The UN Exposes Houthi Reliance on Iranian Weapons

by **Farzin Nadimi (/experts/farzin-nadimi)**

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ABOUT THE AUTHORS

Farzin Nadimi (/experts/farzin-nadimi)

Farzin Nadimi, an associate fellow with The Washington Institute, is a Washington-based analyst specializing in the security and defense affairs of Iran and the Persian Gulf region.

Brief Analysis

In addition to dispelling any lingering notion that last year's Aramco attack came from Yemen, the report documents Iran's efforts to help the rebels acquire advanced missiles, weapons components, and training.

On January 27, the UN Panel of Experts on Yemen submitted its latest annual report on the conflict (https://undocs.org/s/2020/70), with large portions of the text focusing on the government's ongoing failure to establish adequate command-and-control over coalition forces—a topic covered in another recent PolicyWatch (https://www.washingtoninstitute.org/policy-analysis/view/un-panel-highlights-command-and-control-issues-in-yemen). Other sections discuss weapons developments on the Houthi rebel side, analyzing their supply chain, their claimed role in last year's major attack on Saudi oil facilities, and their broader reliance on Iranian technology.

ARAMCO EVIDENCE

The mountain of evidence provided in the document supports at least one clear conclusion: the September 14 attack on Saudi Aramco facilities in Abqaiq and Khurais could not have originated from Yemen. This conclusion is based on a wide range of known information about the drones and cruise missiles used in the operation, from their maximum range to their flight trajectory.

Between mid-2018 and the end of 2019, the Houthis reportedly increased the frequency and lethality of their airborne attacks on civilian targets in Saudi Arabia, while greatly lessening their seaborne attacks (see Annex 14 of the report, para. 2). They conducted the Aramco attack using newer delta-wing unmanned aerial vehicles (UAVs) and Quds-1 land attack cruise missiles—weapons whose significantly higher quality suggests they were produced outside Yemen, most probably in Iran, despite frequent public branding of the Quds-1 as an indigenous Houthi missile.

The name of the delta-wing UAV in question is still unknown, but it made its first appearance in Iran during a May 11, 2014, private display that the Islamic Revolutionary Guard Corps conducted for the Supreme Leader. It also greatly resembles the Chinese ASN-301 drone (itself based on the Israeli Harpy anti-radar loitering UAV). There are indications that Tehran obtained a number of these Chinese drones in the past.

The ASN-301's range of 280 kilometers gives some sense of the Iranian model's potential reach. Moreover, up to eighteen of the Chinese model can be launched from boxes stacked together on a truck-bed—the same number of drones reportedly used in the September 14 attack (Annex 14, para. 4).

Trajectory and range data from that operation further disproves the Houthi claim of responsibility. The panel confirms that the Abqaiq strike came from the north/northwest and the Khurais strike from the north/northeast. Both sites are quite far away from Houthi-held territory—1,200 and 1,000 km respectively according to the panel. The actual distances are likely closer to 1,000 and 900 km, but they are still beyond even the most optimistic range projections for the weapons in question.

To determine these ranges, the panelists examined wreckage found at each attack scene, as well as parts that the U.S. Navy seized from a flagless dhow in an undisclosed part of the Arabian Sea on November 25. Combining this evidence with various estimates of fuel capacity, they concluded that the delta-wing drones had a maximum range of 540-900 km, and the cruise missiles 700-800 km.

Yet as alluded to in Annex 15 of the report (page 93), the UAVs that conducted both the September 14 attack and the May 14 strike on Saudi oil pumping stations (the only other occasion the delta-wing drones were used) were powered by two unlicensed copies of either the British AR-731 Wankel engine or its Chinese version, the MDR-208. Iran has produced at least two domestic versions of the MDR-208: the MADO/Shahed-783 (unveiled in May 2014) and the Serat-01 (unveiled in December 2016). The former has a stated design power output of 38 brake horsepower, while the latter produces 35 bhp and consumes 420 grams of fuel per minute, which equals 25.2 liters/hour, for a maximum engine endurance of only one hour (significantly less than the panel's estimated three hours; see Annex 14, para. 15).

All of these numbers translate to a maximum range of 180-300 km for the UAVs that hit Saudi oil targets last year, depending on fuel capacity. The upper limit of that range corresponds closely with the ASN-301's range of 280 km. This further affirms why the drones that struck Abqaiq and Khurais could not have been launched from Yemen, and also delineates other potential launch points: deep inside Saudi territory within a 300 km radius of the target, or across the Persian Gulf—whether directly from the IRGC military base near the port of Dayyer (306 km from Abqaiq), from Farsi Island (230 km away), or from a specially modified semisubmersible. The Gulf scenarios would require a southeasterly turn at the end of their journey. The panel report alludes to these alternatives, noting that the attack could theoretically have been launched from inside Saudi Arabia or via sea or airborne platforms (Annex 14, para, 19).

As for the Quds-1, the panel confirmed that the engine type powering the missiles used in the attack was an "unlicensed copy" of the small TJ-100 turbojet engine produced by the Czech company PBS Aerospace (Annex 16, para. 1). The Quds engines were merely labeled "Model T10S." Notably, Iran Aircraft Industries (IACI) is said to have produced a copy of the TJ-100 under the name Tolou-10 and displayed it for President Hassan Rouhani during his August 21, 2016, visit to the company. It is hardly a stretch to speculate that "Model T10S" is shorthand for Tolou-10.

Besides the fact that the Quds-1 lacks the range to reach Abqaiq from Yemen, it is widely believed to be too complex for the Houthis to produce on their own. A disassembled Quds-1 (serial number MC79042) was among the weapons seized from the Arabian Sea dhow, and a Farsi label on the missile's avionic compartment indicates it had passed its "loop test" on February 8, 2019, at an Iranian facility (figure 16.5, page 99).

WEAPONS SUPPLY CHAIN

According to the panel report, the Houthis continue to receive off-the-shelf parts for their drones and missiles via a network of intermediaries, as well as complete systems (including Iranian weapons) overland via Oman and by sea along Yemen's southern coast. The smuggled components have come from Japan (parts for UAVs and waterborne improvised explosive devices, or WBIEDs), China (UAV parts), Iran (UAV engines and rocket-propelled grenades), Belarus (optical sights for rocket-propelled grenades), the Czech Republic (fuel system components), and Germany (UAV engines).

Intermediaries enabling these deliveries have been discovered in Hong Kong, Bangkok, Athens, Tehran, Muscat, and Abu Dhabi (Annex 18, page 114). Hong Kong companies have sent parts to Yemen's al-Jawf province by air (via Bangkok and Muscat) and smuggled them across the Omani border. The panel also established that the Houthis are still using sea routes to obtain weapons and components, in violation of the arms embargo.

In addition, the panel examined the items seized during the November dhow interdiction and found the following:

- Twenty Dehlaviyeh missiles (the Iranian version of the Russian 9M133 Kornet), in both high-explosive anti-tank and high-energy blast thermobaric variants
- A never-before-seen cruise missile, which the panel identified as a possible surface-to-air missile; it had a tail-mounted jet engine, optical terminal guidance, and optical proximity fusing, suggesting an anti-aircraft (perhaps anti-helicopter) mode (Annex 20, figure 20.4)
- A C-802 anti-ship missile (figure 20.9)
- The aforementioned Quds-1, with a computer terminal keyboard in Farsi (figure 20.11)
- Assorted materiel such as detonators, UAV engines and components, thermo-optical sights for RPGs, and WBIED conversion kits.

CONCLUSION

The UN panel's findings confirm longstanding concerns that Iran has been violating the international embargo by supplying the Houthis with advanced weaponry and high-tech components for their indigenous systems. The report also shows how easy it is for the Houthis to obtain foreign components themselves using front companies; an MDR-208 drone engine, for example, can be purchased online for $29,000. The Houthis have proven they can use such components to produce effective missiles, drones, and other weapons once they have received training (and, perhaps, financing) from the IRGC's Qods Force.

Regarding the Houthi switch from seaborne to airborne attacks, this is partly due to geographical realities such as the loss of coastal bases. It also indicates the increasing versatility and utility of suicide aerial drones and cruise missiles. Yet one should not dismiss the possibility of older tactics reemerging (or merging with new tactics) if the Houthis decide to target high-value maritime assets across the Gulf of Aden and southern Red Sea.

Finally, all of these examples highlight the importance of October 2020. That is the date of expiration for the current arms restrictions placed on Iran by the nuclear deal, potentially giving the regime a freer hand in exporting its weapons and further destabilizing the region.

Farzin Nadimi is an associate fellow with The Washington Institute, specializing in the security and defense affairs of Iran and the Gulf region. ❖

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