Iranian Missiles and U.S. Missile Defense

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Brief Analysis

On November 2, 2009, Uzi Rubin and Michael Elleman addressed a special Policy Forum luncheon at the Washington Institute to discuss how U.S. missile defense capabilities match up to Iran's growing missile arsenal. Uzi Rubin was the founder and first director of the Missile Defense Organization in the Israeli Ministry of Defense and a two-time winner of the Israel Defense prize. Michael Elleman is a visiting senior fellow for missile defense at the International Institute for Strategic Studies office in Washington, D.C., and currently leads an international team of experts preparing a joint assessment of the Iranian missile threat. The following is a rapporteur's summary of their remarks.

Uzi Rubin

The Iranian missile program has turned a corner, so that the Iranians no longer rely on foreign experts to build present and future missiles and space launchers. They have now also surpassed the North Koreans, their former mentors. The Iranian military has made massive investments in missile programs at the expense of its conventional forces, much of which now use decades-old equipment. Yahya Rahim Safavi, a former Islamic Revolutionary Guard Corps commander, has referred to the missile program as part of Iran's "deterrent and defensive power to transregional enemies."

In the last decade, Iran has made significant developments from single-stage, liquid-propelled missiles such as the Shehab-3 to heavier two-stage solid-propellant missiles such as the Sejjil, which is estimated to weigh 21.5 tons. This means that the latter falls within the weight class of the U.S. first generation of Polaris A1 and Minuteman I solid-propellant ballistic missiles. Iran has also taken strides forward in the development of its space program, progressing from the Shehab-3/Ghadr-1 missile to the Kavoshgar test vehicle, and finally to the Safir space launch vehicle, which achieved earth orbit in February 2009. As a two-stage missile, the Safir defied all our calculations when it put into orbit a 27 kg satellite; a second launch is reportedly imminent, perhaps with a 70 kg satellite. Another significant development entails the construction of numerous fixed missile launchers, which will be able to support heavier, longer-range missiles and allow for increased missile survivability. Whatever is good for Iran is bad for the rest of us, but from an engineer's standpoint these are very credible achievements.

Iran's progress in missile technology means an increased potential threat to Europe. Already, Iran has upgraded its Shehab-3 from a range of 1,300 km in 1998 to more than 2,000 km by 2007. In the process, Iran has been very careful to avoid stating that any of its missiles could reach more than 2,000 km, because such a range would imply a clear threat to Europe and no longer could be justified as a means of deterring Middle Eastern adversaries. Despite this, the Sejjil missile has a calculated range of 2,450 - 2,600 km, giving it the capability to hit Poland (including Warsaw) and five other EU countries. For Iran to hit every major European capital including London, it would need a missile with a range of 3,900 km (and a weight of thirty-eight tons). The Islamic Republic may be able to begin testing such a missile in two to three years.

Rather than develop countermeasures to Israel's missile defense systems, Iran plans to engage in mass production of its missiles as a way to saturate Israeli defenses. Conventional warheads can be as destructive as nuclear weapons

when used on a large scale, as shown by the German bombardment of London and U.S. bombing of Tokyo in World War II. To counter such threats from Iran, Israel needs radars that can both identify and prioritize among Iran's potential targets, as well as more interceptors to defend against such attacks. Israel is now in the process of moving from its two-tier system of missile defense, consisting of the Arrow II and Patriot systems, to a four-tier system consisting of the Arrow II, Arrow III, Patriot, and David's Sling systems, and -- as a last resort -- the Iron Dome mobile defense system. This more advanced, multitiered architecture is necessary to ensure that Israel's retaliatory capabilities survive an attack.

Michael Elleman

In 2007, the Bush administration announced its plans for a European missile defense architecture that centered on ten ground-based interceptors in Poland and a radar in the Czech Republic -- it was designed primarily to protect the United States from an intercontinental ballistic missile (ICBM) threat from Iran. The arrangement also sought to protect Europe from a long-range or intermediate missile from Iran. This year, the Obama administration unveiled a program to replace the Bush initiative, to be rolled out in four phases. In the new plan, SM-3 interceptors would be used as soon as 2011, six to seven years earlier than under the previous plan, in order to address the growing short- and medium-range ballistic missile threat from Iran against Europe, as well as Israel and Turkey.

The Bush administration articulated four policy rationales for its European missile architecture: (1) to reaffirm the indivisibility of U.S. and European security interests, specifically by enhancing U.S. commitments to Poland and the Czech Republic; (2) to reinforce deterrence and regional stability by giving U.S. and European leaders greater flexibility and options; (3) to prevent hostile governments from coercing European allies or from indirectly holding the United States hostage; and (4) to reduce the demand for missiles by making them ineffective. The Obama plan contains 80 percent of the components found in the old architecture, and with the introduction of land-based interceptors by 2015, it addresses all four of the former policy rationales. Only on the issue of cost effectiveness does the Obama plan fail to match its predecessor, because operating the massive SM-3 system, to be in place by 2018, will be very expensive.

In short, the threat perception vis-a-vis Iran has shifted, between 2007 and 2009, from ICBMs directed toward the United States to short- and medium-range ballistic missiles targeting Europe. This shift was prompted not by new intelligence but rather by a very different assessment of how the Iranian threat would evolve over time. Both Iran's current medium-range missiles (i.e., Shehab-3), which can already threaten Eastern Europe, and the nearly operational Ghadr-1 and Sejjil -- capable of threatening Moscow -- would be within the SM-3's capabilities. Meanwhile, Iran would not be able to produce an ICBM for more than a decade, and no evidence suggests that Iran is pursuing larger missiles capable of intermediate or intercontinental range. Flight testing for such missiles is absolutely required, and based on the history of missile programs from Iran and elsewhere, the road from initial test flights to operational use is four years. So, if Iran does develop these capabilities, the United States and its allies will have time to respond.

This rapporteur's summary was prepared by Max Mealy. ❖

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