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Demystifying Iron Dome

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BARACK OBAMA encountered an unprecedented welcome when he visited Israel in March. He was greeted at the airport not just by the usual dignitaries but also by a hot new weapon—Israel’s Iron Dome missile-defense system against short-range rockets. A battery was stationed only a few footsteps from Air Force One, so the president could walk over and congratulate his hosts on their successful use of the antimissile weapon during Israel’s Operation Pillar of Defense in November 2012.

The Israel Defense Forces (IDF) launched Operation Pillar of Defense on November 14 in response to increasing rocket attacks from the Gaza Strip as well as other actions by militant Palestinians. The seven-day operation involved Israeli air strikes against Hamas targets in Gaza, but there was no ground invasion such as the one launched in 2008–2009, called Operation Cast Lead. The IDF had four Iron Dome batteries in operation prior to Pillar of Defense and deployed a more advanced fifth battery during the operation. According to the IDF, the system, developed by Israel with joint U.S. and Israeli funding over the past decade or so, provided a sense of security to many Israelis by preventing injury, loss of life and property damage. Reports indicate that some Israelis even ignored air-raid sirens, remaining exposed in the hopes of photographing an Iron Dome interception.

Iron Dome’s scorecard will need closer scrutiny as more technical and verified evidence becomes available, but there is ample justification for praise and expectations of continued operational success. According to the IDF, some 1,500 rockets were fired on Israel during the course of Operation Pillar of Defense. Reports indicate about a third of these rockets (five hundred or so) targeted population centers; of those, 84 percent (over four hundred) were successfully intercepted by Iron Dome (though some technical experts have suggested that the actual success rate was probably significantly lower). Whatever the actual number of intercepts, enthusiasts in both the United States and Israel have viewed this as a breakthrough in the long-debated issue of missile defense. Some have argued that Iron Dome shows the way toward achieving Ronald Reagan’s transformative 1980s vision of strategic defense, a world where ballistic missiles are “impotent and obsolete.”

Moreover, American experts and political leaders have argued for years that a new, global missile age is emerging, in which a widening array of more numerous and capable short-range rockets, cruise missiles, and intermediate- and long-range ballistic missiles will pose stark challenges for even the most advanced militaries. Israel faces ongoing attacks from relatively unsophisticated and inaccurate rockets today; tomorrow it may face Syrian Scuds (currently being used against rebel groups within the country) or a range of Iranian ballistic missiles. Armed conventionally or not, China, Pakistan, North Korea and, more discreetly, a few other states are developing missiles and marketing them internationally. Despite multilateral efforts to control the spread of missiles—including the Missile Technology Control Regime, the

Proliferation Security Initiative and the Hague Code of Conduct against Ballistic Missile Proliferation—few expect this Pandora’s box to be shut.

Iron Dome is certainly one response to this new missile age, but much of the recent commentary on the subject overestimates the importance of recent Israeli successes. Iron Dome does represent a significant new capability that may have a positive effect on regional-security dynamics in the Middle East and perhaps beyond. Such quick-response programs developed in the United States and elsewhere can contribute to the defense of key population centers and critical infrastructure against limited attacks, and that in turn can bolster psychological resilience. Furthermore, the U.S.-Israeli effort may pave the way for greater missile-defense collaboration among like-minded nations facing similar threats.

But many thorny strategic and operational issues remain. Despite its utility in meeting Israel’s unique security challenges, Iron Dome is not a game changer, nor does it validate—at least not yet—Reagan’s vision of a global strategic-defense capability. Despite a growing (but incomplete) consensus on the need for some level of missile defense, the vision of “impotent and obsolete” ballistic missiles remains firmly out of reach for the foreseeable future.

Whatever its ultimate strategic significance, the Iron Dome technology has served to reinvigorate the American debate on the utility of missile defense. Until recently, the relatively quiet and scholarly tone surrounding U.S. missile policy has contrasted sharply with the public cries and critiques that characterized what we have labeled the “three waves” of emotional debate regarding missile defense over the past four decades. These include the debates in the 1960s over deployment of what became the limited Safeguard system; Reagan’s space-based concept of the 1980s; and George W. Bush’s plan for a ground-based system purportedly designed to protect the United States and parts of Europe from an Iranian attack. Ever since the Obama administration’s introduction of the European Phased Adaptive Approach (EPAA) in 2009, there have been at most ritual acknowledgements of the “requirement” for missile defense—as in the 2010 New Strategic Arms Reduction Treaty preamble and elsewhere. Further, in the United States and elsewhere there has been only relatively low-level expert debate, even in the face of a National Academy of Sciences report that posited significant problems with current programs.

This essay will assess Iron Dome’s potential impact on U.S. and international efforts to deploy multitiered national, regional and global missile-defense systems. We will look at the antimissile system’s history and construct a preliminary baseline evaluation of its performance last fall. Finally, we will consider the strategic implications of Iron Dome and how it or similar systems might contribute to U.S. and Israeli missile-defense efforts.

ISRAELI EFFORTS to develop a missile shield go back three decades and are intertwined with the Jewish state’s close collaboration with the United States. The two countries signed a memorandum of understanding in 1986 to develop missile defense and to facilitate Israeli participation in Reagan’s Strategic Defense Initiative (SDI). Missile defense became even more salient for Israeli leaders after Iraq fired conventionally armed Scud missiles at Israel during the Gulf War of 1991. In that episode, hastily deployed Patriot missiles helped limit civilian terror and, while their operational effects were significantly oversold in the initial reports, may have thwarted some Scuds as well. Since then, Israel and the United States have cooperated on several

missile-defense programs, including joint technology development, industrial cooperation, and a program of testing and exercises in addition to shared funding, which continues to this day. Further, a sophisticated U.S. radar system in the Negev desert presently represents the only permanent U.S. ground presence in Israel.

Israel's current missile-defense goal is to construct a layered defense against ballistic missiles, cruise missiles, rockets and other air threats. Hostile or potentially hostile states surrounding Israel have emphasized rockets and missiles in their force planning over traditional war-fighting platforms and capabilities. The air forces of hostile neighbors in particular are in many cases increasingly obsolete, due in part to Western technology-denial efforts. In both the 2006 and 2008–2009 conflicts, Israel's enemies attempted to rain rockets on Israel, forcing the IDF to initiate complicated, costly and politically problematic ground operations. Israel's aim was to destroy missiles and launchers used against the country and to take out safe havens available for enemy missile operations.

Far more than the United States, Israel sees its adversaries' air and missile capabilities (including conventionally armed ballistic missiles) as part of a continuous spectrum of threats to its population and forces. The basic Israeli concept is to deploy active and passive defenses as well as offensive capabilities against known and perceived threats, as was recently seen when Israel attacked targets in Syria to prevent the transfer of Iranian Fateh-110 missiles to Hezbollah. Moreover, some analysts believe that Israeli intelligence agencies will undertake phase-zero (i.e., precombat) operations against rocket and missile manufacturers, their potential launch sites and associated personnel. Active defense, as understood in Israel, involves a multitiered matrix of systems that to date are in a variety of stages of development, deployment and readiness.

Iron Dome, representing the lowest-tier system, is intended to intercept relatively unsophisticated rockets. It was designed by Rafael Advanced Defense Systems Ltd., a private Israeli defense firm with very close ties to the IDF that builds high-tech defense systems for air, land, sea and space. It uses the explosive-tipped Tamir interceptor to destroy rockets at a range of four to seventy kilometers. Iron Dome relies on a widely publicized capability to almost instantly discriminate between rockets targeted against populated areas and those that will drop in uninhabited areas; thus, it seeks to intercept only the threatening rockets. According to Israeli missile expert Uzi Rubin, former head of the Israel Missile Defense Organization, this ability to discriminate contributed to an estimated exchange ratio of one interceptor fired for every three rockets fired at Israel during Operation Pillar of Defense. But perhaps its greatest technological success is its ability to detect, track, aim and explode ordinance in a very limited time window, which is particularly difficult within the short distances that characterize Israeli combat space.

An Iron Dome battery includes an ELM-2084 S-Band phased-array radar, fire-control center and typically three launchers capable of carrying twenty Tamir interceptors. The Tamir is three meters long and uses a proximity-fused explosive warhead to destroy rockets in midair. Israeli media have reported that shrapnel resulting from Iron Dome has damaged property, but there has been no in-depth public analysis of the danger posed to civilians by interception-generated shrapnel. Each battery costs approximately \$50 million, while interceptors cost approximately \$50,000 each. Statements from Israeli officials indicate that Israel may need up to thirteen batteries to provide full coverage to threatened areas.

But Israel's primary missile interceptor is the Arrow system, developed by the state-owned Israel Aerospace Industries in collaboration with Boeing. It includes interceptors, radars, battle management and fire-control capabilities. The Arrow 2, which carries a fragmentation warhead, is currently in service, while the longer-range Arrow 3 is under development. Arrow 3, a two-stage, solid-propellant, hit-to-kill interceptor, has not yet completed a successful intercept test, but the Congressional Research Service says it may be deployed by 2014.

Another system called David's Sling (sometimes known as Magic Wand) is designed to strengthen the middle tier of the Israeli defense against shorter-range ballistic missiles, cruise missiles and heavy rockets. A project of Rafael and Raytheon, David's Sling completed its first successful intercept test (conducted jointly by Israel and the United States) in November 2012. Israel may deploy the system as early as next year.

THE UNITED States has not sought to make use of Israeli missile-defense systems, including those it funded and/or developed jointly. Even before Operation Pillar of Defense, some in the U.S. Congress called for the United States to coproduce the system or use it to protect U.S. deployed forces. In November, Reuters quoted an unnamed Israeli official as saying coproduction is not an option "right now." Members of the U.S. House Armed Services Committee expressed concerns in 2012 that the United States is not benefiting as fully as it should from Israel and suggested that future U.S. funding be conditional on U.S. access to Iron Dome technologies.

Obama's redirection of American missile-defense programs in 2009 toward regional defense partnerships offers a path of understanding on the nature and extent of U.S. interest in defensive systems, as well as about the potential impact of Iron Dome and its related systems. Obama's policies represent what we call the "fourth wave" of U.S. efforts to protect against nuclear-tipped ballistic missiles, long an aspiration among U.S. military planners and politicians, particularly among congressional Republicans. Wave I began when the United States first contemplated the Sentinel program in the 1960s and ultimately installed Safeguard, its first operational missile-defense system, in the mid-1970s following years of heated discussion on the strategic and technological merits. Perhaps the highest political endorsement came during Wave II with Reagan's 1983 SDI speech envisioning a system, primarily space-based, that would render the use of nuclear-tipped missiles anywhere and at any stage of launch to be ineffective, if not futile. U.S. missile-defense ambitions were scaled down following the end of the Cold War, with the George H. W. Bush and Clinton administrations advocating a more limited defense of the nation against long-range missiles. However, Japan and the United States did decide in the mid-1990s to develop bilateral arrangements for a theater-level defense system in order to address Japan's increasing sense of vulnerability to a North Korean attack.

The George W. Bush administration moved decisively toward what we see as Wave III, reinvigorating the idea of a "national" missile defense. This represented a substantial shift from the SDI, and the beginning of a new, albeit rough, consensus about the purpose of missile defenses in the twenty-first century. The administration moved forward with the Ground-Based Midcourse Defense system based in Alaska and California, withdrew from the Anti-Ballistic Missile Treaty with Russia and announced plans to create a third national missile-defense site overseas, with deployed interceptors in Poland and a radar site in the Czech Republic. The

system was declared to be capable of protecting the U.S. homeland, and parts of Europe, from a potential nuclear-armed intercontinental ballistic missile (ICBM) threat from Iran.

In reconfiguring the George W. Bush plan in 2009, the Obama administration launched Wave IV. While retaining, and in 2013 modestly expanding, the two existing “national” missile-defense sites, it is pursuing multilayered regional missile shields based largely on the seaborne Aegis air- and missile-defense system in Europe and Asia to supplement and integrate with the older, relatively successful, shorter-range Patriot and Terminal High Altitude Area Defense systems. The most developed and widely discussed of these is the EPAA, intended to be linked to a coordinated air- and missile-defense system within NATO. Also included in the plan are regional systems with new or additional radars in Japan, the Asia-Pacific area and the Persian Gulf.

Notably, U.S. policy makers have not clarified Israel’s role in this region-by-region approach. On the U.S. Missile Defense Agency’s website, Israel is listed as a cooperative partner in the Middle East (but not in Europe or the Asia-Pacific), even though the United States has announced no specific plans for data sharing, technology transfers or joint command-and-control efforts among the various Middle East partners, which include Qatar, Saudi Arabia and the United Arab Emirates. Nevertheless, the United States continues to fund Israeli missile-defense efforts.

U.S.-Israeli cooperation may serve as a model for how the United States will pursue missile-defense relationships with other allies. Indeed, missile defense likely will become an increasingly important tool for reassuring key allies and building alliances. The United States provided approximately \$70 million for Iron Dome in 2012, partly to reassure Israelis facing increasing rocket attacks. This number rose to \$211 million in 2013, and the U.S. Missile Defense Agency requested \$220 million for 2014. Similarly, when Turkey recently felt threatened by missiles from neighboring Syria, the United States, Germany and the Netherlands provided Patriot batteries as a sign of NATO solidarity. It remains to be seen whether the United States will pursue a more robust suite of activities with new partners, such as joint testing, technology development, and software and data sharing.

Obama’s approach shares substantial continuities with that of his predecessor. Both focused primarily on the threat of small numbers of relatively unsophisticated missiles from outlier regimes such as Iran and North Korea, and both forwent efforts to intercept large numbers of more sophisticated Russian or Chinese ICBMs. The Obama administration also continued and expanded the cooperative efforts and multinational exercises (such as the Nimble Titan series) of its predecessor, including with Israel. U.S. policy makers and the public now largely see missile defense as a key element of U.S. strategy, and thus remain committed to significant investment in research and development.

Iron Dome’s effect on Israel’s security situation and the goal of a lasting Middle East peace remains an open question. Iron Dome may render Israel less vulnerable to short-range rockets as weapons of terror and coercion, but it could also spur Israel’s enemies to increase their offensive forces to counter Israel’s defensive systems, including Iron Dome.

In any case, Iron Dome is likely to have a significant effect on Israeli behavior. Like any state, it must respond to its citizens' desire for protection. In the absence of defenses, it must rely on offensive action—including operations such as the 2008–2009 Operation Cast Lead—to demonstrate resolve against rocket attacks. A shield against such rockets could provide leeway for Israeli leaders to seek alternate means of handling conflicts, perhaps even including expanded efforts to seek diplomatic solutions. On the other hand, if Israelis feel secure behind their defensive shield, they may not feel any need to engage in talks that would require concessions.

Meanwhile, Israel's opponents might change their own tactics in an effort to overwhelm or outflank the defensive capability represented by Iron Dome. The Arabic-language media saw Iron Dome differently from the image highlighted in the Israeli or Western media. Writers in mainstream Arabic-language outlets saw little change in the resolve of "resistance groups" to paralyze Israeli society and economic life while demonstrating an ability to resist even in the face of Israeli counterforce operations. Further, some interpreted the lack of an Israeli ground incursion as successful Hamas deterrence of Israeli forces. If these accounts significantly influence or accurately reflect the Palestinian leadership's thinking, they cast doubt on Iron Dome's potential impact on the behavior of Israel's adversaries. Most tellingly, a strong majority of Palestinians interviewed in several polls saw the lack of an Israeli ground invasion (in contrast to 2008–2009) as a victory for Hamas and a way of paralyzing normal Israeli life while furthering Palestinian goals.

IRON DOME'S success fueled media reports that other states facing threats on their borders were interested in purchasing the system, perhaps including South Korea and India, which share a history of arms sales and technology exchanges with Israel. Early accounts focused on licensing, production and defense barter in which Iron Dome would be only part of the calculus. A few accounts suggested that unspecified European countries might buy Iron Dome batteries to protect forces deployed in Afghanistan. This seems unlikely, given that the Western commitment to Afghanistan is winding down and European governments are facing severe fiscal pressures. But, even before Iron Dome's successes in late 2012, other militaries may have considered importing the Israeli system. Singapore, the city-state with a small geographic area to defend, was seen as one such possibility, although this speculation, like that involving South Korea and India, likely was stimulated in part by long-standing defense-industry relations between the parties.

The biggest marketing prize for Rafael and the Israeli government is the United States. If the U.S. Army were to purchase Iron Dome batteries, it would provide not only revenues but also, perhaps more importantly, a tighter bonding of the two nations' security planning. American missile-defense experts had indeed pushed for U.S. adoption of the system prior to Iron Dome's recent successes. Raytheon reportedly signed an agreement for joint marketing efforts. Yet, unless Congress pushes the matter firmly, Iron Dome isn't likely to become part of the American inventory. American experts initially were reluctant to support Iron Dome because they thought a laser-based system was more promising for shooting down incoming rockets and artillery rounds, and some still do. American firms are developing systems similar to Iron Dome, but unlike Iron Dome these have not yet moved out of the development phase to field-testing, let alone combat use. Moreover, Iron Dome has fairly limited applicability; its value would be

confined largely to enhanced point defense of American overseas bases, key allied infrastructure or population centers, or large, relatively immobile concentrations of American troops.

Thus, Iron Dome isn't likely to be exported extensively. For one thing, it works best in a threat environment like that of Israel and its particular geography. Israel faces a unique mix of threats, especially to its population centers, in a geographically constrained space. Hostile groups are able to fire large numbers of unsophisticated rockets at close range and then melt back into a civilian population, making retaliation difficult and enhancing the value of active defenses.

Second, the system is relatively expensive, although this has been contested by government and industry officials, as well as some outside analysts. Experts estimate that Iron Dome interceptors cost between \$30,000 and \$100,000 apiece, while the primitive incoming mortars and rockets may cost less than \$100 and longer-range rockets may go for only a few thousand dollars. Then there is the question of how many Tamirs are fired to engage one incoming missile—a matter of both shot doctrine and practical experience. Finally, the cost of Iron Dome as a system depends on how many batteries are required for full, or at least sufficient, coverage of a threatened area. For a large country such as India, for instance, the cost of obtaining sufficient batteries to protect its full expanse would likely be prohibitive. Even in a relatively small country such as Israel, full coverage may prove unaffordable, especially against the larger rocket arsenals of Hezbollah. Currently, Israel fields five Iron Dome batteries, one of which was recently deployed to the country's northern areas, with more batteries in the works. But any full cost accounting is elusive because, as with American missile-defense programs, it is difficult to prorate the supporting military programs (sensors, satellites, communication, logistical infrastructure and even human-intelligence programs) necessary for Iron Dome to be effective, or to distinguish those endeavors from their original missions or contributions to other weapons systems. Given the recent successes, all of this may be moot, at least in Israel. What politician wants to tell his constituency that he will not support a wonder weapon that demonstrably protects civilians against a well-known and fearsome threat?

Regardless of actual costs per missile, per engagement, by conflict or any other Iron Dome calculation, any government will need to assess the relative cost of defense systems according to its own strategic and domestic political contexts. Israel faces what most of its citizens perceive as an existential threat. Three times in the last decade barrages of short-range rockets have rained on Israeli territory, and single or double shots at random intervals are common. Thus, Israel has very good domestic political reasons to bear the expenses of Iron Dome indefinitely, especially if U.S. financial support continues. For other countries, including the United States, which face less challenging or immediate threats, other comparable short-range counterrocket, artillery and mortar defense systems may be sufficient. These would include the U.S. Navy's Phalanx system and counterbattery systems.

Thus, Iron Dome may be best perceived as a niche capability with a very unfavorable price ratio—something most governments wouldn't likely view as worthwhile. Even Israel, after all, received substantial financial assistance from the United States in order to produce all its missile-defense systems in the current quantities. Without access to such assistance, fewer countries than some commentators have assumed are likely to view the technology as attractive on a cost-benefit basis.

The third barrier, and perhaps the largest, is that Iron Dome is a complex “system of systems” in which all elements must work in concert in order to make interceptions possible in a short time window. For Israel, this means a crucial need is access to cueing by the U.S. early-warning system, almost certainly not available to many other potential clients.

Finally, Israel may be reluctant to share all of Iron Dome’s technologies, software and processes. Major aspects of how the system functions are not publicly known—for example, the full role of the human operator in making an intercept decision. Even coproduction or licensing agreements carry risks. Would potential purchasers guard technical innovations and operational procedures as jealously as Rafael and its various subcontractors? With life-and-death stakes for Israeli citizens, officials would need to vet carefully who acquired, much less built, the system and its components.

On the more positive side, Iron Dome was developed quickly, and designers managed to circumvent major impediments in the Israeli military-acquisition system. As Israel gains experience producing the system, costs may come down to the point where exports become more feasible. Furthermore, discrete aspects of the system—for instance, the software that allows the system to quickly discriminate between threatening and nonthreatening rockets—may generate commercial opportunities for Israeli defense firms.

Leaving aside export-market considerations and operational issues, the impact of Iron Dome may be more subtle and long lasting than many people have realized. Reports of Grad and Fajr-5 missiles being shot out of the sky made news everywhere, whatever the final technical analysis may prove. Major news outlets, both print and online, prominently featured praise by Israeli officials and world leaders such as UN secretary general Ban Ki-moon. This attention came at a critical time for national-security issues in the United States and elsewhere. At the macro level, defense spending is declining in most Western countries, forcing policy makers and military leaders to take hard looks at which capabilities are essential and which are not.

At the same time, the Obama administration plans to pursue the steady growth of its multitiered “phased adaptive approaches,” consisting of successive stages of incremental and ultimately integrated improvements to U.S. and allied missile-defense radars in Europe, the Persian Gulf and Northeast Asia. Most important, well-publicized reports about the growing threat of missiles from Iran, Syria and elsewhere add to the worries of national-security planners around the world. For nonspecialists, advocates of missile defense in general and politicians seeking ways to appear strong on defense, Iron Dome is nearly irresistible, an example of a program that works and thereby demonstrates the feasibility of future systems to defend all civilians. Yet, as we have seen, Iron Dome does not exactly fit that bill and may suffer the pains of media hype, just as Patriot underwent after the initial analysis during the 1991 Gulf War.

THE APPEAL of Iron Dome for Israeli policy makers and citizens is not hard to understand. After all, living with constant external threats—be it from invasion, suicide bombers or small, unguided rockets—is debilitating for a society and its citizens. Iron Dome has demonstrably reduced, at least in the short term, the threat of Hamas rockets. As one well-known Israeli journalist recounts from her personal experience:

We, the residents of southern Israel who live within a 40 kilometer radius of Gaza, were encouraged to build safe rooms in our house, seek support if we were feeling nervous and otherwise learn to adjust to a situation where we were in ultimate waiting mode—waiting for the next alarm, the next school closure, the next “episode” when an occasional missile or two might fall nearby.

And oddly enough, like good lab rats, we did just that. We learned to drive with our car windows open so that we could hear sirens while on the open road. We taught our children how to fall asleep again once they were moved into the safe room in the middle of the night. We developed a whole slew of coping mechanisms that range from “dressing for missiles”—no heels or straight skirts allowed—to black humor, acknowledging the absurdity of living in this kind of situation. A child wakes up from a crash of thunder last winter screaming, “missiles,” and we get to make jokes about how children of the Negev are more familiar with the sound of falling Grad missiles than actual rain. We became old war heroes, exchanging stories of close calls from the missiles of 2009 versus those of 2010 and 11.

But as time has gone on, our resistance has worn away.

The last line captures a fundamental ambivalence toward missile defense and, more generally, the political and strategic dynamics that place citizens at the mercy of both Iron Dome and the attacks it protects against. Does Iron Dome contribute to the existential security of the Israeli state and its citizens or is it a technological Band-Aid? The protection offered by Iron Dome and systems like it may, in the end, allow political and military leaders to avoid making the difficult political choices necessary to find longer-term solutions to the underlying conflict. And how does living in the shadow of missile interceptions wear on the body politic?

The enthusiasm of American and external experts for Iron Dome is less explicable, given the underlying realities of this defensive system explored above. There are only a handful of places in the world where Iron Dome-like systems could perform with anything like the efficiency we have seen in the Israeli case. Other comparable systems have been proposed in the past, remain in development or even have already been fielded. However dramatic its short-run results, Iron Dome is not really new or unprecedented. But it is operational, and this might be enough for those with financial stakes in demonstrating that such weapons work and that people in many countries should spend tax dollars against the horrifying, if remote, chance of attacks by short-range missiles. This argument gets stronger when Iron Dome expansion is envisioned less as a means of population protection than as point defense for valuable and vulnerable military installations or critical infrastructure. Rafael and potential licensees will make fine profits on sales motivated by such calculations.

A more critical measure of missile-defense ideology must be added to the explanatory mix, however, to understand the enthusiasm of neoconservative writer Max Boot, Kentucky senator Rand Paul and other cheerleaders for Iron Dome or any form of missile defense that promises to protect Israel, the United States, U.S. East Asian allies and other countries from the missiles that adversaries might field. Iron Dome’s clear successes in the recent conflict, then, are simply more fodder for missile-defense enthusiasts. At a time when the Obama administration’s regional missile-defense plans are promising to spread modestly capable missile defenses against limited

threats to the eastern Mediterranean, Persian Gulf and Northeast Asia, critics of the administration demand still more. Members of the U.S. House of Representatives are focused less on regional arrangements than on a return to a robust national system. The wishes of these critics were partially fulfilled when Secretary of Defense Chuck Hagel recently announced the deployment of additional ground-based interceptors to Alaska. Some demand an East Coast site for ground-based missile defense, regardless of whether the West Coast sites in California and Alaska are well tested and operationally effective. Moreover, American allies and potential partners in regional missile defense ask for subsidies, technology transfers and support for their own ailing defense-industry firms that might contribute to joint missile-defense efforts.

The recent demonstration of Iron Dome's promise was a boon for missile-defense proponents across the globe, as it raised a quiescent issue to the top of the security agenda at a time when military- and political-establishment figures were looking for an impetus to push the issue. But scholars, analysts and decision makers should recognize that Iron Dome is a limited system with limited applicability to a relatively small number of unique circumstances. It no more validates Reagan's vision than it makes a serious contribution to the larger game of preventing intermediate- and long-range attacks from those few states armed or potentially armed with such weapons. It is just another conventional weapon among many and not a magic bullet, unfortunately, for the Israelis or anyone else.

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