A Missile Defense "Manhattan Project" in the Middle East

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Brief Analysis

One of the fruits of Arab-Israeli normalization should be more robust U.S.-led missile defense collaboration between states that face the greatest threat from Iran.

On December 15, Moshe Patel, head of the Israel Missile Defense Organization, publicly signaled that his agency was interested in working with the United Arab Emirates and Bahrain, building on the existing U.S.-Israeli cooperation in the missile defense sector. These states share an obvious community of interest: all of them are threatened by Iran's fast-developing missile, rocket, and drone forces.

This community—which could in time be expanded to Saudi Arabia, Qatar, and other states—gives the incoming Biden administration an opportunity to build stronger regional coalitions and point U.S. allies and partners toward defensive containment of Iran, as opposed to costly and destructive debacles like the Yemen war. Just as Washington drew allies together in the Manhattan Project to develop atomic weapons in 1942-1946, it should focus a similar collective effort on countering theater ballistic missiles, rockets, and drones—first in the Middle East, but with obvious applicability to great power competition against China, North Korea, and Russia. The urgent need for greater defensive capability was demonstrated in Baghdad on December 20, when the U.S. embassy was targeted with twenty-one rockets, the largest salvo against an American facility since 2010.

Defining the Shared Threat

A quick review of recent military events underlines why a leap-ahead development in defense systems has become so crucial:

United States. In the last year, three Americans have been killed in Iraq by Iranian-backed militias

(https://www.washingtoninstitute.org/policy-analysis/pushing-back-iraqi-militias-weighing-us-options) , and nearly a hundred suffered brain injuries when Iran fired ballistic missiles at al-Asad Air Base **in retaliation for the U.S. targeted killing (https://www.washingtoninstitute.org/policy-analysis/khamenei-lays-out-framework-avenging-soleimani-and-reentering-talks)** of Gen. Qasem Soleimani. In the latter case, the United States did not have enough Patriot missile interceptors to cover all bases worldwide and had not allocated a battery at al-Asad, underlining the fact that today's missile defense systems are very expensive and thus scarce. The situation has created numerous other problems for the U.S. military. For instance, because critical hubs such as the Combined Air Operations Center in Qatar are exposed to some degree, CENTCOM has had to transfer all U.S. command-and-control functions as far back as Shaw Air Force Base in South Carolina. Moreover, to intercept even cheap tactical rockets of the type used in the December 20 attack, U.S. forces have had to fire long bursts of large-caliber explosive bullets over a partner nation's capital city, at substantial risk and with only partial success. If larger rocket salvoes are launched in the future, such defenses would be quickly overwhelmed. The need for a directed-energy (i.e., laser) counter-rocket system is becoming increasingly urgent.

Israel. The shadow of 120,000-150,000 unguided and precision rockets **has long hung over Israel from the north (https://www.washingtoninstitute.org/policy-analysis/hezbollahs-secrets-explode-and-are-covered-again)** , operated by Iranian ally Lebanese Hezbollah. In addition, Iran can now launch missile and drone attacks against Israel from Syria, Iraq, and its own territory. Another potential front emerged on November 23, when Iran's Houthi partners in Yemen threatened to launch missiles against Eilat in south Israel.

UAE. Since 2017, the Houthis have repeatedly threatened to strike the UAE, and they followed through on those warnings with a long-range drone attack at Abu Dhabi International Airport in July 2018. Iran has threatened the Emirates directly as well, and could theoretically shower the country with a huge assortment of missiles, shorter-range drones, and long-range tactical rockets. Likewise, when Emirati forces were deployed in Yemen, they were constantly under fire from Houthi drones and precision rockets, most notoriously when around fifty troops were killed in a September 2015 base attack.

Saudi Arabia. Since 2015, the kingdom has been forced to evacuate many small towns along its southern border due to Iran-aided Houthi missile and drone attacks. In 2017, the rebels began launching medium-range Iranian ballistic missiles and drones at Riyadh and the economic hub of Yanbu; more recently, they targeted Jeddah on November 23, the same day they verbally threatened Israel. To the north, Iran launched drones and cruise missiles into Saudi Arabia twice in 2019, from both Iraq and its own territory (including the major attack on the world's largest oil processing plant at Abqaiq).

Fruits of Collaborative Development

The current cost of exchange between Iran and its enemies is unsustainable—today's most capable U.S. and Israeli interceptor systems, the Patriot and David's Sling, cost around $2-4 million per shot, while the price of each Iranian missile, rocket, or drone is typically tens or hundreds of thousands of dollars at most. To make matters worse, Tehran's threat network now poses a multidirectional challenge to U.S. bases and partners, with launches potentially emanating from Iran, Lebanon, Yemen, Syria, Iraq, and **even ships (https://www.washingtoninstitute.org/policy-analysis/iran-applies-maximum-power-annual-irgc-naval-exercise)** or **submarines (https://www.washingtoninstitute.org/policy-analysis/submarine-movements-irans-doorstep-military-and-legal-implications)** . The safety of civilian air traffic is also increasingly at risk, as Iran's accidental January 2020 shootdown of a Ukrainian airliner showed.

If missile defense does not become cheaper, safer, and more effective, then the United States and its regional partners may soon lose the ability to put up a meaningful defense against Iran—let alone broader global threats from China, North Korea, and Russia. This could lead to many negative developments: costly and failed efforts at

unilateral missile defense improvements; forced U.S. withdrawal from important deterrent points of presence; regional states kowtowing to Tehran; and a tendency toward offensive options and nonconventional weapons in dealing with Iranian threats.

The solution is to pool resources—starting in the Middle East, which faces the most immediate missile threat. Israel has an operational, multi-tiered missile defense system and extensive practical experience operating parts of it (e.g., the Iron Dome system, with around 2,000 claimed intercepts). Gulf Arab partners are well-positioned to surveil launch areas in Iran and Yemen that Israel cannot easily monitor. Saudi Arabia and the UAE also have ample experience coping with modern missile and drone threats after five years of attacks in and from Yemen. Despite their recent economic challenges, these states are still quite wealthy and could offset some of the $3-4 billion in missile defense research and development costs that the United States undertakes each year. They could also contribute sensors to a regional early warning system.

Implications for U.S. Policy

Collective work on missile defense needs to speed up and, in the longer term, get cheaper for American taxpayers. The United States has spent $40 billion on R&D since 1999, nearly double the $23 billion in today's money that the Manhattan Project cost, but without the same game-changing results. New threats are proliferating rapidly, such as hypersonic glide weapons that may be able to travel as fast as Mach 5. New defensive opportunities are also cresting, such as recently tested and field-deployed high-energy lasers and high-power microwave systems that could eventually reduce the per-shot cost of missile defense to as little as $10, while greatly increasing the number of shots available. At this crucial time in the development cycle, however, the U.S. Missile Defense Agency's budget is poised to decrease by 12 percent, from $10.5 billion in 2020 to a $9.2 billion request for 2021. As the Center for Strategic and Budgetary Assessments noted nearly ten years ago, the greatest barrier to fielding directed-energy defense systems is not immaturity of the associated technologies, but shortfalls in the initial funding required to make missile defense far cheaper down the road.

To address these issues, the Biden administration should take the following steps as soon as it is practicable:

- **Intensify missile defense research with Israel.** To make up for its interceptor shortfall, the United States purchased two Israeli Iron Dome low-altitude air defense batteries earlier this year, but cybersecurity and interoperability issues slowed their arrival. The U.S. military has also considered using Stunner missiles from the David's Sling system in Patriot batteries. To further these and other missile defense projects, the Biden administration should do what it can to facilitate the stalled United States-Israel Directed Energy Cooperation Act (H.R. 6725).
- **Get regional partners talking about missile defense.** The U.S. Missile Defense Agency and Joint Integrated Air and Missile Defense Organization should create a talking shop for American, Israeli, Emirati, and Bahraini authorities to begin sketching out opportunities for cooperation. Saudi Arabia could be asked to join as an observer, along with NATO allies and Asian powers such as Japan, South Korea, and Taiwan. As with atomic research, codebreaking, and other fields in the past, smaller U.S. allies could make critical contributions in specialized fields like artificial intelligence, battle management, robotics, and laser technologies (Japan and South Korea may have already helped Middle Eastern states revitalize their stalled work on shared sensor networks).
- **Convince the Saudis to focus on defensive arms.** Washington should encourage Riyadh to give up new purchases of offensive weapons and thus speed up the end of its involvement in the Yemen conflict, instead pouring its resources into a shared missile defense effort. Jake Sullivan and other key members of the Biden national security team have noted that boosting Saudi missile defenses might move the kingdom away from not only the Yemen war, but also any quest for nuclear weapons.
- **Work on synergies and cost savings.** To protect the U.S. homeland from small numbers of nuclear-tipped

intercontinental missiles fired by rogue nations, the United States has sought to focus more resources on combating hypersonic weapons and developing very high altitude and “boost phase” destruction of long-range missiles, mainly using expensive interceptor missiles and megawatt-scale lasers. Meanwhile, America’s regional partners have an urgent need for similar low-altitude defenses against the possibility that shorter-range drones and rockets could be used to swarm cities in Israel, the UAE, and Saudi Arabia—a threat shared by U.S. bases in the vicinity of Iran, China, North Korea, or Russia. Washington should therefore leverage these partners’ strong interest in resourcing promising but underfunded U.S. research on theater-level systems involving technologies such as 100-600 kilowatt lasers, high-power microwaves, and hypervelocity powder guns.

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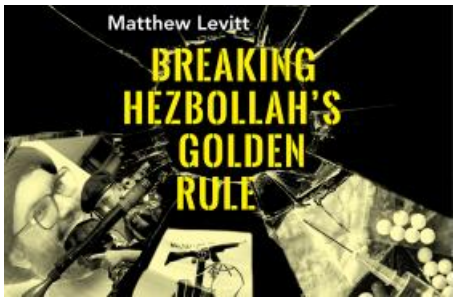

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