

Japan Cancels Aegis Ashore

Reasons, Consequences, and International Implications

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In June 2020, the Japanese government canceled the planned construction of two Aegis Ashore ballistic missile defense sites. This decision was unexpected for many in the security establishment. However, considering the circumstances and warning signs in previous months, the decision should not have been a surprise. In fact, Japan's reversal on the Aegis Ashore sites may indicate a larger shift in defense priorities for the country and potentially signal a transitional trend with implications beyond Japan and the Indo-Pacific region.

While this platform does not typically concern itself with demography or economy, it is worth establishing Japan's predisposition of being a trailblazer in critically important macro trends. Most famously, this has happened in key areas of economic and demographic policy. And it is conceivable that in the near term this will also happen in the field of defense.

Any traveler to Japan will describe the country as an endearing mixture of extreme futurism and strong adherence to tradition. Frequently, the attractions and experiences there are almost indescribable. The country is distinct in countless ways and very difficult to describe in terms of general trends or models. However, it is becoming apparent that Japan is often the first developed country to experience certain phenomena that later impact its peers. This habit can be seen starkly and most noticeably in the fields of economy and demography. However, the current experiences and projected responses of Japan in the field of defense (especially missile defense) over the next few years could also serve as a harbinger for its peers. It is not to say that all Japanese experiences are inevitable for others or that Tokyo's policy prescriptions should be replicated, only that Japan's experience should be considered a probabilistic outcome and its proposals as highly relevant for serious discussions.

Overview of Japan's Postwar Experience

Following its military defeat in World War II, Japan was demilitarized and constitutionally required to maintain a position of pacifism. This condition was hardly voluntary. Under the wartime treaty, the United States military guaranteed Japan's defense, forging a close alliance. Following the establishment of this alli-

ance, Japan embarked on a meteoric economic growth trajectory. Japan was so successful in achieving its economic development goals that by the 1980s the American public and business community largely believed Japan would assume the position of having the largest global economy. Throughout this period, business schools, management consultants, and popular authors publicly discussed Japanese superiority in capitalist pursuits, and many Americans strove to replicate Japanese processes and culture.

Just as the fear of Japanese supremacy reached a fever pitch in the United States, Japan's miraculous ascent quickly unraveled in the early 1990s. While Japan maintained impressive rankings in areas of human development and its contribution to global culture has been impressively disproportionate, the Japanese economy has since been largely viewed as dysfunctional, almost inexplicably so.

Within the period, from postwar growth to current semi-stagnation, Japan has experienced fascinating phenomena and has applied innovative and distinct measures toward addressing them. It is not always clear whether the measures are effective or ineffective, but Japan's global counterparts almost always view these measures with serious interest.

After achieving impressive birth rates in the immediate postwar era, Japan's fertility rates decreased significantly in the 1970s, and the population actually began to shrink. Modern history has been marked by the consistent *growth* of the human population. Most international demographers focused only on the degree of this growth, from alarmingly catastrophic Malthusians to the more moderate, but rarely talked about the likelihood of population decreases.

Japan's aging population was a new experience for the world to consider, particularly because this same phenomenon would eventually confront several other developed countries as well. Increased life expectancy combined with low birth rates are straining Japan's economy. Interestingly, while many Western countries have addressed population shortages with foreign labor, Japan has been largely hesitant to do so and instead has pursued a strategy of production automation and robotic development (a field in which Japan is the undisputed leader).

Following the miraculous growth of Japan's economy during the post-WWII era into the early 1990s, Japan experienced a gigantic economic implosion. Thirty years later, the Japanese stock market has yet to attain the value it had pre-collapse. While Japan continued to excel in certain industries throughout this dramatic period (automobiles, certain electronics, and cultural exports among others), the economic health of the economy was considered moribund. A particularly bad case of deflation plagued the country.

While no other comparable developed country has experienced the condition of prolonged deflation in the same way, some of the policy responses that the

Japanese have used to remedy their economic malaise have been used as effective weapons by others, or at the very least, considered by others. One of the most dramatic tools Tokyo has used is the intervention of its central bank, the Bank of Japan (BOJ), into the private sector in various ways. Not long ago, the vast majority of mainstream Western economists would have considered the intervention of the central bank in private markets to be extreme, politically inconceivable, and a betrayal of core capitalist principles. This activity by the BOJ was consistently viewed by Western economists as a strange Japanese economic quirk.

However, true to Japan's trend-setting nature, the BOJ has shown that such intervention is an available tool when more conventional measures such as interest rate cuts have been exhausted. The year 2020 has seen Western central banks enthusiastically embrace measures resembling those taken by the BOJ. For example, the US Federal Reserve Board established a program to purchase a broad index of corporate bonds as part of the COVID-19 rescue package known as the CARES Act.

Another area of economic policy that Japan has been ahead of the curve on is in the normalization of immense debt issuance. Japan has the largest debt-to-GDP levels among all developed economies. Many prognosticators believed that Japan's debt levels were unsustainable and that the country would soon face a dramatic reckoning for its fiscal imprudence. Many professional traders were lured into betting against Japanese government bonds because, in accordance with all economic fundamentals, a country with such a high debt level was going to have to pay higher yields, which would force the price of existing bonds to plummet. However, no such reckoning has occurred (for various reasons) up to present, and many traders surely regretted having read their economics textbooks too closely. (This trade became known as the "widow-maker," reflecting its tragic and common consequence.) Again, in line with Japan's trend-setting stature, it appears that the theory around sustainable debt levels must now be reconsidered. The United States is still far behind Japanese levels, but the growth of US debt has been staggering, and 2020 will see America's debt-to-GDP ratios at levels that would have until very recently been considered existentially alarming.

Japan's Self-Defense Forces

Since WWII, Japan has relied almost completely on the United States for its defense requirements and has not rebuilt its military proportionate to what its population and economy would suggest is appropriate. Of course, this was not completely a voluntary decision, but a mandate after WWII. This mandate has remained in place and is broadly popular, as the Japanese citizenry values its pacifist stance. Previous efforts to reform the constitutional mandate have been de-

feated. Former Prime Minister Shinzō Abe periodically floated the idea of reforms, but he too was mostly unsuccessful. However, the geopolitical realities within the region over the past decade have shifted considerably, are evolving quickly, and are causing heightened military consideration. Potential regional instability could expose the shortcomings of the pacifist constitution and relative underdevelopment of Japan's military offensive capabilities.

Japan is becoming less timid in openly discussing basic questions of military posture and questioning the rationality of relying completely on the United States for its defense. This trend has actually been ongoing for quite some time, long before the Trump administration or the Aegis Ashore suspension. However, the cancellation of Aegis Ashore certainly represents the catalyst for an examination of Japanese military capabilities.

The Japan Self-Defense Forces' close cooperation with the United States, especially in missile defense matters, must also be interpreted as an attempt to combine US and Japanese military interests and defensive capabilities to ensure American involvement in the defense of Japan. In 1999, the Japanese Defense Agency signed a memorandum of understanding with the United States concerning cooperative ballistic missile defense research with the backdrop of continuous advancement of the North Korean missile program.¹ This cooperation would culminate eventually in American missile defense assets in Japan for US homeland defense and the planned construction of the two Japanese Aegis Ashore sites that would be included in a network beneficial for Japan as well as the defense of the United States from ballistic missile attacks.

Chinese Threats in Asia

The rise of China is of obvious importance to Japan. It is remarkable how quickly China became a military power, in some fields even a peer to Japan's protector, the United States. This poses an existential concern for Tokyo, as China bore the very harsh brunt of Japan's territorial aspirations during WWII. This memory is vivid in China's collective psyche. Aside from historical animosity, there are other contemporary reasons a conflict between the two powers could become likely under certain circumstances. Principal among these is China's increasingly assertive naval actions in redefining territorial boundaries. Vietnam and the Philippines have recently experienced the increasing aggression of Chinese naval activity in the context of contested waters. Japan may find itself in a similar situation in the near future, and when it does, it will be difficult to prevent global escalation.

In this context, it is important to understand that the planned Japanese Aegis Ashore systems would not be a sufficient defense against the complexity and high

volumes of Chinese (or Russian) missile capabilities. Contrary to North Korea, which may be repelled and severely weakened by the ability to intercept its fewer and less complex medium-range ballistic missiles, the case of China is different. To be able to demonstrate a credible defense, Japan needs offensive capabilities that could attack Chinese launch facilities to prevent continuous missile launches. This explains Japan's purchase of almost 150 F-35 fighter jets and the development of its own Future Fighter (F-3), its own hypersonic missile program and proposals from Japanese government officials to develop a first-strike capability consisting of ballistic and cruise missiles.

In regard of the cancellation of Aegis Ashore, the Japanese government may have assessed that the political costs may not justify a system that has less potential to defend against Japan's perceived main threat: China.² At the same time, the installation of Aegis Ashore would antagonize Beijing, especially with its enhanced SPY-7 sensors. Moscow too would view Aegis Ashore as a provocation, for the same reasons as Russia has voiced opposition against the American Aegis Ashore sites in Europe, claiming that Aegis Ashore is not a purely defensive system and that its MK 41 launchers could also be used for offensive Tomahawk cruise missiles. One must also consider that China has reacted harshly to the deployment of extended radar capabilities in the region in the past and asserted, therefore, political and economic pressure on South Korea for example.

Despite actually being a purely defensive system, China is vehemently opposed to the US Terminal High Altitude Area Defense (THAAD) missile defense system in South Korea because of the associated radar. Beijing claims that THAAD interferes with China's national interests because the powerful AN/TPY-2 radar that is part of the THAAD system supposedly "spies" on China and detects Chinese missile launches. China's leaders assert that while the THAAD interceptors will not provide any real protection for South Korea, the system's powerful X-band radar can effectively look deep into Chinese territory. Thus, Beijing concluded that the United States must be pressuring South Korea to deploy THAAD as part of a broader US security strategy to contain China. However, these Chinese claims are inaccurate.

The AN/TPY-2 radar has two modes in which it is deployed: either with a THAAD battery in terminal mode, or by itself in forward-based mode. The hardware for these radars is the same, but the software is completely different. The terminal mode radar has a much shorter range and is generally oriented upward, optimized to track incoming ballistic missiles in their terminal phase, or final downward descent. In this mode, the radar also needs to track the outgoing interceptor as it exits the launcher. In terminal mode, the radar's range could just barely reach beyond China's border. The forward-based mode, on the other hand, has a

significantly farther range and is generally oriented outward to detect missiles shortly after launch in their ascent to provide early warning to other sensors and missile defense weapon systems. In this mode, the radar could certainly detect Chinese missile launches, if oriented in the proper direction with search fences designed for threats from there. However, this is currently not the mode in which the radar is deployed in South Korea.

A common misconception is that the AN/TPY-2 radar can be quickly switched from terminal mode to forward-based mode, and vice versa. It would actually take months to make this change. Entirely new radar search plans, or multiple search fences, would need to be built into the software and tested—not to mention the possible need to reorient the radar face. If the radar is moved even only one degree, the entire search plan needs to be recreated, a long and arduous process, which is why the radars are only used for one purpose. Therefore, it is extremely unlikely that the United States deployed an AN/TPY-2 FBM radar with its THAAD equipment in South Korea or intend to change its mode. It would render the THAAD launchers useless if the radar was not in terminal mode and would be an extremely costly diversion. Instead, China should understand that the radar is in terminal mode, and in its current position and orientation (facing north toward North Korea), it is simply supporting the defense of southern South Korea and is not spying into Chinese territory.

It is conceivable that China may be absolutely aware of this circumstance and is exploiting the radar exclusively for propaganda reasons to influence the South Korean political landscape. In South Korea it is commonly believed that many protesters that continue to plant themselves outside the gate to the THAAD site in Seongju are organized and financed by China. They are present every day and limit any US ground movement into and out of the site, requiring regular resupplies and military personnel movements to be conducted by helicopter. These protesters (regardless if organized and financed by China or not) are used as a Chinese propaganda tool and for disinformation purposes to promulgate the notion that there is greater opposition to THAAD than there really is.

Admittedly, the circumstances of the US THAAD deployment and site selection were certainly far from optimal. When the THAAD deployment to Seongju was first announced, the locals were understandably upset. It is true that local farmers were originally concerned about the effect the powerful radar's radiation would have on their health and melon crops. Additionally, the city of Seongju was not notified before the official announcement, causing the populace to feel that their voices were unimportant to the national government. Local groups protested various issues from noise pollution to the site's vicinity to historic spiritual sites. After the system was deployed, however, the local protests slowly diminished, as

health issues and the melon crops were seemingly unaffected. However, Beijing's opposition remained and so did organized protests of mainly nonlocal groups. In addition, China placed hefty economic sanctions on South Korea after the THAAD deployment.

Japan hosts two American AN-TPY-2 radars in forward-based mode without any THAAD batteries. Although Japan has not seen the same amount of protests as South Korea, nevertheless there were considerable protests at both radar locations in Japan in the past, with the main opposition in Kyogamisaki (the southern radar location), organized by the Communist Party of Japan.

The Aegis Ashore sites that were to be built in Akita Prefecture, in northern Japan, and Yamaguchi, to the southwest, almost immediately saw negative reactions from local communities.³ It is unknown, but highly possible, whether China had already attempted to influence public sentiment by assisting or facilitating the Aegis Ashore protests in these areas. If Japan went ahead with the construction, it would certainly also attract further protests and opposition from China and Russia. Tokyo views the cost-effectiveness and rationale of devoting billions of dollars to a system that does not offer optimal protection against the biggest perceived threat while simultaneously provoking this threat as problematic.

Japanese Cancellation of Aegis Ashore

Officially, Japanese Minister of Defense Tarō Kōno claimed that Tokyo's initial decision to suspend the Aegis Ashore project had two primary concerns: cost and technical issues. Japan was not confident that the system could prevent the rocket boosters from the SM-3 interceptor missiles from hitting local population centers after separation from the interceptor.⁴ Japan's Ministry of Defense declared that it had worked to see if software improvements could help solve the issue. However, the conclusion was that software alone would not be enough; the missile itself would need modifying. The Japanese government then calculated the overhauls would cost an extra 1.8 billion USD and take more than a decade to implement. Thus, the ministry decided this was prohibitively long and expensive. Considering the cost and time involved, Kōno said, there was no choice but to suspend the plan—a decision the National Security Council eventually approved, effectively canceling the system.⁵

Nevertheless, this explanation, at closer examination, is not completely convincing to be the main cause for abandoning Tokyo's original intent from December 2017 to acquire two Aegis Ashore sites, which were then considered essential for Japan's defense and supported by 66 percent of the Japanese population.⁶ Back then, the Abe administration was arguing that the extra layer provided by Aegis Ashore was critical for Japan because of North Korea's ballistic missile threat,

which would severely stress the defense capabilities of Japan's existing Aegis destroyer ships. In addition, the Aegis ships were limited in their readiness and missile defense functions by refueling and routine maintenance operations as well as rough seas and, therefore, could not guarantee continuous ballistic missile defense. Aegis Ashore would address these shortfalls and be the solution.⁷

Considering the importance that the Japanese defense establishment had placed on Aegis Ashore for the defense of the entire country in the past, Japan's current assessment of the dangers posed by falling rocket boosters seems disingenuous. With its decision, Japan would be reacting disproportionately to a small possibility of debris falling on inhabited territory. The planned Aegis Ashore sites are within military training areas, and its interceptors would most likely be fired at an azimuth toward the Sea of Japan, with booster separation taking place over the ocean (if the threat originates in North Korea). Therefore, the official Japanese justification is contrary to the previous position that Aegis Ashore is essential for defense. This reversal potentially jeopardizes the lives of thousands of citizens, who could be targeted by ballistic missiles, to avoid the slim chance that a missile fragment could impact infrastructure or an extremely small number of people.

Although this calculation of damage, including the loss of human life, may seem cynical and unethical, it is performed all the time by all militaries. In fact, the field of air and missile defense (AMD) is characterized by limited resources and the need for prioritizing protection of assets under various scenarios. Despite their importance, it is impossible to protect all assets all the time, and military planners must make difficult decisions to prioritize assets. This standard practice is well known within the Japanese Self-Defense Forces operating Patriot and Aegis missile defense systems. Therefore, the Japanese decision to promote the concern of potential relatively small damage from an interceptor fragment over the much higher probability of loss of critical infrastructure and significant numbers of lives in a ballistic missile attack goes against all basic principles of ballistic missile defense planning.

It is also unclear if the Japanese assessment that software improvements could not help avoiding rocket boosters falling on inhabited territory is completely honest or was simply a stated excuse, as such software improvements for the performance of other US missile defense weapon systems addressing such issues currently exists. It is therefore conceivable that similar software solutions could be applied for SM-3 launches and its rocket booster debris, even if the software may not be optimized for this particular interceptor type.

Objections that this type of software may be classified and not be shareable with Japan could also be countered: the Japanese Aegis Ashore sites were never intended to be operated exclusively by the Japanese military. The intent was for

the system's main contingent to be Japanese operators, with US operators present as well. To include classified US software programs or applications into systems that are shared with allied nations is not unusual. For example, the British early warning radar station in Fylingdales plays a vital role in the national missile defense of the United States and is operated by the Royal Air Force. Nevertheless, there are certain functions, data, and applications that are only accessible and carried out by the minimal US military contingent present at the Fylingdales radar station. Similar arrangements could certainly be possible for the Japanese Aegis Ashore systems and the US presence that was planned for the sites.

Also, of note in this conversation is the public position of former Japanese Minister of Defense Itsunori Onodera. Although he originally authorized the purchase of Aegis Ashore, he is now accusing his old department of deceit in this matter. According to Onodera, the previous public position of the Ministry of Defense was that the boosters of the interceptor missiles could be controlled. Now, the ministry has abruptly changed its position, which implies, according to him, that he was either lied to or that the ministry is lying now.⁸

Air and Missile Defense Planning and Procurement

One reason for the Japanese cancellation, which certainly appears coherent and initially understandable, is the associated costs for the systems that the Japanese government had calculated and expected to be much lower. It is true that the expense of the Japanese Aegis Ashore program had grown beyond what Japan had originally signed on to. Japan had initially estimated that the costs to purchase, operate, and maintain the systems over a 30-year period would amount to 2.15 billion USD. However, according to more current estimates, the costs were now to be at least 4.1 billion USD.⁹ This illustrates a very crucial point in the procurement of missile defense equipment that does not only apply to Japan: many governments do not fully recognize the real costs and complexities of missile defense systems. Countries frequently purchase missile defense weapons systems without fully appreciating the other equipment elements required to make the systems effective and adequately accounting for the full life-cycle costs of operation.¹⁰

In the case of Japan, this is even more surprising since it has a relatively long tradition in the development and operation of AMD equipment. Nevertheless, even the more recent Japanese 4.1 billion USD cost estimate for purchasing, operating, and maintaining two Aegis Ashore sites over a 30-year period is highly unrealistic and still appears much too low.

The Japanese military's insufficient plan for the complexity and associated costs of the systems is consistent with the entire planning process, which appears to have been suspect from the start. This is startling because the Japanese military

certainly has a pool of highly capable and competent defense planners. Whatever the reasons for the botched planning of the Aegis Ashore sites, the effect is tantamount to blunder and not fully comprehensible. To great embarrassment, it was even revealed that the Ministry of Defense selected the sites by using Google Earth, based on error-ridden calculations, and that no planners had actually visited the locations.¹¹

As alarming as this conduct may seem regarding the quality of efficient planning for a defense project of this magnitude, Japan is certainly not the only country where AMD procurement and planning are misunderstood or carried out neglectfully. Various other international examples confirm RAND Corporation's research (mainly focused on the Indian procurement of the Russian S-400 system), which came to the overall conclusion that the complexity of high-performance, high-altitude missile aerospace defense systems and the associated planning process is often not fully acknowledged by many governments.¹²

In May 2019, for example, the Hungarian defense minister announced that Hungary was seeking a medium-range missile defense system and presented a group of systems from which Hungary would select for its national missile defense. Among the contenders were the Israeli Arrow system, an upper-tier missile defense system mainly designed to intercept short- and medium-range ballistic missiles, the French/Italian SAMP-T medium-range AMD system, the American/German Medium Extended Air Defense System (MEADS), and the Norwegian Advanced Surface to Air Missile System (NASAMS) air defense.¹³ Hungary eventually chose NASAMS. However, the list of contenders demonstrates confusion and a lack of basic research on behalf of the Hungarian Ministry of Defense. Arrow and NASAMS represent two systems at opposite ends of a large spectrum with completely different missions. It is clear from the list of contenders for the Hungarian procurement that the government had not even conducted a general assessment to determine what type of threat the system should be effective against.

The Hungarian AMD system contender list is comparable to someone looking to buy a mode of transportation and choosing between a car, a motorcycle, a bicycle, or a skateboard. Hungary's goal was to build a national medium-range missile defense capability. The NASAMS air defense it ultimately chose is highly capable against aircraft, unmanned aerial vehicles (UAV), and cruise missiles. However, the system cannot engage ballistic missiles, which, judging from the other contenders, should have been a central focus for Hungary's defense needs.

Another glaring example is Switzerland's recent AMD procurement process. The Swiss Federal Department of Defence, Civil Protection and Sport (DDPS) planned for the military to attain ground-based, medium-to-high-range air defense capability by 2030 as part of the largest defense procurement in the country's

history. However, contrary to almost all defense analysts, the DDPS failed to acknowledge the ongoing proliferation of ballistic missiles.¹⁴ This is an outlier viewpoint, particularly in Europe, following the recent termination of the Intermediate-Range Nuclear Forces (INF) Treaty. Additional surprising contradictions, from the view of renowned specialists,¹⁵ are the DDPS's insistence that ballistic missile technology is not precise enough to be an effective weapon and its conclusion that conventional air forces pose the biggest potential threat.¹⁶ In alignment with this extreme outlier opinion, the official criteria for the new air defense system is focused on engagement of aircraft and explicitly does not include the capability to intercept ballistic missiles.¹⁷ Nevertheless, the contenders for the Swiss procurement are two systems that are mainly optimized for ballistic missile defense. This obvious contradiction is even amplified by the Swiss insistence that the Patriot AMD system will only be considered in its PAC-3 configuration, which was specifically developed to engage ballistic missiles more effectively. This confusion at the highest strategic levels confirms RAND's findings once more.

Just as in Japan, the planning process in Switzerland appears to have been carried out haphazardly. In addition to the discrepancy in the capabilities of the systems, almost a year after the evaluations started, it was discovered that the truck platforms for both mobile AMD systems were too big for standard Swiss roads and would not be able to fit through the many tunnels in the country.¹⁸ A glance at the financial planning in Switzerland also reveals unrealistically low projected costs. Life-cycle costs of AMD systems typically exceed the original purchase costs in about seven years.¹⁹ This does not even include associated infrastructure costs such as the construction of adequate maintenance and storage facilities, which are not accounted for in Switzerland (Japan too did not budget for additional construction costs).²⁰ Furthermore, largely overlooked is the question of testing and training. Switzerland does not have adequate space to test-fire missile interceptors within its borders and will have to utilize foreign missile ranges. This use of another nation's test facilities will accumulate significant extra costs.

In September 2019, it became known that missile testing added at least 500 million USD to Japan's price tag for its two Aegis Ashore sites, for which Tokyo had not accounted. Out of fear that conducting those tests in Japan could increase tensions in East Asia, Tokyo decided it would rather hold them at a US test site in Hawaii, where they would cost about 100 million USD per launch.²¹ A single SM-3 Block IIA interceptor missile, which would be used for the test, costs about 30 million USD. In addition, Japan would be paying for targets, temporary use of the US Aegis Ashore test site in Kauai, its personnel, and an exclusion zone to keep commercial shipping and aircraft away from the tests. Tokyo accounted for none of these expenses in Japan's budget. When the Japanese government agreed to pur-

chase the Aegis Ashore systems, the defense minister at the time did not know that Japan would also have to pay for missile launches to test the system. The Japanese government erroneously thought computer-simulated tests would be sufficient.²²

The experiences of Japan, Switzerland, and Hungary demonstrate that many governments and national defense establishments are overwhelmed with the broad scope and intense technical specifications required for successful AMD planning. Strategic planners entrusted with their nation's analysis in this arena are broadly ill-equipped to perform their mission, usually lacking in relevant experience or guidance. In the instance of Japan, with its exposure to SM-3 development with the United States, this is somewhat surprising.

The field of missile defense is very different from traditional military strategies and experiences. Often, with the exception of the United States and Israel (and to an extent Saudi Arabia and United Arab Emirates), there is little substantive operational knowledge in this field. Many US allies and friendly nations have no practical experience at all in AMD other than short-range air defense against aircraft. Countries that have been exposed to more sophisticated high and medium AMD are mainly theoretical or based exclusively on field training.

North Korean Missile Capabilities and Tactics

Recently, a notion that Aegis Ashore cannot effectively engage North Korean ballistic missiles that are fired in a lofted trajectory was published. Voices in Japan suggested that Japan's theory of missile defense had already collapsed around 2016 and 2017. During this period, North Korea simulated a "saturation attack," where numerous ballistic missiles were fired, and a highly lofted-trajectory missile was launched.²³ A lofted-trajectory missile is known to be harder to intercept. However, these suggestions are not entirely correct and should be discussed.

In political debate, the Japanese government has been accused of brushing off doubts and insufficiencies of Aegis Ashore to continue to pursue the system, which Tokyo had promised Washington it would buy. Defense Minister Kōno's (who in Japan is viewed as a maverick) decision to discontinue Aegis Ashore has been hailed as wise, courageous, and honest. His decision is supposedly a signal of government efforts to explore options that actually work and shows that civilian control is functioning.²⁴ As ideal as pursuing effective solutions and functioning civilian governance may be, this view is based on the incorrect premise that Aegis Ashore cannot sufficiently counter North Korean ballistic missiles. There is a widespread misunderstanding and misconception in Japan that North Korea has effectively made all traditional missile defense options obsolete with the introduction of saturation attacks and its highly lofted missile trajectories. These ideas, perpetrated by the media, are misinformed, inaccurate, and reminiscent of Chi-

nese claims that THAAD in South Korea is ineffective or Russian claims that US missile defense does not work.

North Korean tactics of trying to overwhelm missile defenses with salvos of numerous missiles have been understood and accounted for since the very beginnings of North Korea's missile program. Cardinal in this respect has always been the development, growth, and upgrade of sensors for effective missile defense. It is frequently overlooked that sensor architecture and quality of radars are often more critical than "shooter" capabilities. It has always been accepted that North Korea would start off a missile attack with large barrages of cheaper and less sophisticated missiles to overwhelm radars and tempt the defenders to waste their intercept resources. These first waves would then be followed by missile barrages in which the attackers would "sneak" in occasionally more sophisticated and more deadly missiles (of which North Korea has limited numbers) in the hope that defense radars may be saturated or interceptor resources have run out. This is not a new concept, as falsely implied by media reports. Accordingly, ballistic missile defense (BMD) has developed capable radars that can determine the missile type and impact point of the incoming missile and have the ability to track large numbers of enemy missiles. To save resources, missiles that will impact in the sea, on uninhabited land, or on lower priority defended assets will not be engaged. Software can establish which particular shooter has the best chances of engaging, so that resources are not wasted or prevent different shooters from engaging the same target to maximize interceptor efficiency.

The main assertion, however, is that Aegis Ashore, or BMD in general, is incapable of defending against the North Korean ability to fire ballistic missiles in a so-called highly lofted trajectory. By using a lofted flight trajectory, North Korea could use medium- and intermediate-range missiles to strike regional targets over shorter distances by firing them at higher angles. For example, on 22 June 2016, North Korea was able to limit the distance of the intermediate-range Musudan missile to around 400 km (from a normal distance of more than 3,000 km) by using this lofting method. In this scenario, the warhead is traveling at an extremely high velocity by the end of its trajectory, thereby undermining the effectiveness of missile defense systems.²⁵ The Patriot missile defense system, for example, is incapable of engaging certain warheads at that speed. This is exactly the reason why THAAD was deployed to South Korea, to complement the existing South Korean and US Patriot systems with the ability to engage longer-range missiles in a lofted trajectory. It is generally understood that Aegis Ashore has greater coverage and capability than THAAD. The plan to bolster defense capabilities by adding a US Aegis Ashore system in Guam, which already hosts a THAAD battery, confirms this.²⁶ It should also be noted that the number of ballistic missiles that

North Korea could fire in a lofted trajectory is limited. North Korea would have to use its best and most sophisticated missiles that were constructed for long ranges in a manner that could only cover relative short distances.

Nevertheless, it is true that none of the current BMD systems are optimized for highly lofted trajectories, posing a significant challenge for all missile defense systems. How much of a challenge may be debatable, as system upgrades routinely occur to counter new threats, but claims that lofted trajectories have made BMD obsolete are certainly an exaggeration.

In addition to the speed of the incoming warhead being far greater while on its way down than on a normal or depressed trajectory, the angle and cross section is also critically important. BMDs typically do not intercept missiles completely head on (nose to nose), although they technically could do so (but it is much harder). They usually hit the incoming warhead on its side from below, where it is longer and has a greater cross section that the radar can detect and can direct the interceptor toward for a greater probability of intercept. When a missile is highly lofted, there is also a great likelihood that ordinary radars will not track the missile all the way because they will lose coverage at the missile's apex as it temporarily leaves the radar's field of view. When the missile is on its descent and the radar redetects the threat, it is often too late for the defense system to react, because it must play catch-up to adjust the interceptor. The more highly lofted the missile's trajectory and the more straight downward the descent is, the harder it would be for a defense system to readjust, catch-up, and engage at the right angle. The missile interceptors, although extremely fast, are still limited by speed and are going against gravity, unlike the enemy missile threat accelerating as it descends.

With its extremely effective SPY-7 sensor, which can also perform space surveillance, and its new SM-3 Block IIA interceptor (believed to be capable of engaging intercontinental ballistic missiles [ICBM]), Japan would have gotten with Aegis Ashore the best available option to counter missiles with lofted trajectories.

Missile Defense Alternatives

What is the missile defense alternative for Japan after the cancellation of Aegis Ashore? The concerns of North Korean missiles and current operational limitations are still relevant considerations that had been cited as reasons why the system was necessary in the first place.²⁷ According to the official 2019 White Paper for the Defense of Japan, "Military trends in North Korea continue to pose a serious and imminent threat to the security of Japan."²⁸ In addition to a tighter military budget due to COVID-19, Japan's Maritime Self-Defense Force is also battling with low overall recruitment and is therefore struggling to find and retain crews for their seven (soon eight) Aegis ships.²⁹ But even if, for some reason, re-

cruitment numbers would increase to provide new sailors for additional Aegis ships, at roughly 2 billion USD per ship (and still with the same coverage gap issues), it would not be an alternative either. The head of the Maritime Self-Defense Forces, Admiral Hiroshi Yamamura, declared openly that if the solution is not Aegis Ashore, it is still necessary to introduce some new BMD capability that is not influenced by weather.³⁰ A potential solution recently discussed in Japanese and US media is the installation of the system aboard a “megafloat,” a huge floating structure that can be used as an offshore base.³¹ This proposal, however, does not make much sense, because its operational readiness would still be limited by rough seas. In addition, these very large pontoon-type floating structures would be vulnerable to sabotage by combat divers and torpedo attacks.³² Adequate force protection for such structures would require additional infrastructure and substantial financial spending and effort.

Another idea being discussed is to upgrade the Japanese fleet of Aegis ships with SPY-6 radars instead of their current SPY-1 radars.³³ The US Navy is also upgrading its Aegis ships with the more capable SPY-6 radar. Aegis ships equipped with SPY-6 radars would certainly enhance Japan’s missile defense capabilities, because it would improve detection ranges considerably and provide more and refined engagement options. However, the operational constraints of the Aegis ships would still not be resolved.

It has also been repeatedly stated that Japan has a layered defense consisting of two tiers with its Aegis ships and Patriot. However, the term *layered defense* is clearly misunderstood by many, who believe that it means if one system misses an incoming threat, the next layer of missile defense systems could engage. In reality though, every BMD system is optimized for a specific type of threat. In the aforementioned case of lofted trajectories for example, the Patriot system cannot engage the incoming missile and, therefore, does not offer a second intercept option. Without a land-based Aegis Ashore, Japan’s missile defense options against a constantly evolving North Korea will remain limited.

Strategic Reorientation

Regardless of stated technical, financial, and planning related issues, many signs for Japan’s suspension of Aegis Ashore point in actuality to a strategic reorientation and threat reevaluation as the primary reason. Over the decades, there has been a gradual change in Japan’s international outlook, moving from a period of single-minded pursuit of economic power to a more orthodox international role in which Tokyo will be deeply engaged in political-military affairs. This major shift has been ongoing since at least the early 2000s, before the Abe administration and long before the Trump administration. North Korea’s military posture

was and is still a threat to Japan, but it certainly also provided a welcomed justification for Japan's process of change. Important examples of change include (1) the growing public and political acceptance of the revision of the Constitution's Article 9, which expresses Japan's renunciation of war; (2) a nascent debate on Japanese nuclear weapons after the first North Korean nuclear test in October 2006; (3) the introduction of BMD and the discussion of whether the Air Self-Defense Force may need to obtain the capability to execute preemptive air strikes; (4) the dispatch of troops to the Indian Ocean (from 2001) and Iraq (between 2003 and 2008) outside the scope of United Nations peacekeeping operations for the first time after World War II; and (5) the transformation of Japan's Defense Agency into a full ministry in 2007, signaling that security issues have now been elevated to the same level as in many other countries.³⁴

North Korea's erratic behavior certainly served as a reminder that Japan needs credible defense and as an excuse to build up military capabilities that more closely align with the political and economic importance of Japan. In public statements, former Japanese prime minister Junichiro Koizumi even went so far to justify the decision to contribute troops to the postwar reconstruction effort in Iraq from 2003 with reference to an immediate North Korean threat (and the need to maintain a credible alliance with the United States).³⁵ For the first time however, Japan now has actually officially admitted that it is not North Korea, but China, that poses the biggest military threat to Japan.³⁶ And it is also becoming more obvious that Japan is trying to build armed forces that could sustain credible military capability without the direct involvement of the United States.

The reality of the matter is that there are many complex reasons why Japan may have decided not to go forward with Aegis Ashore. But the truth is also that it is generally recognized that the official Japanese position is not sincere. The Japanese decision may be interpreted differently among allies and adversaries, but it is by and large understood that Japan is using this opportunity to further build up offensive capability.

This acquisition of strike capability could represent a dramatic shift in the region's military balance and competition. Regardless of what Japan will officially call its new capabilities, it will be viewed as a shift toward an offensive posture, particularly if the discussion in Japan focuses on preemptive use. Even if Japan argues that its offensive capability is only aimed at North Korea, China will not view it that way, especially since it was identified as the main threat in Japan's most recent defense white paper.³⁷ If Tokyo was considering a negative Chinese reaction to Aegis Ashore, it would certainly see a much more unfavorable Chinese response to a first-strike capability. China will see itself bound to react adversely, as will North Korea, and maybe even South Korea, with whom Japan has a strained

historical relationship. Further, the official reasoning of Japan to cancel Aegis Ashore because of considerations for the local populace and public pressure could signal and encourage China, as well as Russia, to launch broad misinformation campaigns to influence the political situation in their favor.

The Aegis Ashore cancellation could also potentially have a negative effect on the US–Japan alliance. Tokyo has already paid the US government around 120 million USD for the Aegis Ashore system. At the moment, it is not clear whether the United States will return this money, if Japan is liable for any of the remainder, or whether there is a penalty for breaking the contract.³⁸

It also must be understood what significance the Japanese Aegis Ashore holds for the United States. In addition to improving Japan's capability and capacity to protect US forces stationed in Japan, Aegis Ashore would have enhanced US homeland defense capabilities. Importantly, the US military looked at the Japanese Aegis Ashore systems as a way to free up American Aegis destroyers in Japan to shift to other areas where China is active, such as the South China Sea, Indian Ocean, and Philippine Sea. Therefore, Aegis Ashore would have complemented US regional strategy. Its cancellation thus complicates America's approach to the region.³⁹ US Admiral Harry Harris, then-commander of US Pacific Command, told Congress in 2018 that without Japan's Aegis Ashore deployment, the US Navy would have limited flexibility to take its Aegis-equipped destroyers that are defending Japan and position them elsewhere because of US treaty obligations to defend Japan.⁴⁰ Nevertheless, the United States has also shown a willingness to support a more forward-leaning Japan.⁴¹ But a Japanese shift toward strike capability will most likely change the nature of the alliance, since it has always been a relationship with Japan focused upon defense with only the United States possessing an offensive capability.

The Japanese government is arguing that it needs to consider a capability to strike an enemy base with missiles before the enemy can launch as a means to strengthen Japan's deterrent capabilities. Tokyo is already currently procuring cruise missiles designed for fighter jets with 500- to 900-km ranges that government officials believe can be used in a capacity to strike enemy forces far away from Japan. Its fleet of aerial refuelers and the extensive number of F-35s (Japan is the second-largest user of F-35s after the United States) help extend the ranges of these missiles even further. Additionally, Japan is developing ground-launched hypersonic weapons that, depending on their range and location, would be able to reach North Korea and even parts of China.⁴² What exactly the Japanese government is planning for remains to be seen. The plan could be the extension of ranges of already existing or procured capabilities. However, it will more likely include new cruise and ballistic missiles, as previously insinuated. The cancellation of Ae-

gis Ashore could also be an opening and chance for hosting offensive American ground-based intermediate-range missiles for which Washington is searching for basing options in Asia.

In 2019, the Trump administration withdrew from the 33-year-old INF Treaty that barred the United States and Russia (but not China) from developing and stationing land-based intermediate-range missiles. Due to this treaty's provisions, the United States was prohibited for over three decades from stationing such missiles in Asia, while China's missile arsenal of intermediate-range missiles grew massively. Senior American officials now say that putting hundreds of American missiles with nonnuclear warheads in Asia would quickly and cheaply shift the balance of power in the western Pacific back in the United States' favor amid growing Pentagon concerns that China's expanding arsenal of missiles and other military capabilities threaten US bases in the region and have emboldened Beijing to imperil US allies in Asia.⁴³ However, there are only limited territorial options in the region where such US missiles could be stationed. Australia and the Philippines have already publicly ruled out hosting US missiles. In Japan, an official decision has not been made yet, and with the Japanese government now favoring offensive capabilities and the risk of antagonizing the United States with the Aegis Ashore cancellation looming, offering Washington to attain missile bases would seem like an ideal solution. Specifically, the Japanese government would likely offer the island of Okinawa for such US missiles—thus avoiding popular opposition on the mainland.

There is, of course, also the option for Japan to either procure or develop its own ground-based intermediate-range missiles. An indigenous Japanese missile program seems to win more and more traction in Japanese defense circles, and the discussion is now focusing on targeting abilities for a potential Japanese strike. According to Yasuhiro Takeda, a professor at the Japanese National Defense Academy, Japan would be able to dramatically reduce the cost of developing the capability to strike enemy missile bases before an imminent attack if it uses US military satellites for intelligence.⁴⁴

Indeed, it would take years and considerable financial resources for Japan to attain such capabilities. In the context of the Japanese objections to Aegis Ashore, which were officially based on costs and on the extensive time it would take to develop a solution for the supposed issue of falling rocket boosters, it seems paradoxical that these factors apparently do not weigh as much in the discussion about strike capability.

In this respect, it is important to understand Japan's military planning to consider how Japan views and calculates US commitment. While the American military apparatus has been engaged in active, large-scale regional conflicts in the

Middle East over the past decades, it has also endeavored to maintain its global role with varying levels of involvement in dozens of other countries and sea lanes. This level of global involvement has generally been viewed as sustainable due to the depth of America's logistical talents, overall military superiority, and seemingly infinite financial resources. However, recent events in the American homeland are calling into question the sustainability of these actions. The most dramatic appearance of American fragility has been the outbreak of internal social unrest in countless major cities throughout the country and the stark divide between its two main political parties. Japan, with its starkly different social culture, may likely view these recent US events as alarming and negative. While the current unrest is far from the worst in America's history, when these internal issues are combined with the increasing cooperation among America's near-peer adversaries, the perception of a decreasing degree of US military superiority, and increasing opposition of American citizens to "endless wars," it is hard to argue with the viewpoint that the United States is becoming overextended and its commitment to its allies questionable. In this context, the idea of a military power overtaking the United States is not really the point. Nor is the threat of an economic competitor. The point is that many US allies throughout the world view Washington as overextended and distracted. America cannot possibly support all its allies equally, particularly under a scenario in which America's adversaries continue to act in some degree of coordination.

Japan has surely undergone this analysis and recognizes the fact that under any type of future global conflict that includes China, America will need to prioritize its forces. Such a prioritization may well provide Japan with an adequate defense, but that is highly unlikely. Under such considerations, Tokyo recognizes that Japan must build its own military to a stature of defensive self-sufficiency as well as its offensive capability to address China. Therefore, it would be inaccurate to solely blame the current resentment of the Japanese government to Aegis Ashore on a poorly executed planning process or faulty budgeting. The issue is more complex and may, in addition to a Japanese strategic military reorientation, also indirectly involve previous US strategic decisions. Certain American decisions may have been interpreted in Tokyo as contrary to Japanese AMD priorities or even as a hidden attempt for Japan to finance US assets for the defense of North America.

When the United States planned its defense against ballistic missiles, it was done mainly with the upcoming missile capabilities of North Korea in mind. Ground-based Midcourse Defense (GMD) became operational against long-range ballistic missiles in 2004 with a relatively limited sensor architecture. Today, US strategic missile defense encompasses a robust sensor architecture throughout the Pacific region to search for and track ballistic missiles. This architecture con-

sists of space-based infrared sensors, US Aegis ships in Japan, upgraded early warning radars in Alaska and California, and a mobile sea-based X-band radar mounted on a self-propelled former oil platform. Additionally, the United States operates two of its AN/TPY-2 Forward-Based Mode (FBM) X-band radars on the Japanese mainland in Shariki and Kyogamisaki to defend the US homeland.

In theory, US Aegis ships deployed in the Sea of Japan could also support US homeland defense with their SPY-1 radars, if they are in an optimal location. Their SM-3 interceptors are believed to have the capability to engage North Korean ICBMs from the Sea of Japan in their boost phase.⁴⁵ Although a SM-3 engagement of an ICBM has not yet been tested.

However, the same constraints as identified for the Japanese Aegis ships (limitations in readiness and missile defense functions through refueling, routine maintenance operations, and rough seas) also apply to the American Aegis ships. Therefore, the Japanese Aegis Ashore sites could have played an important role for US homeland defense by providing a constant option of engagement capability against North Korean missiles in the early stages of their flight and/or providing additional sensor capability. Japan even planned to enhance this sensor capability by equipping its sites with the new and much more powerful SPY-7 radar.

Over the last several years, after sensor analysis, the United States announced that it was building or planning a number of new additional missile defense radars focused on coverage over eastern Asia and the Pacific Ocean. These radars were the Long-Range Discrimination Radar (LRDR) in Clear, Alaska, the Homeland Defense Radar–Hawaii (HDR–H), and the Homeland Defense Radar–Pacific (HDR–P).⁴⁶

On 7 December 2018, the US Missile Defense Agency (MDA) awarded 250,000 USD contracts to analyze HDR–P performance requirements.⁴⁷ According to the MDA: “The HDR–P provides persistent midcourse discrimination, precision tracking and hit assessment to support the defense of the homeland against long-range missile threats.”⁴⁸ Possible locations for the HDR–P had already been selected but were classified. However, in December 2018, it was reported in Japanese media that the United States was considering building and operating the HDR–P in Japan by 2023.⁴⁹ A January 2019 Japanese newspaper article indicated that the US government had not yet requested Japanese permission to deploy the radar in Japan but intended to do so soon and added that the United States would share information from the radar with the Japanese military.⁵⁰ According to other Japanese news sources, the Pentagon was engaged in talks with the Japanese government to sort out details, and the US radar in Japan would work in tandem with the planned US radar in Hawaii (HDR–H) to establish a seamless US homeland missile defense posture in the Pacific region.⁵¹

The estimated US costs of HDR-P would be more than 1.3 billion USD, with 1 billion USD for the radar and 321 million USD in military construction costs.⁵² Regardless whether the Japanese media reports of HDR-P in Japan were accurate or not, the perception in Japan was that a US radar to enhance US homeland defense (which would also share information with Japan) was being built in Japan. In addition, the US Army activated a new AMD brigade (only consisting of a headquarters and headquarters battery) near Tokyo in October 2018.⁵³

However, the construction of HDR-P in Japan never went forward and was also never officially announced by Washington. Neither the HDR-H nor the HDR-P appeared in supporting fiscal year 2021 budget request documents released in February 2020.⁵⁴ Although the US government has now ultimately reversed the decision on the Hawaii radar and it will be built, the plans for HDR-P in Japan have been abandoned.

The significance of the potential Japanese interpretation and judgment on this development have been largely overlooked in the analysis of Japan's cancellation of Aegis Ashore. In July 2018, Tokyo had made the decision to upgrade the radars of its Aegis Ashore systems and announced that it had selected the highly capable SPY-7 radar.⁵⁵ This SPY-7 uses the same S-Band technology that the HDR-P would have used and is essentially a smaller version of the HDR-P. It is likely that, with the cancellation of the American S-Band HDR-P, Tokyo assumed that the United States could use the data of the two S-Band SPY-7 radars of the Japanese Aegis Ashore sites in a similar manner it would have used the HDR-P if it had been built. The Aegis Ashore data sharing would certainly not be a point of contention, as it was agreed from the beginning between the two nations. However, since Japan has voiced a lack of appreciation for the costs of missile tests carried out in conjunction with the SPY-7 (and indeed to validate the SPY-7 radar) in Hawaii, there may be a view within the Japanese defense ministry that these costs should not be solely carried by Japan, since the United States would benefit from the Japanese Aegis Ashore sites considerably and especially from the S-Band SPY-7 data, while at the same time saving more than 1.3 billion USD by abandoning its own S-Band HDR-P. Furthermore, the Aegis Ashore sites would have freed up US Aegis ships, otherwise tied to the defense of Japan, so that they could carry out other tasks or be utilized in other parts of the region.

Japan Could Be Setting an Offensive Trend

It is evident that Tokyo recognizes that Japan must restructure and build its military to a stature that includes offensive capability to address a threat by China, North Korea, or any other actor that threatens its interests. Japan's moves in this

direction are important because it is believed that this pivot is another example of Japan acting ahead of the curve.

Shortly after Japan announced its cancellation of Aegis Ashore and a possible acquisition of offensive missile capabilities, Australia, another US ally, announced a new strategy for its national defense. Australia declared that it would include offensive long-range missiles that can be launched from aircraft into its defense concept to deter potential enemies and have strike capabilities. It will also investigate the future possibility of acquiring new long-range missiles that can be launched from land, including hypersonic missiles. In a speech at the Australian Defence Force Academy in Canberra, Australian prime minister Scott Morrison stated that Australia must face the reality that it has moved into a new and less benign strategic era. He continued, saying that Japan, India, the Republic of Korea, the countries of Southeast Asia, and the Pacific all have agency—choices to make and parts to play—and so too does Australia.⁵⁶

In the midst of the Japanese discussion about offensive missile capabilities, South Korean president Moon Jae-in just called for a push to secure the “complete missile sovereignty” of South Korea.⁵⁷ Although Seoul remained obliged for now not to build ballistic missiles with a range of more than 800 km, South Korea is determined to improve its capabilities and hinted that it will discuss altering ballistic missile range restrictions with the United States when needed for South Korean national security.⁵⁸ South Korea further announced that it had won US consent to use solid fuel for space launch vehicles, which is expected to enable Seoul to launch its first surveillance satellites and at the same time better the technology to build more powerful and capable missiles. Solid fuel offers South Korea greater mobility for its missiles and reduces launch preparation time. In the past Washington had imposed strict restrictions on South Korea’s use of solid propellant for space launches out of the concern that this may lead to the production of missiles with longer ranges and cause a regional arms race. However, related bilateral missile guidelines between Washington and Seoul are now being revised to lift such restrictions.⁵⁹ Asia, the Indo-Pacific region, and the world as a whole may soon witness a conscious military shift to more individual deterrence and first strike capabilities, with Japan being the forerunner.

In Germany, we may see another key US ally cancel a long-planned, multibillion-dollar missile defense program. Although at first glance, parallels between the German Taktisches Luftverteidigungssystem (TLVS), internationally better known as Medium Extended Air Defense System (MEADS), and the Japanese Aegis Ashore procurement seem to be nonexistent, a closer examination reveals some similarities.

Like Tokyo, Berlin had completely underestimated and miscalculated the costs of the defense system. In 2005, when the German parliament voted for the development of MEADS, the expected cost was roughly 900 million USD.⁶⁰ At the time, it was a joint project between the United States, Germany, and Italy. In 2011, the United States government discontinued its participation because of the exploding costs and questions about the defense value of MEADS. However, US defense firms remained the primary commercial developer. Berlin then had to make the decision if Germany would also discontinue MEADS and instead continue its Patriot AMD systems and invest accordingly into its upgrades. After spending millions of dollars for external consultants the German defense minister at the time, Ursula von der Leyen, concluded in 2015 (based on the recommendation of her external consultants) to continue with MEADS. Estimated costs in 2015 were 4 billion USD. Today's cost estimate is at least 8 billion USD (only the system, interceptors not included).⁶¹ It is now conceivable that the German government could cancel the entire project, which is integral to future NATO capabilities and part of US planning for European missile defense abilities.

In addition to cost, there also seems to be a general misunderstanding about the system's capabilities by the German government. German officials have so stretched the scope of desired capabilities that the effort amounts to a new development, including the additional requirement for integrating defenses against hypersonic missiles.⁶² Next year is an election year in Germany, which means that there will be little appetite for pushing billion-dollar acquisitions, especially if closer examination will reveal major shortcomings in the planning process. The parallels to Japan are clear and do not only include a failure in estimating a realistic budget. Germany, just as Japan, has capable AMD experts within the ranks of its military, but fundamental defense decisions seem to have been made in political isolation. The German defense ministry was consulted on a large scale by a business firm that specializes in management consulting services and provides advice on acquisition and new business strategies. The majority of the firm's staff are graduates with theoretical knowledge but without any operational military experience—all this, despite the fact that Germany was one of the first countries after the United States to purchase Patriot and has been heavily involved in AMD. The German military has been operating the Patriot AMD system since 1989.

Two retired German generals have come forward and publicly spoken out against MEADS. One of them is the president of the Society of Air and Missile Defense Soldiers. Their verdict, according to their subject matter expertise, is that the German military would be pushed into a financial disaster with the acquisition of MEADS and that MEADS would be an unnecessary burial ground for billions of dollars.⁶³ The MEADS procurement will become a highly political

discussion in Germany in the next months, and a cancellation may be more likely now that Japan has demonstrated that such a drastic defense decision can still be made at any time in the acquisition process. German politicians may point to Japan and feel encouraged by Japan's decision to cancel Aegis Ashore.

In Germany, and in Europe as a whole, there have been increasing calls for the European defense sector to build greater autonomy from the United States. Some Europeans justify this move with their negative interpretation of US policy. From their perspective, European association with such, by default, could make European countries more of a target for American adversaries. Others, meanwhile, are concerned that the United States will not come to the defense of Europe in a potential conflict with Russia.⁶⁴ French president Emmanuel Macron has been one of the most outspoken proponents for greater European autonomy. For example, France has abandoned attempts to develop a competing fifth-generation aircraft to the American F-35. Instead, in 2017, German chancellor Angela Merkel and Macron announced that their two countries would be developing a new sixth-generation French–German fighter jet as part of a European combat system.⁶⁵ Japan also has its own sixth-generation fighter program. The Japanese F-3 air-superiority stealth fighter is planned to supplement the enormous Japanese F-35 fleet. Germany has also started its own national hypersonic missile project, and there may be plans for a broader future European hypersonic missile program.⁶⁶ Further, Germany is witnessing a reduction of almost 12,000 US troops currently stationed there, with most being pulled out of Europe altogether.⁶⁷

European nations may follow a comparable pivot as in Japan under similar circumstances. Europe is largely protected under the auspices of NATO, namely America's military, and akin to Japan it has not built its capabilities adequately to address relevant threats—and certainly not sufficiently considering the assumption that America may be overstretched and unable to meet its basic defense commitments. This view is hardly controversial, as the United States has often criticized its European allies for neglecting to spend on building their militaries per agreed upon ratios. While many countries may prefer to outsource their defense obligations to the United States, strategic realities necessitate a long, hard look at whether the adequacy of this approach can still be responsibly pretended.

When examining future plans for European military capabilities, there are various factors to consider. Undoubtedly, in Europe, there is less trust in American capability or its will to defend Europe. All across Europe, defense budgets have been reduced due to the COVID-19 pandemic. Planned and ongoing defense projects are thoroughly inspected and assessed for their effectiveness and actual defense value. Many European governments are not familiar with complex missile defense issues (also because regional missile defense in Europe is overwhelmingly

conducted exclusively by the United States). Missile defense is financially costly, compounded, and complicated, and often unproven. In comparison, offensive capabilities are more economical, less complex, and faster and easier to implement into national militaries. New developments in offensive capabilities, like extensively improved precision missiles with greater ranges, make them an attractive option for many militaries. These missiles provide the capability of precision strikes at far distances in much shorter time and at much lower cost than traditional air forces, do not require the long training pipeline for pilots, nor do they place any pilots or expensive fighter jets at risk. Turkey and Ukraine have already begun establishing indigenous and capable missile industries. Belarus has announced building its own missile program because it sees the need to acquire offensive missile capabilities for its defense.⁶⁸ It is highly foreseeable that there will be a trend across Europe to a greater emphasis on offensive capabilities rather than focusing on defensive measures.

Offensive Capabilities as Substitute for Air and Missile Defense

A focus exclusively on more economical offensive capabilities at the expense of costly and complex defensive measures will surely not improve global stability. The emerging realities of warfare should undeniably give a defensive posture an increasing role in military thinking instead of a purely, exclusive offensive role. As the former commander of Israel's national air defense, General (ret.) Zvika Haimovich, identified, "New War" will be characterized by ballistic missile threats (rockets and long-range missiles), precise ballistic missiles (within 10 meters of impact precision), drones, UAVs, and cruise missiles. According to Haimovich, defense capabilities have more important roles in the new fighting era than in the past, which goes fundamentally against the idea of scrapping defenses and replacing them with offensive means. Air and missile defenses minimize the harm to civilians and strategic infrastructure and help maintain governmental and civilian functional continuity. Most of all, AMD allows leaders to make judicious decisions in response to an attack, instead of forced decisions as a result of harmed civilians or damaged infrastructure.⁶⁹

The idea that all missile threats could be eliminated by a preemptive strike or offensive capabilities is unrealistic. Hunting and destroying enemy transporter erector launchers (mobile launchers used for transporting and launching missiles) is an extremely difficult task, particularly with adversaries that could use mountainous terrain and other geographical features or locations to hide their launchers.⁷⁰ In 1991, the United States had complete air superiority over western Iraq, had special operations forces on the ground, and the Iraqis were operating in comparatively open terrain, yet, despite all these advantages, there is no evidence

that the coalition successfully destroyed a single Iraqi launcher.⁷¹ North Korea especially, according to US Army brigadier general John Rafferty, has demonstrated that a wheeled missile launcher under a mountain is even harder to find than a submarine under the ocean.⁷²

Interestingly, the proponents of a pivot to offensive capabilities will (and actually already do) use the arguments that were originally introduced by many military skeptics and advocates for more arms control in their opposition to BMD. These arguments will be used to justify new first-strike capability and the abandonment of defensive options. As seen in Japan, some of the justification for the cancellation of Aegis Ashore is based upon the notion that missile defense does not work altogether. In the past, many who were rather distrustful of the military in general and were advocating for arms reduction propagated this position. Paradoxically, these ideas are now becoming the foundation and justification for the acquisition of offensive weapons. Much of the previous skepticism and critical discussion about BMD was well intended and justified. However, very often, blanket BMD criticism was rooted in solely theoretical concepts and assumptions, with some analysis being factually incorrect and not based upon operational reality. Many scholars and scientists who openly attacked the basic idea of BMD in the past did so based upon presumptions—without having access to actual classified data. In addition, it should be understood that Russia and China actively propagated some positions on missile defense being unable to function, and then often shared by unsuspecting individuals. While Russia and China openly oppose American missile defense attempts, publicly question its effectiveness, and state that missile defense is a destabilizing factor in the world, Moscow and Beijing are actively investing in their own missile defense development and capabilities. In addition, Russia and China were able to build up their highly effective antiaccess/area denial (A2/AD) capacity (while the United States was preoccupied with fighting wars against insurgents in the Middle East), mainly based on AMD systems. The outspoken opponents of missile defense concepts may soon witness the alternative to defensive options (which they criticized) in a display of military reality. Critics of missile defense and proponents of arms control could see their wish granted with less money and effort being invested by US allies into BMD (Washington will continue to invest in BMD capabilities), but they will very likely at the same time be faced with more offensively oriented militaries around the world with first-strike capabilities. Japan could be starting this trend.

Conclusion

Japan, for decades, has gradually advocated for an increase in the country's global political and military role. With China officially emerging as its primary

threat, the Japanese are now reconsidering key aspects of their military defense posture. In addition, Japan's confidence in America's security commitment has weakened due to perceived military overextension and increasing internal division of the United States. The cancellation of the planned Aegis Ashore systems is the catalyst for an examination of Japanese military capabilities. Japan, like many other nations, experienced complications in their AMD procurement and planning process, and was essentially not confident in pursuing rather complex and cost-intensive defensive missile operations. Ultimately, the American abandonment of its plan to construct a powerful missile defense radar in Japan has certainly not helped either and may have actually caused tension in the alliance between both countries. It should be clear that the official Japanese statement about the main reason for the cancellation of Aegis Ashore out of concern that parts of the interceptor missile could fall down in vicinity of the Aegis Ashore sites is most likely insincere.

As Japan is now contemplating defense alternatives and new military options, paradoxically, popular advocacy for the reduction in BMD as a mechanism to improve global stability could have the unanticipated impact of increasing offensive weaponry. Japan has expressed interest in obtaining first-strike capability and the overall growth of its offensive means as a deterrent, while at the same time not providing any viable defensive alternatives for Aegis Ashore. However, growing focus on offensive capabilities exclusively with a simultaneous abandonment of missile defense options represents an unbalanced defense approach and may lead to less global stability and regional arms races.

The United States is generally not opposed to its allies taking a more self-reliant military role. However, this should not be interpreted that Washington is therefore consequently responsible for a purely offensive approach of its allies at the cost of defensive measures. As a matter of fact, the United States has been the pioneer in development of missile defense and its proliferation, oftentimes receiving heavy criticism for this position. Every US administration from both American political parties since the Clinton administration in the 1990s has propagated and advocated the importance of missile defense principles to US allies. But, just as in the case of Japan, it is perceivable, that more and more countries will now shift their focus away from expensive BMD procurements, regardless of US promotion of such systems, and invest instead in cheaper offensive means with which they are more familiar.

To be clear, we are in no way advocating, suggesting, or predicting the collapse of American hegemony; we are stating that the Japanese military's pivot to address offensive capability is prescient and likely a harbinger for many, if not all, American allies. The extreme load of American foreign policy goals, its perceived

internal fragility, and the minimized national defense budgets frequently attributed to unanticipated COVID-19 costs are encouraging US allies to do so. Subsequently, they will likely increase their own offensive military capabilities at the cost of defensive measures in alignment with Japan's stated objectives. 🌟

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Notes

1. Joint BMD Training & Education Center, "Joint Missile Defense Training, Common Course Student Reference Supplement," *JBTEC*, 30 August 2016.
2. Japan Ministry of Defense, "Defense of Japan 2019 (Annual White Paper)," *Ministry of Defense*, September 2019, <https://www.mod.go.jp/>.
3. Lucy Craft, "Why Japan scrapped a \$4 billion missile defense purchase from the U.S.," *CBS News*, 2 July 2020, <https://www.cbsnews.com/>.
4. Jeffrey W. Hornung, "Japan Is Cancelling a U.S. Missile Defense System," *RAND Corporation*, 6 July 2020, <https://www.rand.org/>.
5. Hornung, "Japan Is Cancelling a U.S. Missile Defense System."
6. Tom Karako, "Shield of the Pacific: Japan as a Giant Aegis Destroyer," *Center for Strategic & International Studies*, 23 May 2018, <https://www.csis.org/>.
7. Hornung, "Japan Is Cancelling a U.S. Missile Defense System."
8. Masuda Tsuyoshi, "Diplomatic and defense implications of halting Aegis Ashore," *NHK World-Japan*, 17 June 2020, <https://www3.nhk.or.jp/>.
9. Hornung, "Japan Is Cancelling a U.S. Missile Defense System."
10. Peter A. Wilson and John V. Parachini, "Russian S-400 Surface-to-Air Missile System: Is It Worth the Sticker Price?," *RAND Corporation*, 6 May 2020, <https://www.rand.org/>.
11. Craft, "Why Japan scrapped a \$4 billion missile defense purchase from the U.S."
12. Wilson and Parachini, "Russian S-400 Surface-to-Air Missile System."
13. "Hungary to purchase missile defense system," *About Hungary*, 6 May 2019, <http://about.hungary.hu/>.
14. Expertengruppe Neues Kampfflugzeug, "Luftverteidigung der Zukunft," (German) *Eidgenössisches Departement für Verteidigung, Bevölkerungsschutz und Sport (VBS)*, May 2017, <https://www.vbs.admin.ch/>.

15. Uzi Rubin, "Israel and the Precision-Guided Missile Threat," BESA Center, 16 June 2020, <https://besacenter.org/>.
16. Expertengruppe Neues Kampfflugzeug, "Luftverteidigung der Zukunft."
17. Claude Nicolier, "Unabhängige Stellungnahme zum Expertenbericht «Luftverteidigung der Zukunft," (German), *Eidgenössisches Departement für Verteidigung, Bevölkerungsschutz und Sport (VBS)*, 24 April 2019, <https://www.vbs.admin.ch/>.
18. Matthias Bärlocher, "US-Raketensystem zu gross für Schweizer Passstrassen," (German), *Nau.ch*, 5 February 2020, <https://www.nau.ch/>.
19. Wilson and Parachini, "Russian S-400 Surface-to-Air Missile System."
20. Masayo Kato, "Japan stuck with \$1.6bn bill after scrapping Aegis Ashore system," *Nikkei Asian Review*, 18 June 2020, <https://asia.nikkei.com/>.
21. Tim Kelley, "Exclusive: As North Korea expands arsenal, Japan's missile defense shield faces unforeseen costs – sources," *Reuters*, 26 September 2019, <https://www.reuters.com/>.
22. Tim Kelley, "Exclusive: As North Korea expands arsenal."
23. Tetsuro Kosaka, "Japan's 'shield' against North Korean missiles would not have worked," *Nikkei Asian Review*, 18 July 2020, <https://asia.nikkei.com/>.
24. Kosaka, "Japan's 'shield' against North Korean missiles."
25. Tong Zhao, "China and South Korea's Path to Consensus on THAAD," *Carnegie-Tsinghua*, 13 October 2016, <https://carnegietsinghua.org/>.
26. Aaron Mehta, "INDOPACOM head wants Aegis Ashore in Guam by 2026," *Defense News*, 22 July 2020, <https://www.defensenews.com/>.
27. Hornung, "Japan Is Cancelling a U.S. Missile Defense System."
28. Japan Ministry of Defense, "Defense of Japan 2019 (Annual White Paper)."
29. Hornung, "Japan Is Cancelling a U.S. Missile Defense System."
30. Hornung, "Japan Is Cancelling a U.S. Missile Defense System."
31. Jiji, "Japan weighs Aegis Ashore alternatives, including megafloat or deployment aboard destroyer," *Japan Times*, 22 June 2020, <https://www.japantimes.co.jp/>.
32. Yoshihiro Inaba, "Japan Considering Offensive Capability As Part Of Future Missile Defense Options," *Naval News*, 22 July 2020, <https://www.navalnews.com/>.
33. Tim Kelly and Yoshifumi Takemoto, "Exclusive: As Japan weighs missile-defence options, Raytheon lobbies for Lockheed's \$300 million radar deal," *Reuters*, 30 July 2020, <https://www.reuters.com/>.
34. Linus Hagstrom and Christian Turesson, "Among threats and a 'perfect excuse': understanding change in Japanese foreign security policy," *Korean Journal of Defense Analysis* 21, no. 3 (September 2009): 297–314.
35. Hagstrom and Turesson, "Among threats and a 'perfect excuse'."
36. Japan Ministry of Defense, "Defense of Japan 2019 (Annual White Paper)."
37. Jeffrey W. Hornung, "Is Japan's Interest in Strike Capabilities a Good Idea?," *War on the Rocks*, 17 July 2020, <https://warontherocks.com/>.
38. Masuda Tsuyoshi, "Diplomatic and defense implications of halting Aegis Ashore," *NHK World*, 17 June 17 2020, <https://www3.nhk.or.jp/>.
39. Hornung, "Is Japan's Interest in Strike Capabilities a Good Idea?"
40. Hornung, "Is Japan's Interest in Strike Capabilities a Good Idea?"
41. Department of Defense, "The Guidelines for U.S.-Japan Defense Cooperation," *United States Department of Defense*, 27 April 2015, <https://archive.defense.gov/>.

42. Hornung, "Is Japan's Interest in Strike Capabilities a Good Idea?"
43. David S. Cloud, "U.S. seeks to house missiles in the Pacific. Some allies don't want them," *Los Angeles Times*, 10 June 2020, <https://www.latimes.com/>.
44. Daishi Abe, "US satellites would slash cost of Japan defensive strike: expert," *Nikkei Asian Review*, 15 July 2020, <https://asia.nikkei.com/>.
45. Samuel S. Laciniski, "Navy Boost Phase Intercept Could Counter North Korea," *Proceedings* 143, no. 8 (August 2017), <https://www.usni.org/>.
46. "New S-Band Missile Defense Radars in the Pacific," *Mostly Missile Defense*, 11 February 2019, <https://mostlymissiledefense.com/>.
47. Jason Sherman, "MDA Launches New Pacific Radar Studies in Advance of Planned \$1 Billion Project," *Inside Defense SITREP*, 24 January 2019.
48. Missile Defense Agency, "Fiscal Year (FY) 2019 Budget Estimate: Overview," March 2018, <https://www.mda.mil/>.
49. Ji Ji, "U.S. plans to deploy new homeland defense radar system in Japan from 2023," *Japan Times*, 24 December 2018, <https://www.japantimes.co.jp/>.
50. "New S-Band Missile Defense Radars in the Pacific," *Mostly Missile Defense*.
51. "New S-Band Missile Defense Radars in the Pacific," *Mostly Missile Defense*.
52. "New S-Band Missile Defense Radars in the Pacific," *Mostly Missile Defense*.
53. Ji Ji, "U.S. launches new missile defense command in Japan," *Japan Times*, 29 October 2018, <https://www.japantimes.co.jp/>.
54. Jen Judson, "Pacific missile defense radars nixed, MDA to study sensor architecture in region," *Defense News*, 11 February 2020, <https://www.defensenews.com/>.
55. "New S-Band Missile Defense Radars in the Pacific," *Mostly Missile Defense*.
56. Anthony Galloway and Peter Hartcher, "Australia to buy ship-killing missiles and shift focus to Indo-Pacific," *Sydney Morning Herald*, 30 June 2020, <https://www.smh.com.au/>.
57. "Moon, reassured by S. Korea's arms technologies, vows more investment," *Yonhap News Agency*, 23 July 2020, <https://en.yna.co.kr/>.
58. Hyung-Jin Kim, "South Korea to have solid-fuel rockets in major deal with US," *Defense News*, 26 July 2020, <https://www.defensenews.com/>.
59. Kim, "South Korea to have solid-fuel rockets."
60. Thorsten Jungholt, "Ex-Generale warnen Kramp-Karrenbauer vor Finanzdebakel," (German), *Welt*, 19 July 2019, <https://www.welt.de/>.
61. Jungholt, "Ex-Generale warnen Kramp-Karrenbauer vor Finanzdebakel."
62. Sebastian Sprenger, "It's do or die for Germany's new missile defense weapon," *Defense News*, 17 July 2020, <https://www.defensenews.com/>.
63. Jungholt, "Ex-Generale warnen Kramp-Karrenbauer vor Finanzdebakel."
64. Sophie Arts, "Tensions with US Fuel Debate Over Germany's Future Defense Strategy," *Just Security*, 23 June 2020, <https://www.justsecurity.org/>.
65. Arts, "Tensions with US Fuel Debate."
66. Michael Peck, "Germany Is Now Building Hypersonic Weapons," *National Interest*, 7 June 2019, <https://nationalinterest.org/>.
67. Phil Stewart and Idrees Ali, "U.S. to withdraw about 12,000 troops from Germany but nearly half to stay in Europe," *Reuters*, 29 July 2020, <https://www.reuters.com/>.
68. "Lukashenko explains why Belarus needs missiles," *Belta*, 22 May 2020, <https://eng.belta.by/>.

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69. Zvika Haimovich, "Thoughts on New War," *Acamar*, 7 April 2020, <https://www.acamar-ltd.com/>.
70. Hornung, "Is Japan's Interest in Strike Capabilities a Good Idea?"
71. Thomas A. Keaney and Eliot A. Cohen, "Gulf War Air Power Survey Summary Report," Department of the Air Force, 22 December 1993, <https://apps.dtic.mil/>.
72. Sydney J. Freedberg, Jr., "Army Says Long Range Missiles Will Help Air Force, Not Compete," *Breaking Defense*, 16 July 2020, <https://breakingdefense.com/>.

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