges. Beyond a myriad of other patterns, the latter category encompasses security risks and threats in the energy, transportation, and connectivity (ETC) domain.

It is necessary to define briefly the energy-transportation-connectivity (ETC) trinity for a better understanding of the topic under consideration. An energy system is a set of physical components and procedures involved in producing, converting, distributing, and utilizing energy. A transportation system represents the collection of infrastructure, mechanisms, and operations that facilitate the movement of people and commodities. And a connectivity system is a constellation of infrastructures and technologies that enable networks to connect and communicate with each other, transferring information and signals.

Hence, this IDD Analytical Policy Brief systematizes and evaluates challenges in the ETC milieu, which originate at the intersection of geopolitics, ideologies, and technologies (GIT). More specifically, the GIT triangle spans (a) the geopolitics-induced strategic competition between states; (b) vicious ideologies that motivate violent non-state actors; and (c) novel and emerging technologies as a tool enabling threat execution. The paper analyzes the rising geoeconomic significance of the Caspian Sea, which prompts potential geopolitical rivalry, the impact of proximate wars and armed conflicts on the area, and adverse non-state and technological factors. A particular fragment focuses on hybrid war

Jahangir E. Arasli is Senior Research Fellow at the Institute for Development and Diplomacy (IDD) of ADA University and a former Adviser on International Issues in the Ministry of Defense of Azerbaijan. The views and opinions expressed herein are solely those of the author, who may be contacted at jangir_arasly@yahoo.co.uk.

possibilities and capabilities that are potentially applicable in the ETC domain of the Caspian Sea region.

Competitive Geoeconomics and Escalating Geopolitics

The war in Europe, which began in 2022, the intensifying strategic competition between major powers, and other factors are restructuring the geoeconomic landscape in Eurasia, the Silk Road region, and its Caspian Sea cluster.

As of 2025, more than a few principal energy corridors, transit and trade routes, and communication paths originate from or pass through the Caspian Sea area. More specifically, the Caspian "web of corridors" includes nine actual and emerging components (eight of which originate from or run through Azerbaijan):

- The Trans-Caspian International Transportation Route (TITR, also known as the Middle Corridor), a multimodal trade route that links Asia (primarily China) to Europe (and vice versa).
- The International North-South Transport Corridor (INSTC), a more than 7,200-km-long route that enables a two-way communication between Russia and the Indian Ocean region (e.g., India, Iran, and the Gulf States).
- The Southern Gas Corridor (SGC), an internationally operated pipeline project supplying natural gas from the Caspian Sea region to the European markets.
- The Trans-Caspian Gas Pipeline, a pending project related to an underwater pipeline that would traverse the Caspian Sea and attach Turkmenistan to the Southern Gas Corridor via Azerbaijan.
- The Baku-Tbilisi-Ceyhan (BTC) oil pipeline, a 1,786-km-long installation that connects Azerbaijan's offshore oilfields in the Caspian Sea with the Mediterranean Sea.
- The Caspian Pipeline Consortium's (CPC) oil pipeline, a 1,511-km-long structure enabling the delivery of Kazakhstan's oil from the Caspian Sea to the Black Sea export terminals.
- The Western Route Export Pipeline (a.k.a. the Baku-Supsa pipeline), an 833-km-long oil pipeline that connects Azerbaijan's Caspian oilfields with the exit point on Georgia's Black Sea coast.
- The Caspian-European Union Green Energy Corridor, a strategic initiative that, upon its materialization, will facilitate the supply of green (renewable) energy from Azerbaijan and the Central Asian states to Europe.
- The Digital Silk Way, a project aimed at the formation of a fiber-optic telecommunication corridor across the Caspian Sea that will integrate into a broader digital architecture that provides services to the regions of Central Asia, South Caucasus, South Asia, and the Gulf.

Keeping in mind such an impressive transit infrastructural plexus, there is a need to take into account that the Caspian Sea basin and littorals are also an immense energy

reservoir with a twin capacity: hydrocarbon (oil and natural gas) and green (solar, wind, and tidal) energy.

Evidently, the Caspian Sea has emerged as a focal point in the geoeconomic map of the broader Eurasia and its Silk Road region, and its strategic relevance continues to grow. Consequently, the shifting geoeconomics brings geopolitics in its wake.

The unfolding strategic competition, a power play at the global level, and a mix of vested economic and security interests naturally draw out-of-area actors to the Caspian Sea region.

Consider the following:

- China views the Middle Corridor as a vital transit branch of its Belt and Road Initiative (BRI), whose significance and utility increase in conditions where the northern BRI leg (via Russia) is all but dysfunctional. The southern one (via the Indian Ocean) is overextended, dependent on maritime chokepoints, and is affected by heightened security risks, such as those in Yemen.
- Europe (the EU plus the UK and Norway) grasps the region as a vital part of its Global Gateway Initiative and expects a sustainable supply of energy and raw materials from there, which is essential to accelerate Europe's industrial remilitarization to counter the perceived Russian threat and to mitigate its effects on economies and societies.
- Russia (which is a resident actor in the Caspian region but a continental-scale power at the same time) needs the International North-South Transport Corridor to facilitate the sought outreach to the Global South and the outer markets and circumnavigate the imposed Western sanctions. India, Iran, and some Central Asian states share Russia's commitment to the formation of the INSTC.
- The United States, although interested in diversifying energy supply chains and sources, is more security-oriented in the Caspian Sea region, watching it to control and check the ambitions of China, Russia, and Iran (and potentially, those of the EU as well).

Against this background, the Caspian-5 (i.e., the littoral states) objectively splits into two groups: the "winners" and the "losers." As Azerbaijan, Kazakhstan, and Turkmenistan can expect prospective benefits from the transit projects and international cooperation, Russia and Iran perceive themselves as geopolitically besieged and economically sanctioned by the hostile Western camp. As one would expect, the diverse and partially conflicting interests of the various external and resident actors set the stage for a more tense security environment in the Caspian Sea area. This condition already begins to affect the ETC domain implicitly, as explained hereinafter.

Within the Ring of Fire

At this point, Russia and Iran are engaged in major military confrontations. Although differing in their causes and courses, these wars already have secondary impacts

on energy, transportation, and connectivity in the Caspian Sea, leading to a creeping militarization of the region.

In particular, Russia uses the Caspian waters and airspace over it for launching missiles against targets in Ukraine. The latter, in turn, responds by targeting the Russian infrastructure, including that around the Caspian Sea. In late 2024-early 2025, the Ukrainian one-way attack (OWA) drones hit an oil refinery in Astrakhan and the Kaspiysk seaport. In the fog of war, the Russian air defense erroneously hit the Azerbaijan Airlines passenger jet over the North Caucasus in December 2024, causing a catastrophic outcome.

Since 2023, the Russian Black Sea port of Novorossiysk—the terminus of the CPC pipeline that transports Kazakh oil from the Tengiz offshore field to the global market—has been subject to intermittent attacks by Ukrainian naval and aerial drones, resulting in shutdowns of operations. Besides, this pipeline activity was repeatedly stopped in 2025 by Ukrainian drone attacks that damaged the pump station in the Russian North Caucasus. This condition compels Kazakhstan to consider expanding its tanker fleet on the Caspian Sea to divert part of its oil exports (along with the commodity flows) to Azerbaijan's terminals.

The ripple effects of the ongoing war in Ukraine are geographically spreading in the form of hybrid operations far away from its epicenter, including the Baltic and Mediterranean Seas. In this context, no less than three of six oil tankers damaged by subversive attacks attributed to Ukraine in 2025 were carrying Kazakh oil. This is a clear example of how geopolitical conflicts can impact the energy sector, regardless of the geographic distance and political neutrality of the affected party.

Concerning the Black Sea, it is also worth keeping in mind that the undersea electricity cables of the Green Energy Corridor, which are supposed to deliver "clean" energy from the Caspian shores to Europe, must pass in the proximity of the Russia-Ukraine war zone, which shows no indication of an endgame. This places additional risks, costs, and safeguard requirements at the stage of the project's practical implementation.

In June 2025, the bitter conflict between Iran and Israel culminated in the "Twelve-Day War", which involved U.S. military action at its last stage. The remote air-missile engagement between the adversaries developed over the projected International North-South Transport Corridor, affecting some of the related infrastructure, including the seaport Bender Abbas, the INSTC's southern terminus. It also led to the rerouting of civil aviation flight routes over a broad area, part of which is directly adjacent to the south coast of the Caspian Sea. In the course of this war, Tehran issued veiled threats of "retaliation," implying Azerbaijan, which is not a party to that confrontation.

The perilous consequence of the mentioned wars involving Russia and Iran is that the Caspian Sea region is steadily merging with the Black Sea and the Gulf into a single

strategic space, absorbing security challenges, risks, and threats emanating from the latter regions through a "domino effect." Furthermore, the logic of the strategic competition could provide certain actors with inducements to target and destabilize their opponents' interests. Although the likelihood of overt confrontation scenarios on the Caspian Sea appears low, at least now, hybrid scenarios remain a possibility.

The Hybrid War Facet

As I defined it in my earlier publications, hybrid war essentially is "a postmodern war strategy based on a complex and concealed application of multiple tools of hard and soft power, aimed at the achievement of the desired goals without trespassing the distinction line between war and peace." The ultimate objective of this "grey zone" war strategy is to coerce the targeted side to act (or be inactive) in a way preferable for the attacking side. The characteristic features of the hybrid war (putting aside its information and cognitive aspects) are as follows:

- The distinction line between a real war and peace is blurred.
- The operational toolbox encompasses a range of covert, unconventional, and asymmetric options.
- Covert actions (subversion, sabotage, "false flag" attacks, cyber-attacks, etc.) are a tactic of choice in the context of hybrid war; direct actions or kinetic operations are possible but less frequent and measured in scale.
- Deniability is a core element of hybrid war. However, a hostile attack may be evident, but its source remains unknown or unsubstantiated (e.g., the 2022 explosion of the NordStream gas pipeline in the Baltic Sea).
- The engagement of outsourced proxy elements is an additional benefit (e.g., strike against oil facilities in Saudi Arabia, 2019).
- The cost-benefit balance favors a side that employs a hybrid war strategy: it can achieve the sought-after objectives and harm the opposing side with minimal investment effort, utilizing humble, low-cost tools and simple tactical solutions.

The latest expressive example of the strategic-magnitude hybrid war is the recurrent maritime insurgency in the Red Sea area perpetrated by the Yemeni Ansarallah movement, which is Iran's regional proxy actor. To achieve its ends, Iran supplies Ansarallah with weapons, facilitates training, and provides operational directives. Ultimately, Iran-inspired and supported actions impacted marine traffic, diverting it to longer and less convenient shipping routes, resulting in multibillion-dollar losses to global trade.

Although the Red Sea is some 4,000 km from the Caspian Sea region, and the developments there at a glance do not relate to the latter, a key detail needs to be considered: the actor present in both mentioned maritime theatres is the same, namely Iran.

Iran deploys an array of unconventional, sometimes improvised, naval warfare capabilities in the Caspian theatre. Based on a well-known *modus operandi* of Iran

and its proxies in the Gulf, the Red Sea, and the Mediterranean Sea, it is possible to forestall a similar course of action in the hypothetical contingencies in the Caspian Sea. The likely operational templates of the use of force vis-à-vis the ETC domain will include swarming speedboat attacks and missile-drone strikes against shipping lines and port infrastructure, covert mining of the water areas (e.g., using merchant and fishing vessels), frogmen attacks against underwater pipelines and offshore installations, boarding and seizure of oil rigs and merchant vessels, and cyberattacks. An ultimate strategic objective of Iran's potential hybrid action(s) would be to deliver a *disruption* to the energy and associated infrastructures, causing physical damage that could be somewhat limited. The anticipated effects would be to influence the global energy market and alter the behavior of the attacked side(s).

Another cause of concern in the Caspian Sea is the potential application of seabed warfare, a definite military tactic aimed at targeting critical underwater infrastructure. Russia has developed a set of specialized skills and capabilities, with a command structure pertinent to this kind of warfare, known as the Main Directorate of Deepwater Exploration (GUGI). Reportedly, Russia is aggressively exploiting its undersea assets in the course of the ongoing hybrid war against the West in the European theatre, particularly mapping and periodically damaging the pipelines, electricity, and internet cables on the sea floor. Protecting offshore and underwater critical infrastructure poses a particularly complex challenge, given the unique physical characteristics of the maritime environment. Meanwhile, the economic and political impact of an imaginable underwater attack would likely be high, not to mention secondary effects on the unique Caspian Sea ecosystems. Although there have been no known instances of such incidents in the Caspian theatre so far, a likelihood persists and needs to be considered.

Overall, the Caspian Sea is a tense and target-rich environment. Its infrastructural ETC landscape comprises seaports, sea lines of communication, hundreds of merchant vessels, oil terminals and jetties, offshore oil and gas rigs, oil and gas underwater pipelines and interconnectors, and seabed electricity and internet cables. Each of these technological systems has a distinct physical form and a corresponding digital interface. That particularly means each is a potential target. Besides, more complex and multimodal systems are more vulnerable to potential hostile or malevolent force projection. Removing just one of its components could cause the collapse of the entire systemic architecture.

Non-State Trends

Amid the increasing strategic competition between state powers, the factor of violent (e.g., terrorist-extremist) non-state actors (VNSA), which has ostensibly lessened in the past decade, has started recurring. VNSA's principal drivers are destructive ideologies based on the distorted interpretation of religion or twisted postmodern political creeds, which motivate their actions against perceived foes, including targeting the ETC domain.

In the Caspian Sea region's proximity, the primary concern is the Islamic State in the Khorasan Province (IS-KP) terrorist network operating from Afghanistan in the Central Asian states and Russia. In addition, it is essential to keep in the field of view an enduring jihadist underground in the North Caucasus, especially in Dagestan, and potentially, in Chechnya. The 2024 regime change in Syria released many thousands of hardcore veteran jihadists who potentially can diffuse into the states adjacent to the Caspian Sea region, in Central Asia above all. The same consideration is relevant to the potential recurrent influx of former combatants (citizens of the region's states) who participated in the war in Ukraine on both sides, especially in paramilitary outfits such as the Wagner group.

It is possible to classify terrorist tactics, techniques, and procedures focused on the ETC triad into four layers of attack: conventional, suicide, remote (unmanned), and complex attack, which includes one or more elements of the former three types. The insider threat (associated with personnel employed in or connected to the ETC structural space, who might act maliciously out of single-cause reasons) is also a probability that entails an integration into the threats and risks matrix.

Then comes the so-called eco-terrorism (a.k.a. environmental extremism), a marginal category related to a radical political activist subculture. It specifically discriminates against fossil fuels as the purported cause of global warming. This conviction triggers actions limited mostly to hardware vandalism and (in some cases) low-grade terrorism. Finally, yet importantly, there is an emerging trend of anti-technology extremism based on the persuasion that the transformative technologies represent an existential threat to humankind (artificial intelligence is a primary target of this sort of "new Luddite").

Generally, although there were no attacks perpetrated by violent non-state actors specifically against ETC infrastructure and associated peripherals in the Caspian Sea region, this latent threat persists in the background and can materialize under certain conditions. The principal worry in this regard is the potential VNSA symbiotic relations with those states, which will be willing to outsource terrorist groups as proxies to target opponents' interests in the context of strategic competition (as Iran did in the case of the aforementioned strategic disruption in the Red Sea). A state-to-non-state transfer of troublemaking technologies and related competences is a particular pattern of a war-by-proxy, as explained in the next chapter.

Technological Factor

Cutting-edge technologies are a driver of human progress, not a problem in themselves. However, in the context of the discussed subject, they could serve as enablers and force multipliers for states and violent non-state actors that contemplate disturbing the ETC domain, especially in the context of hybrid war.

Firstly, there is a collection of unmanned (robotic) warfighting tools that have gained a revolutionary impetus and dramatic diffusion in the wake of the ongoing wars, particularly in Ukraine and the Middle East. This group encompasses a diverse range of unmanned aerial systems (UAS, or drones), uncrewed surface vehicles (USV), and autonomous underwater vehicles (AUV) that are assisted by artificial intelligence, satellite navigation (such as Starlink), precision guidance instruments, and various other technologies.

This innovative, high-tech entourage can be used in a wide range of tactical scenarios, from periodic, disruptive robotic projection (harassing attacks) to one-time or sequential, massive swarming strikes. Besides state-directed hybrid operations, unmanned systems also pose a threat in the context of technology-driven terrorism. The technical characteristics, simplicity, commercial availability, low cost, and substantial lethality of these systems make them non-state actors' weapon of choice. Essentially, any ostensible pizza boy can turn into a strike drone carrier, releasing them from his bike's box.

Finally, the cyber domain remains a key vulnerable functional area in the framework of ETC critical infrastructure. Successful cyberattacks (like distributed denial of service attacks or malware infections), executed by a state or non-state actor or even an individual perpetrator, could effectively incapacitate an entire system or an essential part of it.

Key Takeaways

(1) Geopolitics

- The shifting geopolitical and geoeconomic dynamics in broader Eurasia release divergent effects on the Caspian Sea region.
- The prominence of that region as an energy reservoir, transportation hub, and connectivity node grows evidently.
- The reverse side of this progression is that the Caspian Sea becomes a tense strategic geography, offering the littoral countries not only opportunities, but also risks and challenges.
- The increasing strategic competition between state powers, the militarization of international politics, and the security vacuum in the region pose potential risks in the energy, transportation, and connectivity realms.
- State actors willing to subvert their peer opponents could consider constructing crises and/or applying hybrid warfare strategies aimed at destabilizing energy markets (i.e., weaponized manipulation of energy) and disrupting supply chains and connectivity grids.
- In that hypothetical crisis setting, the ETC triad will become a preferential target for the state spoilers and their non-state proxies.

(2) Hybrid War Challenge

- Hybrid warfare is a strategy of choice to disrupt the ETC domain with minimal invested effort, plausible deniability, and actual end-state effects.
- An offensive side would have the advantage of choosing appropriate timing, location, and means of attack, as well as the ways to preserve non-attribution.
- Access to hybrid warfare capabilities, enabled by sophisticated technologies, could inspire the possessing sides (states and/or non-state actors) to develop intentions for their practical application.
- Therefore, the existing capabilities and potential intentions should remain in the concerned sides' focus.

(3) Protection, Prevention, and Resilience

- Given the strategic significance of ETC infrastructure, its protection poses a constant challenge, stress, and burden for the concerned states.
- The spatial dimension, systemic complexity, and density of the "Caspian web of corridors" necessitate the development of sufficient and adequate security structures, arrangements, and procedures at a pace that keeps pace with the evolving threats and risks.
- All security systems, even the most sophisticated and robust, have loopholes; hence, an approach and response to threats and risks must be proactive, rather than reactive.
- Protecting ETC critical infrastructure in the maritime environment is a remarkably complex mission that demands extraordinary efforts and investments.
- Addressing new technology-prompted concerns (such as malevolent use of drones, AI, etc.) requires out-of-the-box thinking and innovative counter-technological solutions.
- Energy, transportation, and connectivity segments in the geographically compact Caspian region are effectively indivisible; therefore, an approach to their protection should be holistic, without segmental separation.
- ETC critical infrastructure should have the ability and capacity to prepare for, endure through, and quickly recover from disruptive events; in this regard, reserve capabilities are essential to minimize impacts and maintain the domain's functionality.
- Even a minor degree of probability of *force majeure* scenarios demands their integration into security assessments and the unceasing forecast and foresight cycle.

To reiterate: thus far, there have been no major contingencies related to the ETC milieu in the Caspian Sea region. However, the absence of incidents does not necessarily mean it is secure. The probability-impact ratio matters: the prospect of extreme scenarios in the Caspian region may be low; however, if materialized, their impact will be very high. From this perspective, the region is still perceived as having a certain security lacuna.

Surely, the states in the region do their best to protect their ETC assets, albeit individually. However, if they manage to integrate their energy and resources to safeguard their commons, the effects will multiply, especially when the willing out-of-the-region stakeholders join them. Multinational cooperation across regions, borders, and waters is a massive force multiplier. Although there are no tangible collective security frameworks in the Caspian Sea region at the current moment, they are likely to emerge and mature, rather sooner than later. In this regard, the Organization of the Turkic States (OTS) deserves much attention.