Iran Develops Air Defense Capability for Possible Regional Role

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ABOUT THE AUTHORS

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Brief Analysis

A newly announced system could further the regime's longstanding desire to create an A2AD umbrella in the Gulf and forward-deploy antiaircraft missiles in other countries.

On August 22, after years of hype, Iran finally unveiled the Bavar-373, a long-range air defense system whose claimed capabilities are supposedly on par or better than those of the Russian S-300 or the U.S. Patriot. Whether or not the Bavar can actually match the regime's claimed specs in the field, the announcement raises a number of pressing concerns about how the system might be used inside Iran and beyond.

POTENTIAL CAPABILITIES

According to Iranian sources, Bavar can detect up to 300 targets at a time at a range of 300 kilometers, simultaneously tracking sixty of them and engaging six, whether aircraft or ballistic missiles. The system uses two small truck-mounted phased array radars, a command-and-control truck, and up to six vertically positioned four-tube launchers for each battery. A larger area-surveillance radar with a claimed range of 450 kilometers may be incorporated as well, and would probably be necessary for effective operation. This configuration is similar to Russian systems; in contrast, a Patriot battery does all of its detecting, tracking, and engaging using a single radar. Bavar can also reportedly use the latest version of Iran's Sayyad missile (Sayyad-4), which would give it an engagement range of up to 200 kilometers.

Iran unveiled another air defense system two months ago: the similar but shorter-range "15th of Khordad." Tehran claims this system can detect, track, and engage six conventional targets up to 100 kilometers away, and stealthy targets up to 45 kilometers away.

There is no verifiable open-source information on the actual performance of these two systems, but the June 20 attack on a U.S. Navy RQ-4 Global Hawk reconnaissance drone over the Strait of Hormuz involved a similar system. A video released by Iran showed an Islamic Revolutionary Guard Corps unit firing what looked like a single Sayyad-2 from a "3rd of Khordad" antiaircraft system at night, followed shortly afterward by falling wreckage. The battery's "young crew" were credited with the confirmed kill, which drew no kinetic military response from the United States; they later received prizes from Iran's Supreme Leader. Widely ignored, however, was the role played by the national military's newly detached Islamic Republic of Iran Air Defense Force (IRIADF) in detecting and tracking the target and passing the order to fire—contributions that likely magnified what the battery could do if it were ever deployed on its own or outside Iran's domestic air defense network.

Added to this performance uncertainty is the fact that weapons designers and operators typically overstate how well their systems can perform, and often present mere modifications of previous systems as new products. Iran has been particularly prone to both practices.

PROLIFERATION AND A2AD CONCERNS

The Bavar announcement follows years of increased Iranian effort and investment on two related fronts: developing a range of mobile missile systems for the Islamic Republic's layered air defense network, and seeking to forward-deploy them to allied territories with the goal of undermining Western and Israeli air supremacy should wider conflict break out. According to Tehran, these new systems are light and flexible, can be set up for operation on short notice, can be used in innovative fashion, and need only limited support.

In early 2018, for example, the Saudi-led coalition in Yemen discovered an Iranian Sayyad-2C missile round of the same type that shot down the American Global Hawk. It was apparently destined for the Houthi rebels, together with an Iranian-made passive electronic receiver that could silently produce targeting solutions for the missile using GPS and other air traffic control signals given off by military and commercial craft. If employed effectively (whether by the Houthis or operators from Iran or Hezbollah), the missile would have been capable of shooting down a high-value target such as a large AWACS surveillance plane or tanker aircraft, giving the Houthis a significant propaganda coup.

Back at home, the Bavar-373 could give Iran a means of producing and fielding effective long-range air defense batteries in large numbers, assuming the system can perform as advertised. In contrast, when Russia delivered the S-300 to Iran in 2016, it sent only four batteries and a limited number of missiles. Tehran is also well aware that an S-300-based network would always be at risk of compromise by other countries who either own the system themselves (e.g., Azerbaijan, Greece, Ukraine) or are privy to its secrets after years of intelligence work on Soviet/Russian weapons (e.g., Israel and the United States). A domestically developed system like Bavar might not be as easily compromised.

The longer-term strategic threats posed by such developments are considerable. Armed with a larger number of new missile batteries that are more mobile and concealable than the S-300, Iran could potentially place an antiaccess/area-denial (A2AD) umbrella over all of the shipping lanes from the Persian Gulf down to the Gulf of Oman. Moreover, the technology used to develop such systems could help the regime develop new ballistic missiles with much more maneuverable and therefore survivable reentry vehicles, making them more capable of defeating missile defenses. Iran might even develop and field anti-surface versions of its versatile Sayyad missile, adding to its regional threat options.

COORDINATED AIR DEFENSE WITH IRAQ?

In May and June 2019, two high-ranking Iraqi military commanders visited Iran and discussed strengthening bilateral air defense cooperation. In addition to potential joint training and provision/co-production of air defense

and surveillance systems, this cooperation could reportedly include a joint air traffic monitoring and air sector surveillance scheme. The latter option might give Iran access to sensitive Iraqi electronic data, which could in turn harm U.S. military operational security.

Previously, Iran's Armed Forces General Staff chief Maj. Gen. Mohammad Bagheri met with his Iraqi counterpart on April 7 and later told reporters they had agreed to integrate or at least coordinate their air defense networks to address what he described as "an air threat from the direction of our western borders." His remarks were in line with the regime's frequent portrayal of cooperation with Baghdad as a joint defense against "common enemies," by which Tehran means the United States, Israel, and Gulf countries. Moreover, Iran signed an agreement in 2017 to exchange intelligence with Baghdad and provide weaponry in the fight against the Islamic State. That accord could give the regime a pretext for delivering military hardware to Iraq, which is otherwise restricted by UN Security Council Resolution 2231.

CONCLUSION

The United States should monitor the quantitative growth and technological advances of Iran's air defense systems more closely and with more urgency. Under current UN Security Council resolutions, Tehran will be legally permitted to export such systems or otherwise deploy them abroad as early as January 2021, and hostile counties or terrorist groups could be the recipients. Even now there are concerns that air defense or advanced missile technology might have ended up **in Lebanon (https://www.washingtoninstitute.org/policy-analysis/view/irans-precision-missile-project-moves-to-lebanon)** , Syria, **or Iraq (https://www.washingtoninstitute.org/policy-analysis/view/if-iran-deploys-missiles-in-iraq-u.s.-israeli-response-options)** , with unforeseen consequences for U.S. and allied air operations anywhere in the vicinity.

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