Defeating Iran's Roadside Bombs in Yemen

by **Michael Knights (/experts/michael-knights)**

Mar 26, 2018
Also available in
العربية (/ar/policy-analysis/alqda-ly-alqnabl-alayranyt-almzrwt-ly-jwanb-altrq-fy-alymn)

ABOUT THE AUTHORS

Michael Knights (/experts/michael-knights)

Michael Knights is the Jill and Jay Bernstein Fellow of The Washington Institute, specializing in the military and security affairs of Iraq, Iran, and the Persian Gulf states. He is a co-founder of the Militia Spotlight platform, which offers in-depth analysis of developments related to the Iranian-backed militias in Iraq and Syria.

Brief Analysis

To save lives and speed the war's end, the United States and UN should make urgent use of their expertise and evidence on countering advanced Iranian munitions.

Yemeni government forces backed by Saudi Arabia and the United Arab Emirates are slowly but steadily advancing toward the key rebel-held cities of Sana and Hodeida. To blunt this advance, the Houthis are increasingly using advanced antiarmor roadside bombs known as explosively formed penetrators (EFPs)—a technology provided by Iran via its proxy Lebanese Hezbollah. Given the preponderance of evidence on the matter, the international community urgently needs to expose this link and provide support to minimize the effectiveness of deadly EFP munitions.

THE EFP THREAT IN YEMEN

The Houthis depended on landmines throughout their six previous wars against the government, but these were simple devices that used pressure plates to detonate. Over the past three years, however, a different kind of munition suddenly entered their arsenal: EFPs, which use an explosive charge to shape a concave copper or steel "liner" into a hyper-velocity molten slug that can cut through the best-armored vehicles in the world. In Iraq, for example, 1,526 EFPs killed a total of 196 U.S. troops and injured 861 others between November 2005 and December 2011.

When EFPs first showed up in Yemen, they were not experimental versions developed indigenously by the Houthis—rather, they have been professionally integrated weapons systems from the outset. Earlier this month, a report by Conflict Armament Research (CAR) described EFPs captured in Yemen as bearing all the characteristics of the most advanced arrays that Hezbollah deployed for years and gave to Iraqi militias after 2003. Houthi EFP arrays are

encased in foam, then shaped and painted to look like rocks. They include one to three warheads; a radio-controlled arming switch turns on the device, and a passive infrared firing switch detonates the EFP when a vehicle enters the sensor's field of view. This is precisely the configuration used by Iranian-backed networks in Lebanon, Iraq, and Afghanistan.

In addition to this very strong circumstantial evidence of Iran's influence, Tehran has a proven track record of evading UN arms sanctions on the Houthis. On January 26, the **UN Panel of Experts on Yemen found (http://www.washingtoninstitute.org/policy-analysis/view/how-europe-can-punish-irans-missile-smuggling-while-preserving-the-nuclear)** that Iran "failed to take the necessary measures to prevent the direct or indirect supply, sale, or transfer" of ballistic missiles and unmanned aerial vehicles to the Houthis. It is hardy a stretch to surmise that Iran and its proxies are also bringing advanced roadside bomb components into Yemen, as they have done in Lebanon, Iraq, Afghanistan, Bahrain, and Saudi Arabia.

LINKS TO IRAN'S THREAT NETWORK

Although such findings are sufficient cause to take action on their own, the CAR report goes beyond purely circumstantial evidence. The EFPs discovered in Yemen include electronic components that point to a common point of origin linking the Houthis, Iranian-backed militants in Bahrain, and the Iranian arms smuggling vessel *Jihan 1,* which was intercepted off northern Yemen in January 2013 carrying a huge consignment of Iranian-made C4 explosives, Iranian-made surface-to-air missiles, and EFP components. Key components investigated by CAR include:

- **Circuit boards.** The CAR report includes imagery of identical circuit boards used in Houthi EFPs seized this January and in magnetically attached bombs seized from Iranian-backed Bahraini militants in July 2017. CAR emphasized that the components were exactly the same "in design, construction, and materials employed."
- **Power relays.** Other CAR imagery shows that the power relays in the Houthi and Bahraini devices are identical as well. Moreover, large stocks of this power relay were found on the *Jihan 1*.
- **Heat-shrink wire covering.** Further imagery in the CAR report shows identical heat-shrink wire used in the Houthi and Bahraini devices. Produced by the Chinese company WOER, this brand of wire has also been found inside two other types of Iranian-smuggled equipment in Yemen: Qasef-1 unmanned aerial vehicles and missile fuel tanks.

IMPLICATIONS FOR U.S. POLICY

As noted previously, Iranian EFPs killed many U.S. personnel in Iraq, not counting the casualties among British forces and other coalition partners. Yet the threat did not simply disappear after the 2011 withdrawal of most U.S. forces. On October 1, 2017, yet another American soldier was killed when an Iranian-backed Iraqi militia planted an EFP near Tikrit. EFPs have also shown up in Bahrain and Saudi Arabia, and now they threaten to kill U.S. allies in the Yemeni and Gulf militaries seeking to restore the UN-recognized government to the capital. These weapons could extend the war and its associated humanitarian suffering, so the need for prompt action is paramount.

First, Washington, Britain, and other partners should deploy specialists to Yemen to assess the threat from EFPs and other improvised explosive devices and landmines. Quick-impact courses should be offered to Yemeni, Saudi, and UAE military officers and engineers covering safety awareness and pattern analysis for IEDs and mines—capabilities that are almost entirely lacking at present. Some such assistance is already being given, but it needs to be drastically strengthened and accelerated. Recognizing that this assistance is defensive and humanitarian in nature, Congress should fence it off as a separate budgetary priority from its broader consideration of American support to the war.

Second, the Yemeni, Saudi, and UAE armed forces need accelerated deployment of U.S. counter-IED technology.

After the huge campaigns in Iraq, the United States has plenty of low-tech counter-IED equipment that could be provided quickly on a low- or no-cost basis. For instance, Yemeni forces and their Gulf allies lack simple tools such as the Rhino boom, a metal bar lowered ahead of a vehicle to prematurely trigger an EFP's passive-infrared firing switch, making it miss. And very few Yemeni or coalition vehicles have anti-IED jammers, making them vulnerable to radio-controlled devices.

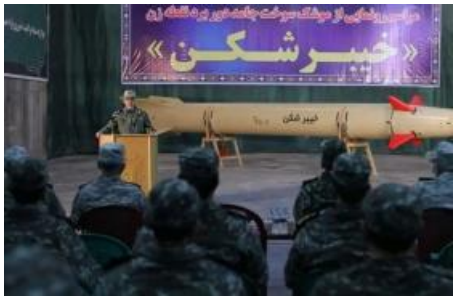
Third, the United States and UN should ensure that Yemeni and Gulf forces have all the data they need to both defeat IEDs and prove where the technology is coming from. This means training their engineers to document weapons intelligence and secure forensic data from seized roadside munitions. Small private-sector training programs are already underway to improve weapons intelligence collection and retention, but these efforts need to be accelerated.

Finally, the Yemeni government and its partners need to share any relevant intelligence they obtain on IEDs and the importation of IED components. When three boats full of weapons were seized off Yemen in February-March 2016, Australia and France quickly released full details of the arms onboard two of the vessels, but the United States continues to withhold its own findings. Washington's partial release of data from other seizures has allowed authorities to link weapons found in Yemen to Iran (e.g., the Shark 33 drone boat captured by UAE forces in 2017), so withholding such information can impede the case against Iranian proliferation.

The Gulf coalition likewise needs to grant the UN faster and more complete access to evidence, including the onboard computer they retrieved from the Shark 33. Perhaps most important, UN member states should demand access to the detailed weapons intelligence captured on *Jihan 1* in 2013, which may prove vital to tracking weapons and IED components back to Tehran. All of the relevant players in the conflict hold pieces of the puzzle, so the United States should expend more effort on gathering them together in order to highlight the full scope of Iranian arms smuggling.

Michael Knights, a Lafer Fellow with The Washington Institute, recently returned from a visit to Yemen's battlefronts, where he examined EFP warheads and spoke with explosive ordnance technicians. ❖

RECOMMENDED



BRIEF ANALYSIS

Iran Takes Next Steps on Rocket Technology

Feb 11, 2022

◆

Farzin Nadimi

(/policy-analysis/iran-takes-next-steps-rocket-technology)

BRIEF ANALYSIS

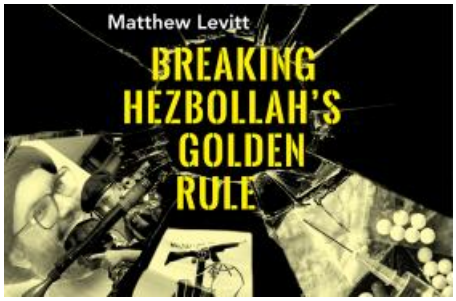
Saudi Arabia Adjusts Its History, Diminishing the Role of Wahhabism

Feb 11, 2022

◆

Simon Henderson

(/policy-analysis/saudi-arabia-adjusts-its-history-diminishing-role-wahhabism)



ARTICLES & TESTIMONY

Podcast: Breaking Hezbollah's Golden Rule

Feb 9, 2022

◆

Matthew Levitt

(/policy-analysis/podcast-breaking-hezbollahs-golden-rule)

TOPICS

Gulf & Energy Policy (/policy-analysis/gulf-energy-policy)

Military & Security (/policy-analysis/military-security)

Proliferation (/policy-analysis/proliferation)

REGIONS & COUNTRIES

Iran (/policy-analysis/iran)

Gulf States (/policy-analysis/gulf-states)