Maritime Trade and Environmental Cooperation in the Caspian Sea

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Since the 10 November 2020 ceasefire agreement, Turkey has been showing a growing interest in securing its position in the Chinese Belt and Road (BRI) initiative linking Eastern and Western markets. Interest in the South Caucasus and the Trans-Caspian trade-routes as part of the Middle Corridor has been revived. Both Turkey and Azerbaijan are discussing the future of their economic ties with Central Asia and China.

After years of dispute over the Caspian Sea, the five littoral countries signed the Tehran Convention back in 2018, but not much action has been seen in terms of environmental collaboration. In January 2021, Turkmenistan ratified a joint exploration and development agreement with Azerbaijan, ending a decade-long dispute over the *Dostlug* hydrocarbon field. This joint development agreement can pave the way to greater cooperation in trade and environmental issues, helping the two countries put past differences behind. Azerbaijan stands to benefit greatly from developing a merchandise corridor through the Caspian Sea to serve as an essential transit point between East and West, but without tighter regulation these increased maritime trade flows will further degrade the local environment, resulting in higher pollution and desertification levels.

If the Middle Corridor between China and Europe is to pass through Azerbaijan, then the Caspian Sea's survival must be at the top of Azerbaijan's priorities. The literature regarding the complex relationships between increased trade and the environment, in this case, water levels and quality, is extensive. Many have discussed the effects of the Aral Sea's

desertification on the economies of Central Asian countries. This paper investigates the risks of a lack of environmental cooperation in the Caspian Sea on Azerbaijan and littoral countries' economies. Due to the increased transportation on the Trans-Caspian trade routes, the Caspian Sea is under risk of desiccation by the end of this century. This analysis shows that policy harmonization and collaboration on mitigating the Caspian Sea's water-level decline and adapting to climate change are urgently needed.

Maritime trade and environment: What are the risks and the ways out?

Trade openness is key to achieving economic development and regional integration. Participating in global value chains and trade routes contributes to a higher Gross Domestic Product (GDP), higher income and education levels, lower poverty rates, and overall better quality of life in the long-term. Azerbaijan is planning to do that by putting the Caspian Sea on the BRI map. In this section, I will investigate the interconnection between international trade and the environment.

The relationship between trade and the environment has been thoroughly discussed in the literature. There is no true consensus on whether the increase in trade flows has only negative or positive effects on the environment. For decades, research has been polarized between the theory that economic growth can only be achieved at the expense of the environment and a more optimistic one that asserts the possibility of sustainable development (Frankel and Rose 2005). Furthermore, research also shows that economic growth has both positive and negative effects on the environment (Grossman and Krueger 1993; Kahuthu 2006). However, when it comes specifically to international trade, there is a more apparent distinction between the increase in import and export flows. While the increase in a country's import flows has a positive relationship with environment, the same cannot be said for

export flows (Emerson et al. 2011). This finding suggests that the negative or positive impact of Azerbaijan's trade on the Caspian Sea depends on which trade flow is increased.

Maritime trade represented over 80% of all merchandise trade in 2017 (UNCTAD 2018). The world's largest landlocked body of water, the Caspian Sea, is, thus, an essential asset for all littoral countries. Its port infrastructure is essential for Azerbaijan to succeed both regionally and internationally, and it has been a priority for more than a decade. All five littoral countries have been prioritizing infrastructure construction. For example, Azerbaijan and Kazakhstan have improved their Baku and Aktau port quality by hiring port infrastructure specialists from Singapore (Mooney 2015).

For these investments to be fruitful, cooperation over the Caspian Sea's environment is critical. The main challenge in doing this is the Caspian's water level instability as it poses a significant threat to both the environment and the future economic development of Azerbaijan. By the mid-20th century, the Caspian Sea had lost 1012 km3 in river water inflow, mainly due to the construction of several dams and reservoirs on the Volga River and overall increased agricultural activity (Vendrov et al. 1964). Despite the slight increase in water inflow from the 1970s to the 1990s, the last few decades have been synonymous with increased water evaporation, leading to fears of desiccation of the Northern parts of the basin. Recent research goes as far as predicting the North Caspian's disappearance by the end of the 21st century (Chen et al. 2017).

With the desiccation of the Caspian Sea come several other problems. Firstly, water access for bordering populations and the decrease in fishing grounds will affect small coastal villages due to the negative impacts on food security. On the economic side of things, the situation is not any better. With climate change and the worsening of trade's adverse effects, maritime transport infrastructure stands to be affected the

most.

Finally, port infrastructure and equipment are vulnerable to rising temperatures, lower water levels, and erosion patterns. The Caspian's flooding and the inundation of its ports will force higher maintenance costs and reconstruction of infrastructure in more severe cases. The lack of environmental cooperation will essentially render the infrastructure created to support the Trans-Caspian trade useless (Prange et al. 2020; UNCTAD 2008).

Ultimately, the higher water level fluctuation and desiccation of the Caspian threatens plans of it becoming the main transit route between Eastern and Western markets (Yazdanpanah Dero et al. 2020). Preserving the equilibrium between trade and the environment is critical.

Mitigation of and adaptation to climate threats in the Caspian Sea

Several options exist for the Azerbaijani government to protect the Caspian Sea's environment and reduce the negative impacts of environmental degradation on maritime trade. Generally speaking, the effects of international trade openness and liberalization on the environment highly depend on a country's domestic environmental policy regime (Copeland and Taylor 2003). Policymakers need to implement compatible trade and environmental policies to achieve sustainable development. One such way is through taxation.

If a country implements a rigid policy of added tax on pollution intensity while also liberalizing trade, the result is counter-effective as companies turn towards more pollution-heavy production. The impact of such a policy, however, depends on the comparative advantage of the country. Countries that are highly productive in clean products will tend to increase trade in less-polluting sectors instead. An alternative to this environmental policy is the implementation of a Pigovian tax. Similar to the previous case, the fixed

number of pollution permits does not appropriately adapt to market shocks. When trade is liberalized, the shift towards the production of clean products is not encouraged as the price of the pollution permit falls. A more flexible government policy when it comes to pollution does not automatically decrease pollution rates either. When trade is liberalized, the price of polluting goods increases, followed by an increase in production and, thus, demand in pollution. On the other hand, consumers are less interested in more expensive dirty goods, and the demand for pollution decreases. In response to this, the environmental policymakers can adapt by raising the pollution tax.

In all three options, the analyzed country's comparative advantage is essential in assessing trade liberalization's effects on the environment. Empirical evidence shows that environmental degradation is positively linked to trade flow increase in developing resource-rich countries (Feridun et al. 2006). This could suggest that using taxation to incentivize the development of less-polluting industries, especially outside the traditional oil-and-gas sector, can be a viable option for Azerbaijan. In this regard, trade liberalization has been proven to have positive effects on economic diversification, as well as regional cooperation on environmental issues. Liberalizing trade means signing new trade agreements, be it regional, bilateral, or even at the level of multinational economic cooperation such as the European Union (EU), Eurasian Economic Union (EAEU), or the Economic Cooperation Organization (ECO). Since the early 2000s, the number of regional trade agreements (RTAs) has only increased because many countries have started seeing the usefulness of regional economic integration in economic growth. In the face of climate change and environmental challenges, some countries started implementing environmental provision clauses such as multilateral environmental regulations, the enforcement of domestic environmental laws, or clauses promoting trade in environmentally clean goods and

services (Monteiro 2016).

While the inclusion of environmental policies in RTAs has not been proven to impact environment and lower pollution levels directly, research shows that membership in an RTA has a positive relationship with mitigation of environmental degradation (Martinez-Zarzozo 2018). Unfortunately, the increase in the number of RTAs signed is not applicable to the South Caucasus. Azerbaijan does benefit from Preferential Trade Agreements granted to countries with the Least Developed status, but this does not bring the same trade advantages as an RTA. It is thus advisable to increase regional cooperation with both Turkic nations via ECO and the post-Soviet region with the EAEU.

Nevertheless, the mitigation of environmental hazards can be done through different strategies. While for developing countries, the switch to electric equipment is a challenge, other measures can be implemented to reduce CO2 emissions. For instance, cost-cutting strategies such as reduced ship speed have been proven to decrease air and water pollution while also helping decrease freight rates, thus increasing trade competitiveness (UNCTAD 2008). However, mitigation is not enough; climate change is nevertheless inevitable and maritime trade needs to adapt.

Adapting maritime trade to climate change is essential. It can include the construction of more heat-resistant port infrastructure and equipment, better weather monitoring in the face of extreme climate change, and protection structures around ports and the low-lying areas around (UNCTAD 2020). Adaptation costs might be too high for developing countries but the cost of inaction is much higher. Finally, maritime trade presents another issue. A common body of water, such as the Caspian, is shared between several countries. The littoral countries need to come to a win-win agreement that benefits all involved. World best-practices emphasize the importance of consistency and complementarity between domestic and

international environmental policies.

According to recent estimations, Kazakhstan stands to lose the most coastline in the Caspian's desiccation (Akbari et al. 2020). However, the degradation of port infrastructure in Aktau will most impact the overall trans-Caspian trade. An impact on one port will affect trade on the receiving side and vice versa. Given the strategic role of the Caspian Sea and the ports on its coasts for the littoral economies, mitigation and adaptation policies can only be successful with full environmental cooperation. Because of global interconnectedness, certain countries produce and transport pollution-dirty goods for consumption in other countries. This specific phenomenon pushes for a world where some countries specialize in polluting goods for export to more developed countries with better environmental policies (Garsous 2019).

The shift from motivation to real action has not yet happened in the Caspian despite the 2018 Tehran Convention and the 2020 Caspian Environmental Protection Initiative. Some minor successes include higher cooperation in meteorological monitoring. However, mere recommendations have not had real effects on the environment (GRID-Arendal 2019). Recently, hopes have been revived with the possible strengthening of political and economic ties all over the South Caucasus and Central Asia. It can be expected that the recent joint development deal signed between Azerbaijan and Turkmenistan in early 2021 will have a positive impact on the environment of the Caspian Sea. Since the oil-and-gas industry is the highest driver of pollution and the most significant contributor to the environmental degradation of the Caspian Sea, economic diversification strategies could have beneficial effects in the long-term (GRID-Arendal 2019).

The Quiet Chernobyl – a cautionary tale

A comparative method can be used by analyzing the case of the Aral Sea desiccation to understand the threats to the

Azerbaijani economy that the lack of environmental cooperation and action can have. Just like in the Caspian Sea, despite the existence of global climate change effects on water levels, it is human activity that has been the most significant contributor to the environmental degradation of this Central Asian body of water located in between Kazakhstan and Uzbekistan (Aus der Beek et al., 2011). As pinned by researchers in the 1990s, the Quiet Chernobyl or the Aral Sea's desertification since the mid-20th century has had devastating effects on the bordering populations' health as well as the economic development of Central Asia (Glantz and Figueroa 1997).

Cotton, a water-intensive crop, is at the root of the problem. From the Soviet-era cotton production intensification to today, the Aral Sea's water volume is now less than a quarter of what it amounted to in the 1960s (Lee and Jung 2018). According to Comtrade data, from 1995 to 2018, Kazakhstan has more than doubled its cotton exports, with a peak in 2006. Similarly, Uzbekistan is dependent on the textile industry, with over 25% being related to cotton production (Muradov and Ilkhamov 2014).

The economic consequences of the Aral Sea's desiccation include higher unemployment rates and lower production that comes with the loss of water and fish resources and the loss of human capital due to migration to more attractive areas (Ismailova 2013). Many researchers have put forward strategies targeting a more sustainable water withdrawal to restore volumes in inland saline lakes such as the Aral Sea or the Urmia Lake in Iran's East Azerbaijan region (Hassani et al. 2020). In the Aral Sea case, research focuses on bettering the irrigation systems currently in place for agriculture and sustainable use of water resources (Tussupova 2019). However, because the Aral Sea's pollution and desiccation are mainly due to the agricultural use of water, the same approach cannot restore the water levels in the Caspian Sea. The main challenge to even the partial recovery of the Aral Sea was the

lack of regional cooperation. Trans-boundary water resources are difficult to manage. But the littoral countries failed at effectively addressing the environmental degradation of the Aral despite numerous agreements and initiatives. The International Fund for Saving the Aral Sea (IFAS) was created in 1992 to handle this ecological issue with joint water resources management amongst Central Asian countries. However, as can be seen now, ecological disaster was not avoided.

Conclusion

The current ecological problem in the Caspian Sea will undoubtedly have deteriorating effects on both human livelihoods and the economic development of Azerbaijan and its neighbors. Transboundary bodies of water are challenging to manage. The lack of cooperation, and more importantly, of action, in mitigating such ecological crises is the biggest challenge.

This paper first analyzed the current threats of the Caspian's ecological deterioration on the Middle Corridor's future bridging East and West. The evidence suggests that the transport network that Azerbaijan is betting on threatens its economic development. Past cooperation has been challenged by issues over the Caspian's legal status and disputes over territorial jurisdiction. Now that the Azerbaijan-Turkmenistan agreement is under way, the littoral countries' governments need to show more political will and act to enable the sustainable development of international trade in the region.

While heavier eco-taxation might not be the solution, mitigation and adaptation strategies and coherent multilateral cooperation in the Caspian could have a more substantive effect on the environment. Besides, the mere membership in multilateral and international agreements has shown potential in increasing overall climate crisis mitigation attempts. Domestic and international environmental and trade policies need to align to avoid the same fate as the Aral Sea.

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