briefs

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Chokepoint Above and Below the Surface: The Red Sea's Emerging Infrastructure Challenge

- Despite the halt in attacks in the Red Sea, the insecurity caused by the Houthis is affecting the infrastructure dynamics related to submarine communications cables.
- Delays in cable laying and repair operations, caused by safety concerns and regulatory obstacles, have significant economic, political and security implications.
- There is a need to increase repair and laying capacities, protect cable ships and ease access to Yemeni territorial waters.

Over the past two years, Houthi *sea denial* operations have underscored both the centrality and the vulnerability of the Red Sea as a critical chokepoint for global maritime trade. Beyond disrupting supply chains and sea lines of communication (SLOCs), the instability of the region is increasingly affecting another vital though less visible asset: the route of undersea fibre-optic cables that carry data between Asia, Europe and Africa. As underlined by Enrico Bagnasco, CEO of Italian telecommunications company Sparkle, physical geography and digital geography often coincide, and the corridors crucial for the transport of goods and people are also crucial for the passage of the bits that underpin modern communications.[1] In this sense, the Strait of Bab al-Mandeb represents a key crossroads for global maritime traffic, but also a strategic digital chokepoint, through which approximately 90 per cent of communications between Europe and Asia and 17 per cent of global data traffic pass every day.[2]

Despite the apparent cessation of Houthi attacks on merchant ships, recent reports of delays and complications in deploying new undersea cables off the Yemeni coast confirm how the Shiite militia can shape, directly and indirectly, digital infrastructure dynamics across the three continents.[3] This evolving

1 Speech by Enrico Bagnasco (audio) at the conference "La geopolitica del digitale e le nuove sfide della politica internazionale" held in Rome on 29 May 2024: https://www.radioradicale.it/scheda/729522.

2 Monaghan, Sean et al., "Red Sea Cable Damage Reveals Soft Underbelly of Global Economy", in *CSIS Commentaries*, 7 March 2024, https://www.csis.org/node/109672.

3 Griffin, Riley et al., "Google, Meta Delay Red Sea Cables as Security Risks Rattle Plans", in *Bloomberg*, 17 November 2025, https://www.bloomberg.com/news/articles/2025-11-17/google-meta-delay-red-sea-cables-as-security-risks-rattle-plans.

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instability is not only slowing the installation of new submarine systems but is also redefining the balance of interests in the Red Sea, forcing regional and global actors, both states and companies, to rethink their strategies.

Indirect threats to the cable network

Since February 2024, following the damage to four cables in the southern Red Sea (AAE-1, Seacom, Europe India Gateway and TGN), several media outlets have highlighted the Houthis' willingness and ability to damage the underwater infrastructure of the region.[4] These speculations were later refuted both by the Houthis themselves and by subsequent investigations, which linked the incident to the anchor of a merchant ship hit by the militia during one of its usual surface attacks.[5]

» The incident in February 2024 shows how the Houtis could also indirectly jeopardise the Red Sea cable network.

A deliberate attack by militants on underwater communications infrastructure in the Red Sea appears unlikely, as the Houthis and their main allies would be the most vulnerable in the event of significant damage to the cable network of the region.[6] Yemen, where the Houthis operate, and Iran, the militia's main supporter, have low redundancy, meaning a limited number of alternative cables capable of providing a similar service and where traffic from a damaged infrastructure can be diverted.[7] Despite this, the incident in February 2024 shows how the militia could also indirectly jeopardise the Red Sea cable network.

In addition to the dangers arising from the collateral damage linked to surface attacks against merchant ships, the most significant threat is related to the obstacles posed to traditional cable installation and repair operations. They depend on a small number of highly specialised vessels, whose work in Yemeni waters is now constrained by two factors.

The first concerns the security of the crews and of these high-value vessels. Despite the alleged suspension of attacks, conditions remain potentially difficult for cable-laying and repair ships. These vessels advance at extremely low speeds (one knot) during laying and must remain stationary during repairs, which increases their exposure and discourages operators from undertaking missions in high-risk waters.[8] Added to this is the fact that, due to security

4 Milliken, Emily, "The Next Casualty of the Red Sea Attacks: Undersea Cables", in *Gulf International Forum Commentaries*, 29 January 2024, https://gulfif.org/?p=34381; "Houthis Knock Out Underwater Cables Linking Europe to Asia – Report", in *The Jerusalem Post*, 26 February 2024, https://www.jpost.com/middle-east/article-788888.

5 Wintour, Patrick, "Houthis Deny Targeting Underwater Cables Amid Marine Disaster Warning", in *The Guardian*, 28 February 2024, https://www.theguardian.com/p/q222k; Watson, Eleanor, "Ship Sunk by Houthis Likely Responsible for Damaging 3 Underwater Cables under Red Sea", in *CBS News*, 6 March 2024, https://www.cbsnews.com/news/houthis-ship-cutting-red-sea-telecommunications-cables.

6 Leccese, Giacomo and Ivan Zaccagnini, "Houthi e cavi sottomarini: analisi della nuova minaccia nei fondali del Mar Rosso", in *Rivista Marittima*, Vol. 157, September-October 2024, p. 88-97, https://www.marina.difesa.it/media-cultura/editoria/marivista/Documents/2025/settembre_ottobre_2024.pdf.

7 Franken, Jonas et al., "The Digital Divide in State Vulnerability to Submarine Communications Cable Failure", in *International Journal of Critical Infrastructure Protection*, Vol. 38, September 2022, Article 100522, https://doi.org/10.1016/j.ijcip.2022.100522.

8 André, Jérémy and Théo Sou, "Persistent Houthi Threat Hampers Red Sea Submarine Cables Projects", in *Intelligence Online*, 28 October 2025, https://www.intelligenceonline.com/middle-east-and-africa/2025/10/28/persistent-houthi-threat-hampers-major-red-sea-submarine-cable-projects,110540771-art.

concerns, the cost to insure some cable ships near Yemen has risen in the last two years to as much as 150,000 US dollars a day.[9] As with commercial traffic, Houthi declarations regarding a halt in attacks are not enough to restore confidence in maritime operators, and these reassurances are considered unreliable by experts.[10]

The second factor relates to access permits for territorial waters. Yemen's political fragmentation has turned this procedural step into a major obstacle, as evidenced by the response to the February 2024 incident. Authorisation to repair the AAE-1 cable was granted only in July, following months of negotiations between operators and the two Yemeni authorities.[11] The internationally recognised government in Aden repeatedly refused its approval due to the involvement of the telecommunication company TeleYemen, which is considered associated with the administration aligned with the Houthis in Sana'a; while the militia continued to claim responsibility for issuing permits and argued that no mission could proceed without their consent.[12] Both positions raise significant concerns for the future resilience of the regional cable network. The stance of the internationally recognised government could hinder repairs and installations even for other systems, since TeleYemen is also part of the consortia that own other existing and new cables. The permit claims advanced by the Houthis pose legal challenges, as no state recognises their authority in Yemen and several countries, including the US, designate the militia as a terrorist organisation. Any transaction or contractual arrangement with the Houthis could therefore violate national legislation, further complicating future repair or installation operations.[13]

Economic, political and security repercussions

» The most recent and clear consequence of security and regulatory constraints is the slowdown in the deployment of new infrastructure.

The most recent and clear consequence of these security and regulatory constraints is the slowdown in the deployment of new infrastructure. In some cases, such as Blue-Raman and 2Africa, these delays risk having significant repercussions for the future of the cable network and regional connectivity. The Blue-Raman system would be the first to connect Europe to India and the Middle East without traversing Egypt. The success of this alternative route could significantly impact future infrastructure decisions and the resilience of the cable network, paving the way for greater route differentiation and

9 FitzGerald, Drew, "Red Sea Conflict Threatens Key Internet Cables", in *The Wall Street Journal*, 3 March 2024, https://www.wsj.com/business/telecom/red-sea-conflict-threatens-key-internet-cables-a564f7ca.

10 Yanelli, Adam, "Return to Red Sea Not Imminent Despite Houthis' Pause on Attacking Commercial Vessels", in *ICIS News*, 12 November 2025, https://www.icis.com/explore/resources/news/2025/11/12/11154537/return-to-red-sea-not-imminent-despite-houthis-pause-on-attacking-commercial-vessels; Rossi, Emanuele,"Houthi Statement Should Never Be Taken Literally: Expert Says", in *Decode39*, 13 November 2025, https://decode39.com/12392.

11 Solon, Olivia and Mohammed Hatem, "Damaged Internet Cables Repaired in Red Sea as Houthis Attack Ships", in *Bloomberg*, 17 July 2024, https://www.bloomberg.com/news/articles/2024-07-17/damaged-internet-cables-repaired-in-red-sea-as-houthis-attack-ships.

12 @AlnomeirMosfer, "In all the ministry's statements, we emphasized that submarine cable ships must first obtain a permit from the Maritime Affairs in Sana'a before entering Yemeni territorial waters", *X post*, 4 March 2024, https://x.com/AlnomeirMosfer/status/1764666830801506476.

13 Farag, Marwa and Waka Taniguchi, "Balancing Safety and Sanctions: Understanding the Houthi's New Vessel Permit Requirement", in *Curtis Client Alerts*, 25 March 2024, https://www.curtis.com/our-firm/news/balancing-safety-and-sanctions-understanding-the-houthis-new-vessel-permit-requirement.

avoiding a very crowded hub, where the coexistence of numerous cables and transiting commercial vessels presents a significant risk.[14] Operational obstacles in Yemeni waters, however, make it impossible to complete the only missing section of the infrastructure, the one needed to connect India with Europe through the Strait of Bab al-Mandeb. The same problems concern the missing portion of 2Africa, which should connect Africa to Europe through the same waters, completing the entire circumnavigation of Africa planned for the infrastructure.[15] In this case, the inability to operate off the coast of Yemen is hindering the construction of a cable essential for future African connectivity and economy.[16] The same obstacles constrain the installation of other infrastructure needed to increase the redundancy of the regional network, such as the India-Europe Express and Africa-1 cables.[17] According to sources in the sector, no real improvement can be expected for at least four years.[18]

» *Obstacles to repair operations have also proven to be a factor capable of leading to significant repercussions.*

Obstacles to repair operations have also proven to be a factor capable of leading to significant repercussions. The criticality of the EMEA (Europe-Middle East-Africa) route for submarine cables has been clearly demonstrated by the damages of the last two years. The February 2024 cable failure was the largest in history, affecting approximately a quarter of data traffic between Asia and Europe.[19] While no country experienced complete isolation, service quality dropped significantly in countries with less redundancy, such as India, Pakistan, and especially in East Africa (in Ethiopia up to 90 per cent and in Somalia 85 per cent). Online platforms slowed considerably, and critical industries were forced to reroute traffic through alternative subsea routes, often at reduced capacity. The total estimated economic impact reached 3.5 billion US dollars.[20] The damage to two other cables in September 2025 also had significant impacts, especially on cloud services offered by Microsoft Azure.[21] In both cases, repairs were hindered by geopolitical tensions and complex logistics in the risky waters of the Red Sea, prolonging the negative effects of the damage well beyond the time usually required to repair the infrastructure and return to normal data flow.

Both installation and repair obstacles can also have considerable effects on strategic nodes in the cable network. These countries, like Italy and Egypt, exploit their geographical centrality as an economic and political leverage, often involving their national companies in numerous infrastructure projects along the route. For example, the new Blue-Raman system, involving the Italian national company Sparkle, represents a significant opportunity for Italy

14 Brodsky, Paul, "The Blue and Raman Cable Systems Stand Out. Here's Why", in *TeleGeography Blog*, 30 July 2021, https://blog.telegeography.com/google-blue-and-raman-cable-systems.

15 Griffin, Riley et al., "Google, Meta Delay Red Sea Cables as Security Risks Rattle Plans", cit.

16 Qiu, Winston, "2Africa Core Infrastructure Completes", in *Submarine Cable Networks*, 21 November 2025, https://www.submarinenetworks.com/en/systems/asia-europe-africa/2africa/2africa-core-infrastructure-completes.

17 "Houthi Attacks Disrupt Google and Meta Undersea Cable Projects", in *Middle East Monitor*, 18 November 2025, https://www.middleeastmonitor.com/?p=823644.

18 André, Jérémy and Théo Sou, "Persistent Houthi Threat Hampers Red Sea Submarine Cables Projects", cit.

19 "Invisible Infrastructure, Visible Chaos: Building B2B Continuity in a Subsea Dependent World", in *Subsea Cables*, 6 August 2025, https://www.subseacables.net/?p=22909.

20 Ibid.

21 "International Cable Breaks in Red Sea Cause Latency Surge across Asia and the Gulf", in *Subsea Cables*, 8 September 2025, https://www.subseacables.net/?p=22992.

» The new Blue-Raman system represents a significant opportunity for Italy to strengthen political and economic ties with India.

to strengthen political and economic ties with India.[22] Delays in completing the infrastructure can slow down the possibility of further economic and political ties that could arise from that project or other similar initiatives to connect the two countries. Even Italy's desire to position certain cities, such as Genoa, as new digital hubs is complicated by the context described above.[23] The situation is even more worrying for Egypt, which hosts fifteen key cable land crossings to the Mediterranean Sea and derives significant economic resources from these infrastructures. A study by Submarine Networks found that between 2000 and 2019, the state-owned telecommunications company Telecom Egypt received a total of at least 369 million US dollars from services covering these cables.[24] Continued security concerns along the EMEA route threaten to accelerate existing plans for alternative routes to bypass Egypt and the high costs imposed by Cairo.[25]

Finally, a more security-related consideration. Currently, repairs in the Red Sea area are covered by two agreements: the Mediterranean Cable Maintenance Agreement (MECMA), which also covers the Black Sea and the Mediterranean Sea, and a private agreement with the E-Marine company, which also covers the eastern Indian Ocean. These deals provide respectively for only two and four repair vessels, available for very large maritime areas. With such a limited number of ships, any damage to one of the vessels or delays caused by regulatory obstacles risk further tightening the bottleneck of repair capacity in the region.[26]

Cable ships, protection and dialogue with local actors

In light of these challenges, several countries and players involved in the EMEA route are called upon to adopt appropriate responses. One solution involves strengthening cable installation and repair capabilities. In this regard, the United States was the first to recognise the importance of developing a national repair capacity with the launch of the US Cable Security Fleet.[27] Other players are following suit. Japan is helping the national company NEC acquire cable-laying vessels.[28] The European Commission has proposed an EU Cable

22 Gabusi, Giuseppe and Michele Farina, "Nove indicazioni per fare crescere le relazioni bilaterali", in Giuseppe Gabusi (ed.), *Il nuovo ruolo dell'India nel sistema internazionale e implicazioni per l'Italia*, Turin, T.wai, June 2024, p. 50-53, https://www.twai.it/?p=8908.

23 "Bagnasco (Sparkle), Italy Is a Digital Hub of the Mediterranean", in *ANSA*, 16 October 2025, https://www.ansa.it/english/news/news_from_embassies/2025/10/16/bagnasco-sparkle-italy-is-digital-hub-of-the-mediterranean_ae1422e2-eaa6-427d-98ad-2f1a8d07328b.html; Zunino, Monica, "Cavi sottomarini, i big scelgono Genova", in *Il Sole 24 Ore*, 20 September 2024, https://www.ilsole24ore.com/art/cavi-internet-sottomarini-big-scelgono-genova-AFw5HAhD.

24 Qiu, Winston, "A Study on Submarine Cables Crossing Egypt and Their Costs", in *Submarine Cables Networks*, 22 April 2020, https://www.submarinenetworks.com/en/?view=article&id=1316&catid=368.

25 Murphy, Erin L. and Thomas Bryja, "The Strategic Future of Subsea Cables: Egypt Case Study", in *CSIS Reports*, 12 November 2025, https://www.csis.org/node/119408.

26 Bueger, Christian et al., "Security Threats to Undersea Communication Cables and Infrastructure – Consequences for the EU", in *European Parliament In-Depth Analysis*, June 2022, https://www.europarl.europa.eu/thinktank/en/document/EXPO_IDA(2022)702557.

27 Burnett, Douglas R., "Repairing Submarine Cables Is a Wartime Necessary", in *USNI Proceedings*, October 2022, https://www.usni.org/node/58793.

28 "Japan Backs NEC Fleet to Secure Undersea Cable Infrastructure", in *Subsea Cables*, 18

Vessels Reserve Fleet, possibly funded through a public-private partnership.[29] Initiatives of this kind should be promoted and supported since the cost and time required to launch new specialised vessels often discourage private actors from proceeding.[30]

» *The repair system is currently not ready to support operations in a conflict zone.*

Increasing the number of ships alone is not enough, as the risks to the safety of vessels and crews would persist. The repair system is currently not ready to support operations in a conflict zone, as already highlighted in the case of the Red Sea.[31] Cable ships have struggled to find access to a military escort from naval missions already operating in the area, such as EUNAVFOR Aspides, EUNAVFOR Atalanta, or Prosperity Guardian.[32] These missions are affected by a shortage of warships available to protect the SLOCs, and escorting cable ships is not considered a priority.[33] It is therefore necessary to ensure the necessary protection either through ad hoc mechanisms or by including the escort of cable ships among the priorities of ongoing naval operations. Especially if a halt in Houthi attacks is confirmed, such missions could dedicate some naval units to reassure cable operators deployed in the region.

Finally, to address regulatory issues, dialogue with the Yemeni authorities is imperative, especially those of the internationally recognised government in Aden. It is necessary to find common ground and highlight the problems Yemen itself would face if there were a reduction in the number of submarine cables transiting the Red Sea.

September 2025, https://www.subseacables.net/?p=23027.

29 European Commission, *EU Action Plan on Cable Security* (JOIN/2025/9), 21 February 2025, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52025JC0009.

30 Submarine Telecoms Forum, *Submarine Telecoms Forum Industry Report 2025-26*, October 2025, https://subtelforum.com/submarine-telecoms-industry-report.

31 UK Parliament Joint Committee on the National Security Strategy, *Undersea Cables - Oral Evidence*, 9 June 2025, https://committees.parliament.uk/event/24024/formal-meeting-oral-evidence-session.

32 Haddon, Jack, "How Is Subsea Traffic Being Rerouted after Red Sea Cable Cuts?", in *Capacity Global*, 5 March 2024, https://capacityglobal.com/?p=1449.

33 Carli, Andrea, "Red Sea, Aspides Commander: Ships Not Enough, Mission at Risk", in *Il Sole 24 Ore*, 11 May 2024, https://en.ilsole24ore.com/art/red-sea-european-mission-aspides-loses-german-ship-hasen-greek-commander-gryparis-risk-impasse-AFUWdqxD; Haddon, Jack, "How Is Subsea Traffic Being Rerouted", cit.

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