strategy&
Part of the PwC network

Lessons of Hormuz

How Gulf states can become long-term resilience partners for critical materials

The ongoing Middle East conflict has focused world attention on the critical importance of the Strait of Hormuz for the flow of oil and gas. Less noticed but no less essential are the handful of other materials including helium, sulphur, and ammonia whose supply is highly concentrated in the Gulf, and which are rapidly becoming choke points for the global economy. Finding ways to ensure that these commodities keep flowing—and more broadly, making the trade in them more resilient—is thus an urgent priority for Gulf economies and their partners around the world.

By our estimate, supply shocks from Gulf countries affect more than US$300 billion of industrial programs in OECD countries. These shocks are largely related to six materials—helium, sulphur, ammonia, polyolefins, aluminium, and methanol—which are widely used in sectors from healthcare and semiconductors to the auto industry. They are also an integral part of defence systems, which are not included in the US$300 billion figure. Every major chip fab, every advanced defence system, and every hospital MRI machine relies on these materials, which are byproducts of oil and gas refining. When refining stops, production of these commodities also ceases—with rapid knock-on effects for critical end-products of the modern economy.

Helium, for example is used for manufacturing computer chips as well as for cryogenic medical applications—and Qatar alone is the source of more than 30% of global helium supply. Sulphur is another critical material, and about 50% of global seaborne sulphur trade transits the Strait of Hormuz. Ultra-pure sulfuric acid is used in semiconductors, where it is embedded in wafer cleaning and microelectronics fabrication, as well as having military uses as a solid propellant. It is also an important material for the EV industry, used for copper cathodes and in batteries. For its part, high-purity ammonia is used in semiconductor manufacturing and as an intermediate material in the pharmaceutical industry, with about 13% of global supply flowing through Hormuz.

Markets are already adjusting to the risk of serious shortages. Prices for all six materials have risen sharply since February 28, the start of the US and Israeli actions against Iran. The spot price for helium alone has jumped by as much as 50% in the past month, and sulphur prices have risen by about 25%. Unlike oil, there are no strategic reserves of these commodities, which means that entire industries such as semiconductors are quickly affected by supply disruptions.

> Gulf states can make choke points for critical materials a thing of the past by becoming resilience partners with key industries and governments.

What can Gulf Cooperation Council (GCC) countries do to establish themselves as long-term resilience partners for this trade, so that choke points become a thing of the past? We see four priority paths forward. While the results will only be felt in the medium to longer term, work on these priorities needs to start right away.

The **first** priority is to price resilience, and not just volume. Gulf producers and policymakers should work together with industries most exposed to disruption to move beyond standard bulk commodity pricing and toward structured offtake agreements. These would recognize continuity of supply as a strategic good. In practice, that could mean priority allocation frameworks for sectors such as semiconductors, defence, and healthcare; contingency arrangements for sudden demand surges and supply interruptions; and, where feasible, strategic reserves. None of this will be straightforward. Helium, for example, is difficult and costly to store. But the broader principle is clear: if these materials are now systemically important, the commercial model around them must reflect that reality.

A **second** priority is industrial: moving more upgrading, purification, processing, and joint R&D closer to the feedstock base in the Gulf. The region already combines proximity to feedstock with a structural energy-cost advantage. The uplift from purification can be considerable, from a few multiples in some materials to more than 10 times in the most specialized grades.

Third, Gulf leaders could explore government-to-government partnerships including bilateral material security pacts. These would embed the Gulf's regional materials output into the national defence and critical infrastructure frameworks of other countries, such as the US CHIPS Act.

Finally, the current crisis creates opportunities to rewire economic trade routes, including a rethink of the India-Middle East-Europe trade corridor. Routes, flows, and assets should all be reviewed with an eye on the resilience of trade.

As a starting point, GCC leaders should convene a closed-door critical materials summit with the full range of affected partners, including industrial companies and governments, to explore ways forward. Gulf states and their allies should also build a critical materials platform for real-time monitoring of production, flows, inventories, and disruptions, to provide maximum intelligence and visibility to all stakeholders.

Moving from vulnerability to a new resilience is the goal. Achieving it would be a positive and much-needed outcome to the current Hormuz choke point crisis.

Dr. Yahya Anouti
Partner
yahya.anouti@strategyand.pwc.com

Dr. Andre Duerrbeck
Principal
andre.duerrbeck@strategyand.pwc.com