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# REPORT

THE POLISH INSTITUTE OF INTERNATIONAL AFFAIRS

## REGIONAL APPROACHES TO THE

# ROLE OF MISSILE DEFENCE

## IN REDUCING NUCLEAR THREATS

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# Introduction

Marcin Andrzej Piotrowski

At the end of 2012 and in the first few months of 2013, several events—Israel's Operation Pillar of Defence, NATO's Patriot deployments to the Turkish–Syrian border and the crisis in North Korea—confirmed that ballistic missile threats and missile defence are of growing importance to global security and particular regions and actors. On 14–15 February 2013, the Polish Institute of International Affairs (PISM), with the support of the Nuclear Threat Initiative (NTI), hosted the international conference "Missile Defence in the 21st Century: A Pricey Experiment in Progress or a Credible Way To Reduce Nuclear Threats?" More than a dozen world-class specialists with various backgrounds and representing different countries were joined by Polish officials and experts at the conference. The report in your hand is a natural follow-up to this closed event and includes contributions from some of the participants and panellists.

The following chapters should be important additions to the ongoing discussion about the relationship between missile defence and nuclear deterrence, especially keeping in mind the vision of a world free of nuclear weapons, as promoted by the current U.S. administration under President Barack Obama. In the first part of our report, we are dealing mainly with the Euro-Atlantic and Transatlantic dimensions of missile defence. We decided on these regions for obvious strategic reasons, not to mention the implications of these issues for Poland. In the second part of the publication, readers will find perspectives on missile defence presented by authors dealing with these issues outside of the European context, i.e., with regard to the nuclear deterrence relationships between various actors in the Middle and Far East.

The first chapter was prepared by **Vít Střítecký**, who focuses on a critical review of the theoretical and strategic perspectives on missile defence and nuclear deterrence. He stresses there is a need for a conceptualisation of the mutual relationships between them, noting many arguments that a functioning missile defence could essentially contribute to global stability. Next, **Victor Mizin** looks at the problem of missile defence in the Russia–U.S. and Russia–NATO contexts. He shows clearly that missile defence and nuclear deterrence as discussed by the nuclear superpowers are hostages of their Cold War legacies. Mizin also argues that all of the technical issues could be solved if the general political situation and miscommunication between the U.S. and Russia would be tackled in the near future. Mizin's contribution is complementary in many respects to the next chapter by **Jacek Durkalec**, who focuses on the role missile defence plays in NATO's deterrence structure. He shows the step-by-step, very cautious approach by NATO members to missile defence in the overall posture of the Alliance. He also argues that NATO's current Deterrence and Defence Posture Review (DDPR) does not provide an unequivocal response about whether missile defence could lead to a reduction in the reliance on non-strategic nuclear weapons in Europe. The fourth paper, by **Marcin Terlikowski**, looks at the unequal distribution of burden-sharing within the NATO Missile Defence project. He focuses on the unexploited potential for successful burden-sharing and a variety of strategic and purely economic obstacles for project, even though it has been declared as a universal and joint project of the Allies.

Next, three case studies are included in our report and specifically focus on three regions that reveal the relationship between missile defence and nuclear threats as well as deterrence. In the next paper, **I analyse** the relationships between these factors in the Middle East, though a lack of transparency in the defence doctrines of the region's actors complicate any definite conclusions. In looking at specific instances of proliferation and the current architectures of Israel and the Gulf countries in the shadow of Iran's nuclear efforts, I assume (as do many other

specialists on the region) that missile defence and extended deterrence provided by the U.S. are becoming interconnected priorities in the Middle East, offering maximum flexibility in case of any military crises involving Iran. Next, **Vinod Kumar** dedicates his chapter to a discussion of missile defence and deterrence in South Asia, specifically the nuclear dyads of China-India and India-Pakistan. He shows that missile defence might be beneficial for the region and is in line with the "Global Zero" vision. He also stresses that both China and India are enhancing and re-balancing their deterrence capabilities by implementing missile defences. The next chapter was prepared by **Benjamin Goodlad**, who focuses on the increasing importance of missile defence in the Far East. He argues that existing and future missile defence systems in this part of Asia will not negate the need for nuclear deterrence in the region. He also reviews the existing intercept capabilities of the U.S. forces in the region along with Japan and China, but stresses American deterrence credibility and ongoing, interesting debates in Seoul and Tokyo about future defence strategies towards potential ballistic missile and nuclear threats from China and North Korea.

This report shows clearly that missile defence is of strategic importance to all of the analysed regions and specific cases. Apart from different perspectives, contexts and conclusions, there is no disagreement that missile defence is already influencing the thinking about nuclear weapons and deterrence. It also reveals that the interconnections between missile defence and nuclear deterrence might be more complicated than any idealistic expectations about the former as a substitute for the latter.

This report is published by PISM with the generous support of NTI. I encourage every reader to engage in further exchanges of opinions with our staff and all of the authors of this report.

Marcin A. Piotrowski, Ph.D.,
Senior Analyst, PISM

# Missile Defence as Reinforcement of Deterrence in the 21st Century

Vít Střítecký

The issue of missile defence has been present in international security and strategic debates for a few decades. Apparently, its relevance has gradually been growing while following two parallel phenomena. The first has been the continuous development of missile technologies, increasing ranges, precision and overall operability. The secondly has been the proliferation of these technologies, particularly among states with ongoing nuclear programmes. It follows logically that missile defence technologies have also been improving with experience obtained from the active deployment of lower tier systems.

There is virtually no discussion about the relevancy and deployment of missile defences in countries such as Israel or Japan, which face direct missile threats from Iran or North Korea, respectively. It should be understood in this context that a threat is not connected exclusively with intentional attack but also with the possibility of random unintended launch. The situation in Europe is rather different. As the experience with the U.S. plan to install components of its ballistic missile defence system in the Czech Republic and Poland[1] has shown, the debate in Europe is far less consensual, displaying a rich set of critical arguments.[2] That said and without resuscitating all of the debates, this paper intends to reflect upon this experience while focusing particularly on the positions that view missile defence as abolishing the stabilising system of nuclear deterrence. The paper will argue that functioning missile defence shields could essentially contribute to global stability.

## European Debate: Traditionalists vs. Modernists and Beyond

Contrary to the debate in the U.S., the one in Europe has fundamentally focused on close potential threats. This notion is both understandable given the proximity to possible challengers but at the same time unfortunate since it puts forward rather normative assumptions regarding the intentions of and developments in non-NATO states possessing missile technology. Therefore, the debates are dominated by perceptions of political issues rather than by an evaluation of strategic capabilities. In the past this situation resulted in a formation of two schools of thought that preferred different strategies of how to tackle parallel WMD and long-range missile technology proliferation. The first group are the traditionalists, who, as the name suggests, prefer traditional approaches resting on diplomacy, arms control, non-proliferation, and, essentially, nuclear deterrence. On the other hand, the modernists believe that the most appropriate strategy to meet these threats should be based on missile defence shields, potentially reducing the nuclear component of deterrence.[3]

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1 N. Hynek, V. Střítecký, "Rise and Fall of the Third Site of Ballistic Missile Defence," *Communist and Post-Communist Studies*, vol. 43, no. 2, 2010; N. Hynek, V. Střítecký, "The Fortunes of the Czech Discourse on the Missile Defence," in: M. Braun, P. Drulák (eds.), *The Quest for National Interest: a Methodological Reflection on Czech Foreign Policy*, Peter Lang Verlag, 2010.

2 It should be also noted that there are some strong dissenting opinions in the U.S. as well. See, for example, G. N. Lewis, T. Postol, "The astonishing National Academy of Sciences missile defense report", *Bulletin of the Atomic Scientists*, September 2012; Y. Butt, T. Postol, "Upsetting the Reset: The Technical Basis of Russian Concern Over NATO Missile Defense," *Special Report No. 1*, Federation of Atomic Scientists, 2011.

3 O. Thränert, "Europe's Need for a Damage-Limitation Option," in: M. Emerson (ed.), *Readings in European Security*, vol. 5, 2009, pp. 62-63.

A large part of the traditionalist argument in stressing the role of deterrence in contrast to missile defence is unattainable in the 21st century settings, as previously noted. The traditionalist approach has been linked with a threat perception that has seemed to dominate the debate in Europe, where normative views of namely Russia and Iran have provided never-ending content for the debates. The redundancy of these debates centred on capabilities that are to a large extent unknown and intentions that are not clear as well as may easily change can be dismissed on the basis of classical rule of strategic thinkers stressing the importance of professional pessimism.[4] Out of these two, the Russian case is both more sensitive given several other agendas attached to relations with it and perhaps because Russia more often articulates its views regarding the U.S. and NATO missile defence plans.

Indeed, Russian concerns have been obvious since the late 1960s, first curtailed by the ABM Treaty of 1972 which was in fact an incarnation of the Russian perception that missile defence upsets strategic stability. Another period of excited debates came in the early 1980s when U.S. President Ronald Reagan announced the "Star Wars" programme, which resulted in at least one viable offspring in successful tests of hit-to-kill interceptors.[5] The final round started in June 2002 when U.S. President George W. Bush decided to withdraw from the ABM Treaty, thereby lifting legal obstacles for building the third "pillar" of U.S. BMD in Central Europe and complementing the first two "pillars", placed in Alaska and California.

As Dean Wilkening[6] has convincingly showed, Russian concerns do not match reality. Moreover, despite occasional harsh rhetoric, Russian strategic planners and officials have always been prepared to consider an inclusive, cooperative scenario[7] while recognising that the implications of long-range missile proliferation create room for strategic cooperation regardless of necessarily great developments in other security-related agendas.[8]

## Missile Defence and Strategic Stability

Strategic stability is almost unanimously accepted as both a political and strategic concept. It is recognized by proliferation optimists as well as by pessimists, or even by the traditionalists and modernists. Although all groups offer different formulas, the goal is common and lies in strengthening or at least not undermining strategic stability. In general, strategic stability usually refers to a situation in which states remain confident regarding their adversaries' lack of potential to undermine their nuclear deterrence capability, which leads the former to assume the latter will not have the tendency to use their offensive capabilities in a crisis. Though the concept of strategic stability remains unchallenged, there are a few issues that have the potential of making relative its canonical position. First, the information and data used to analyse effectiveness are still rather arbitrary. Moreover, the experience of the last few decades appears to teach us that even a small probability that a country has at least one deployable nuclear weapon has great deterrent potential.[9]

Also in this context, the reflection of a half century of discussions about missile defence and its role in strategic stability strongly shows that strategic stability is a political concept. As Pavel Podvig has argued, Russia has always been ready to downplay the alleged great destabilising effect of missile defence and trade it for benefits in other areas. It was clearly the

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4 See, C. Gray, *Modern Strategy*, Oxford University Press, 1999.

5 D. Wilkening, "Does Missile Defence in Europe Threaten Russia?", *Survival*, vol. 54, no. 1, 2012.

6 *Ibidem*.

7 See, D. Wilkening, "Cooperating With Russia on Missile Defense: A New Proposal," *Arms Control Today*, March 2012, www.armscontrol.org/act/2012_03/Cooperating_With_Russia_on_Missile_Defense_A_New_Proposal.

8 J. Mankoff, "The politics of US missile defence cooperation with Europe and Russia", *International Affairs*, vol. 88, iss. 2, pp. 329-347.

9 P. Podvig, "The myth of strategic stability", *Bulletin of the Atomic Scientists*, October 2012.

case with the Strategic Arms Reduction Treaty (START) negotiations in 1991, rapprochement after 9/11, followed by the revocation of the ABM Treaty, or recently during the New START Treaty formulation.[10] The inclusive issue of U.S./NATO-Russia cooperation in this area is but another example.[11]

The understanding of a political nature of strategic stability is crucial to the possibility to further conceptualise the relationship between deterrence and missile defence. The often repeated argument that missile defence undermines strategic stability stems from a simplified understanding of deterrence as being based on an axiomatic logic of Mutual Assured Destruction (MAD). Although sometimes wrongly considered as another U.S. strategic doctrine following Massive Retaliation and Flexible Response, MAD is rather a functional logic, emphasizing the role of a retaliatory strike. In essence, the logic claims that the outcome of a first strike will be fundamental regardless of who strikes first, hence making a first strike implausible.[12]

From the theoretical perspective, it is essential to recall the difference between *deterrence by punishment* and *deterrence by denial*, which was defined by Glenn Snyder already in the late 1950s.[13] The former seeks to prevent a first launch by inflicting costs through retaliation after an attack. In fact, the strategies of Massive Retaliation and Flexible Response show the difficulties and dilemmas with the actual adoption of such a strategy. The latter strategy is more complex as it is, in fact, based on mistrust in deterrence. That said, the denial strategy aims at dissuading a potential attacker by convincing it that its actions will be denied the benefits originally expected.[14] In essence, the logic of denial begins at the point when deterrence fails, recalling Snyder's actual original distinction between deterrence and defence.[15]

## Strengthening Deterrence through Missile Defence

Following the theoretical line of arguments, we can make two principal conclusions. First, MAD is a functional logic that can be operationalised in certain deterrence situations (shown below) but which by no means cover all the modalities of deterrence. Second, ballistic missile defence is a primary example of deterrence by denial, which suggests that it does not undermine but rather potentially strengthens the effects of deterrence. It can be argued that the critical political discourse viewing missile defence as undermining strategic stability and perceived through identifying deterrence with MAD has overshadowed the developing strategic perspective. Indeed, already in the early 1990s when the formerly secret document "Essentials of Post-Cold War Deterrence" was drafted,[16] strategic thinkers for the first time outlined crucial shifts in understanding the issue of deterrence. Most importantly, in the section, "Keeping our options open and determination clear" the document stated that U.S. "deterrence

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10 *Ibidem*.

11 For very recent developments, see, "Russia asks for regular U.S. missile defence consultations", *Reuters,* 25 March 2013, www.reuters.com/article/2013/03/25/russia-usa-missile-defence-idUSL5N0CH37Z20130325.

12 N. Hynek, "Missile Defence Discourses and Practices in Relevant Modalities of 21st-Century Deterrence", *Security Dialogue*, vol. 41, no. 4, 2010, pp. 436-437.

13 G. Snyder, *Deterrence by Denial and Punishment*, Research Monograph No. 1, Princeton: Woodrow Wilson School of Public and International Affairs, 1959; G. Snyder, *Deterrence and Defense: Toward a Theory of National Security*, Princeton University Press, Princeton, NJ, 1961.

14 J.W. Knopf, "Four Waves in Deterrence Research", *Contemporary Security Policy*, vol. 3, no. 1, 2010, pp. 6–7.

15 G. Snyder, 1961, *op. cit.*

16 "Essentials of Post-Cold War Deterrence", *Nuclear Information Project*, www.nukestrat.com/us/stratcom/SAGessentials.PDF.

plans need to be country- and leadership-specific" and it further stressed the need to "adapt deterrent process for future threats", which implies understanding that deterrence operates well beyond the U.S.-Soviet/Russian framework.

Analysing the link between deterrence and missile defence in the 21st century, Nik Hynek has suggested conceptualising this relation along three modalities of deterrence.[17] The first refers to a renewed strategic deterrence between the U.S. and Russia that is informed by the MAD logic. Despite being politically as well as legally informal, it reveals a certain level of institutionalisation establishing a deterrence "regime" that can be traced in the strategic decisions favouring geographical dispersal and increased mobility for a potential retaliatory arsenal[18] or Russia's flexibility when it comes to concerns related to its deterrent capacities.

The second modality of deterrence reflects concerns connected with the asymmetric nuclear capabilities of rogue states. Apparently, the relations in this modality are far less institutionalised and the axiomatic logic of MAD as built on the recognition of mutual vulnerability are rather irrelevant given the originally asymmetric situation.[19] Missile defence's role within this modality is truly defensive in the sense that it applies in case of an offensive strategic deterrence failure. Missile defence thus complements offensive strategic potential, but most importantly it potentially increases both room for and the effects of all other political or coercive instruments.

Finally, the third modality outlines a situation of reversed deterrence from intervention in a regional conflict. While dealing with the same non-institutionalized situations as the second modality, it interestingly changes the roles between the deterred and the deterrer. The crucial issue here is whether some regional powers with strategic capabilities would be able to deter intervention into a conventional regional conflict from the U.S., or more broadly from the international community, by threatening it with nuclear attack.[20] This modality is obviously crucially linked to the international community's credibility to keep and potentially restore international order. Effective missile defence could fundamentally raise the blackmail threshold or even avert the need for blackmail. Indeed, as Oliver Thränert pointed out in the context of a Middle East crisis, unprotected U.S. allies could be taken as hostages, thereby making the decision even more complicated for Washington, which would in reality be unthreatened but would, however, be obliged to intervene.[21] Apparently, a similar situation is the so called Taiwan scenario, in which U.S. special guarantees would be in play.[22]

These modalities have been introduced as the final step in showing that ballistic missile defence should be seen as having a complementary and potentially supportive role in deterrence processes. While they do not undermine superpower strategic stability in the first modality, they essentially enhance the political as well as potential military options in the other two modalities.

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17 N. Hynek, *op. cit.*, pp. 441–446.

18 N. Hynek, *op. cit.*, pp. 441–442.

19 N. Hynek, *op. cit.*, pp. 442–443.

20 N. Hynek, *op. cit.*, p. 444.

21 O. Thränert, *op. cit.*; O. Thränert, "NATO, Missile Defence and Extended Deterrence," *Survival*, vol. 51, iss. 6, 2009, pp. 63-76; See also, M. Elleman, "Containing Iran's Missile Threat", *Survival*, vol. 54, iss. 1, 2012, pp. 119-126.

22 J. Mulvenon, "Missile Defences and the Taiwan Scenario", Report 44, Stimson Center, Washington, D.C., 2002; K. Pollpeter, "China's Second Ballistic Missile Defense Test: A Search for Strategic Stability", *SITC Bulletin Analysis*, Study of Innovation and Technology in China Project, UC Institute on Global Conflict and Cooperation; I. Masako, "Implications of Missile Defence across the Taiwan Strait: Bringing Conflict Prevention back in", in: J. Tzeng (ed.) *Security and Conflict Prevention across Taiwan Strait in the Early 21st Century*, National Strategic Studies Institute, Taipei, National Defence University, pp. 635-670.

## Conclusion

Although the strategic theory managed to save missile defence from MAD logic decades ago already, the more visible political discourse today still tends to overlook this conjuncture.[23] That said, this text intended to provide conceptual arguments for a broader understanding of deterrence in the current political and strategic settings as well as show how the mutual relationship between deterrence and missile defence could be further conceptualised. One of the crucial implications going beyond the scope of this text lies in the role of ballistic missile defence in arms control processes, especially disarmament, where these systems are capable of providing a crucial stabilising effect in a potentially fragile situation in which there are deep cuts in missile technologies.[24]

[23] For one of the prominent voices, see, for example, I. Ivanov, "The Missile-Defense Mistake: Undermining Strategic Stability and the ABM Treaty," *Foreign Affairs*, September/October 2000.

[24] D. Wilkening, "Nuclear Zero and Ballistic-Missile Defence," *Survival*, vol. 53, iss. 6, 2010, pp. 107–126.

## The Russian View on ABM and its Impact on Nuclear Deterrence

Victor Mizin

The anti-ballistic missile (ABM) conundrum has become one of the most irritating and largely symbolic issues for the contemporary Russian political class, perhaps next in importance only to the problems of human rights, the rule of law and democratisation. It obviates Moscow's lingering non-adherence to the family of democratic, industrialised Western states, even though many Russian experts insist that there are no major ideological or substantial differences between them and their NATO colleagues. This theme relates directly to the quest for self-identification and the so called national idea—whether Russia is a traditional European or a "Eurasian" state or, moreover, some unique entity unlike either (a separate continent ruled by its own intrinsic laws).

At the same time, in Vladimir Putin's February 2012 pre-election manifesto *"Russia and the changing world"* the country is portrayed as an integral part of Europe, occupying a specific niche in the multi-polar environment, with an extended sphere of influence in the post-Soviet area, and preaching the creation of "common economic and human space" from the Atlantic to the Pacific. However, although the EU has become Russia's major economic partner, NATO and its European core are, along with the U.S., still viewed if not as antagonists then at least as the major military challenge, and ABM, like NATO's ongoing enlargement, is regarded at least as the most salient strategic challenge. In contrast, Moscow believes that a ground-breaking system of Euro-Atlantic security—outlined by then president Dmitry Medvedev in 2008—must be worked out. New thinking, as has been stated, was urgently required to prevent a renewal of the conventional and nuclear arms race. As a kind of counterbalance to the EU and NATO's perceived reticence, a new "Eurasian vector" of Russian strategy was formulated by President Putin in October 2012. On the one hand, Moscow demonstrates the pursuit of closer collaboration with the West, which promises considerable benefits for Russia's much needed overall modernisation, while on the other, it complains of being left out and subject to double standards, as some sort of outcast in the family of "normal" democratic nations.

Thus the theme of anti-missile defence, more than anything else, hinders meaningful military and security cooperation, and has turned out to be a bone of contention in the NATO-Russia relationship. Moscow was quite frustrated that its initiative of 2000, to establish a joint Russian-European BMD against non-strategic missiles, has had practically no response from NATO.

Later, however, in accordance with the Rome declaration "NATO-Russia relations: A New Quality" (May 2002), work to assess the interoperability of each party's theatre missile defence systems began, and a number of TMD simulation exercises were conducted—in the Netherlands (2003 and 2005), the U.S.(2004), Russia (2006) and Germany (2008). In August 2008, in the aftermath of the Russian-Georgian war, TMD cooperation, along with almost all other Moscow-NATO collaboration, was suspended, and resumed only after the Russia-NATO Council meeting in Lisbon, November 2010. The next computer simulation exercise was conducted in Germany in March 2012, with the aim of exploring practical ways of exchanging data in the framework of the eventual joint BMD centre. It ended in an implicit row between the USA and Russia, with Moscow blaming NATO of ignoring and failing to publishing the results of this event. The Russian military suggested limiting the operational scope of future exercises to the European theatre, while adding more complex assignments and simulating a broader range of threats, including missiles with a range exceeding 3,000 km.

The Obama administration's April 2010 European BMD Review, as well as numerous NATO officials' statements, insisted that America's missile defence is not designed to protect

the U.S. against Russia, but to counter the threat from Iranian missile programmes. The U.S. does not believe that the EPAA undermines Russian capabilities, while the threat from Iran is limited but reportedly real. Although the Obama administration relocated the planned U.S. BMD sites in Europe further away from Russian strategic missile bases, Moscow continued to demonstrate nervousness over ongoing U.S. BMD deployments in Europe, and, in general, worldwide.

Moscow's reaction to the U.S. leaving the ABM Treaty was much muted, and Putin then pledged that Russia had potent means of counteracting any ABM system.[1] However, almost 10 years on, Russian analysts continue to insist that NATO BMD efforts are an impending, if not present threat to their nuclear deterrent. In recent years, senior Russian government officials, military officers and policy analysts have voiced an array of complaints regarding the planned deployment of U.S. missile defence in Europe.[2] They have argued that the real reason for NATO's BMD deployments is to obtain the capability of intercepting strategic missiles launched in a hypothetic strategic retaliation strike by Russia. They allege that NATO's BMD systems could also be used in ASAT mode in order to shoot down Russian satellites, as the U.S. demonstrated by destroying a malfunctioning American "USA 193" satellite with an SM-3 missile. Moreover, Russian officials warn that the United States could rapidly deploy additional BMD systems, which Russian offensive forces would be unable to match. Furthermore, some Russian analysts have claimed that the United States could rapidly replace the GBI or any other BMD interceptors with ballistic missiles that could attack targets in Russia with minimal warning time.

Moreover, Moscow was not even pleased with Obama's new EPAA scheme, which some commentators even consider more wide-ranging and thus threatening than that intended by the George W. Bush administration. Russia argues that the NATO ABM general network development—even without the introduction of Phase IV SM-3 Block IIB interceptors (reportedly capable of attacking strategic warheads), or even the currently achievable placement of "Aegis" warships in the Arctic area—is a threat to Moscow's retaliation potential. Citing official U.S. documents such as "*Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*" and the statements of certain American officials, they assert that the EPAA is just an organic part of the developing global US ABM setup. Russia is very much concerned that the so called EuroABM looks just like another element in a growing global U.S. ABM structure—based also in the United States, perhaps on the East coast, as well as, in the future, in the Far East (and in the Middle East), and laments that it is not actually as limited as the U.S. had pledged, and that no limits are to be imposed on it.

Defense Secretary Chuck Hagel's announcement of the Pentagon's sudden decision to deploy 14 additional GBIs in silos at Fort Greely, Alaska, by 2017, in order to present a credible deterrence to the growing threat of North Korean missiles and to buttress the extended

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1 Statement by President Putin, http://archives.kremlin.ru/text/appears/2001/12/28746.shtml.

2 "Russia suggest to create a joint BMD system in Europe by 2020", *RBK News*, 8 July 2007, http://top.rbc.ru/politics/08/07/2007/108605.shtml; Russian Federation Statement on ABM, Moscow, 6 April, 2010, http://news.kremlin.ru/ref-notes/511; Military Doctrine of the Russian Federation, www.rg.ru/2010/02/10/doktrina-dok.html; State of the Union Address (Russia) by President D. Medvedev, 30 November 2010, http://kremlin.ru/news/9637; Press conference with President D. Medevedev in the aftermath of the G8 meeting, 27 May 2011, http://news.kremlin.ru/transcripts/11374; Statement by President D. Medvedev on the situation with NATO BMD deployments in Europe, 23 November 2011, http://state.kremlin.ru/face/13637; (then-Prime Minister) V. Putin, "To be strong; guarantees of national security for Russia", *Rossiyskaya Gazeta*, 20 February 2012; Russian Deputy Prime Minister D. Rogozin, "Russia will 'react sharply' to US Aegis ships–Deputy PM", *RIA Novosti*, 12 November 2012; Deputy Ministry of Defense A. Antonov, *Arms Control: history, status, prospects*, POSSPEN, Moscow 2012, p. 81; Lt. Gen. E. Bujinsky, "The prospects of joint BMD are fuzzy", *Nezavisimoye Voennoye Obozrenie*, 3 June 2011, http//nvo.ng.ru/realty/2011-06-03/4perspektive.html.

deterrence for South Korea and Japan[3] did not change the situation much. When the U.S. military added that an additional ABM site may also be needed in the United States, on the East Coast, to deter Iran,[4] it only worsened Russian concerns, as some experts, for example leading Russian non-governmental arms control specialist Alexei Arbatov, think that those systems could be even more dangerous for Russia. This is rather strange, as the outdated GBI, first deployed by the Bush administration in late 2000s, has a rather dubious test record and has never been used against real targets. Additionally, SM-3 missile family is, according to recent reports, plagued by various technical problems and might be inefficient as a weapon; even in the best case scenario, early intercept does not happen early enough to prevent warheads and decoys from being deployed.[5]

Even though the American announcement of March 15 prompted Russian Defence Minister Sergei Shoigu to express a desire to restart regular ABM-related consultations between deputy defence ministers[6], Russian Deputy Foreign Minister Sergei Ryabkov said that the partial scrapping the European missile programme did nothing to address Moscow's national security concerns.[7] Even a curtailed European missile defence system continues, in his words, to pose a threat to Russia's nuclear capability. Russia will continue to press for the signing of "legally binding agreements guaranteeing that U.S. missile defence elements are not aimed against Russia's strategic nuclear forces". Some more hard-line observers even think that "as soon as the U.S. considers it necessary and feasible to launch the fourth stage of the European ABM system, it will do so immediately".[8] Thus, the security conference planned for May 24-25 in Moscow ended as fruitlessly as the May 2012 Moscow conference on the ABM issue, organised by the Russian Defence Ministry.

Today, some conservative commentators in Moscow even call for the scrapping of all SM-3 deployments in Europe as a prerequisite for productive dialogue on furthering arms control negotiations[9] while their American counterparts, Republicans and national security 'hawks' strongly criticise Obama's openings as a kind of national surrender to Moscow.[10]

So, canceling the EPAA Phase IV, contrary to the hopes of some liberal U.S. and Russian experts,[11] in no way clears the way for another round of U.S.-Russian strategic nuclear arms

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3 "DoD News Briefing on Missile Defense from the Pentagon", 15 March, 2013, *News Transcript,* www.defense.gov/transcripts/transcript.aspx?transcriptid=5205.

4 Th. Shanker, D. E. Sanger and M. Fackler, "U.S. Is Bolstering Missile Defense to Deter North Korea", *The New York Times,* 15 March 2013.

5 See: "Making Sense of Ballistic Missile Defense: An Assessment of Concepts and Systems for U.S. Boost-Phase Missile Defense in Comparison to Other Alternatives", National Research Council, Washington, D.C., 2012; "Task Force Report on Science and Technology Issues of Early Intercept Ballistic Missile Defense", Defense Science Board, Department of Defense, Washington, D.C., September 2011.

6 "U.S., Russia aim to reconvene stalled missile defense talks", *Reuters*, 25 March 2013, www.reuters.com/article/2013/03/25/russia-usa-missile-defence-idUSL5N0CH4BO20130325.

7 "Moscow to Discuss Changes in US Missile Defense Plans", *RIA Novosti*, 7 March 2013, http://en.rian.ru/world/20130320/180138892.html.

8 I. Soboleva, "NATO, Russia consider joint missile-defense system", *Russia Beyond The Headlines*, 8 April 2013, http://rbth.ru/politics/2013/04/08/nato_russia_consider_joint_missile-defense_system_24761.html.

9 V. Kozin, "PRO SShA: 'Restrukturizacya', no ne v interesakh Rossii" ["U.S. BMD: Restructurization, but not in Russia's interests "], *Nezavissimaya Gazeta,* http://nvo.ng.ru/concepts/2013-04-05/1_pro_usa.html.

10 A. Cohen, "How Not to Negotiate with Russia: The Missile Defense Fiasco", *The Foundry Blog*, 19 March 2013, http://blog.heritage.org/2013/03/19/how-not-to-negotiate-with-russia-the-missile-defense-fiasco.

11 S. Rogov, "Barak Obama proyavil gibkost' po PRO" ["Barack Obama shows flexibility in the BMD"], *Nezavisimoe Voyennoe Obozrenye*, 18 March 2013, http://nvo.ng.ru/world/2013-03-18/1_obama.html; "US changes in missile defense plan may provide opening for new arms-control talks with Russia", *Fox News (AP)*, 17 March 2013, www.foxnews.com/us/2013/03/16/us-changes-in-missile-defense-plan-may-provide-opening-for-new-arms-control/#channel=f2cae0dd9f5fa88&origin.

reduction, as indicated by Moscow's lack of interest in new American ideas on deeper cuts, to bring the number of launchers for such weapons down to 1,000-1,100. Russia has shown no inclination to make further cuts in strategic nuclear weapons. New U.S. ideas on further steps in strategic arms reduction and limits on the EPAA, as formulated by the second Obama administration, have seemingly promised attractive openings and breakthroughs in the area of strategic nuclear arms control but, so far, have received no positive reaction.

There are no signals that Moscow will rescind its military build-up plans in response to the perceived U.S. ABM threat. This blocks substantial progress in arms control. In the context of the so called asymmetrical response to U.S. missile defence plans in November 2011, Moscow vociferously threatened to deploy tactical nuclear weapons in the Kaliningrad area. Russia additionally stated that it might quit the new START and INF treaties, as it had already walked out on the CFE Treaty in 2007.

Thus, in the terminology of Russian diplomacy, the world, in terms of shoring up security and even of survival, is currently at the crossroads. Consequently, now is the time to pay close attention to all outgoing signals that would indicate any changes for the better.

There are four major blocks of issues related to arms control in general:

- Further strategic forces reduction
- ABM cooperation
- Non-strategic nuclear forces in Europe
- New conventional arms control

Of these, ABM remains the most problematic. Cautious hopes of new arms control achievements which were emerging after the discouraging period of Bush's disarmament "absenteeism"—when Obama snatched the Russian propaganda banner of complete disarmament and a "non-nuclear world"—vanished due to the ABM conundrum. It even threatened to scuttle work on the new START treaty which, in its present form, is considered a big win for Moscow. The Russian view is that the preamble to START, recognising the interrelationship of strategic offensive and defensive arms, limits any future development of missile defence, at the same time providing grounds for the Russian withdrawal from the treaty should U.S. missile defence proceed unabated. Modest hopes linked to Obama's famous open-mike slip of March 2012, (when he was overheard promising then President Medvedev that he would show greater flexibility on missile defence if re-elected) did not materialise in Moscow's eyes.

So far, according to Moscow's comments, there are no tangible breakthroughs in this area. Russia today, even to a greater extent, sticks to the classic Cold War stance of strategic stability (developed by Bernard Brodie, Henry Kissinger, Albert Wohlstetter, Tomas Schelling, Jack Snyder and Richard Jervis), which postulates the major impact of ABM on nuclear deterrent capabilities, the interrelationship of strategic offensive and defensive weapons. Hence, deterrence survives in our post-post-Cold War environment, but like mutual assured destruction, it is hostage not even to bilateral Washington-Moscow relations but to Russian domestic developments.

There is a certain obsession with the ABM issue in Moscow military and political circles. At the same time, two groups of opinion can be observed: the hawks, who warn of the disturbing nature of U.S. ABM developments worldwide while threatening with imminent Russian countermeasures and diplomatic responses,[12] and doves, a small group of moderate liberal experts and some retired generals who explain that the U.S. is unable to undermine the

[12] These are retired military groupings around Moscow NGOs, Academy of Military Sciences, Academy of Geopolitical Problems and experts with the Russian Institute of Strategic Studies.

Russian nuclear deterrent capabilities in any way as long as Russia at least keeps up with the current pace of strategic modernisation.[13]

Despite some barely discernible hints to the contrary, Russia still demands from the U.S. a) legally binding commitments, b) limits on technical capabilities and c) information about geographical location of planned ABM components. This would amount to a new ABM treaty, not just a set of transparency and confidence-building measures or any new CBMs. Such an arrangement is understandably unacceptable for the United States, as Obama would never pass it through Congress.

Hence, it is important to avoid this *deja vu* syndrome of ABM—bringing us back to the 1980s and the times of Star Wars and the Reagan-Gorbachev disputes. It is imperative to brush off this major irritant and obstacle to further developments in the entire realm of relations between Russia and the West. What is really dangerous and alarming is that this ABM skirmish brings about a kind of Cold War-type rhetoric, unfortunate and silly sabre-rattling and, really deplorably, the new Russian military build-up and pre-planned deployments of nuclear forces, especially targeting Europe (such as the Iskander 280-500 km-range nuclear-tipped ballistic and cruise missiles in the Kaliningrad district, the resumption of Naryad-B ASAT missile interceptor development, the Sokol-Echelon ASAT MIRACLE-type air-based laser, and more).

ABM is still the major obstacle to further arms control/disarmament measures, including the avoidance of weaponising space, TNW reduction, and closer cooperation on WMD non-proliferation efforts. All this obviates the necessity for real qualitative breakthroughs in disarmament, as the major nuclear weapon stockholders, the U.S. and Russia, still actually operate within a Cold War stand-off framework and according to MAD strategic tenets. Any further moves in arms control are currently blocked by the so called Moscow "conditional package" which sets as the prerequisite to new arms control steps the complete resolution of the following issues:

- gradual involvement of all nuclear weapons states
- prevention of space-based weapon deployment
- guarantees against "breakout nuclear potential"
- no unilateral deployment of ABM systems
- no qualitative or quantitative misbalances in conventional arms
- implementation of the CTBT
- viability of the key multi-dimensional instruments for disarmament and non-proliferation.

Moscow's logic is unambiguous: Russia has approached "a threshold"; all aspects of strategic stability in the general context should be now accounted for. Further steps towards the accountable and irreversible reduction of nuclear weapons in compliance with Article VI of the NPT should be taken on a phased basis, with the ultimate objective of this long-term process being complete disarmament, and equal and indivisible security for everyone.

In my view, it is urgent to untie this package with expediency, singling out a sole starter issue, say the problem of weaponising space. Meanwhile, Russia would primarily place greater emphasis on "asymmetrical means" of negating any advantages of any future NATO BMD programme. When the "sectoral" solution proposed by Medvedev in Lisbon in 2010 was factually rejected by NATO, Russia accelerated its response with new gigantic programs of ICBMs, SLBMs and "Airspace defence" deployments—at the same time reinvigorating its

[13] A good example of this approach is taken by the authors of the recently published monograph by Moscow Carnegie Center, A. Arbatov, V. Dvorkin (eds.), *Missile Defense: Standoff or Cooperation?*, ROSSPEN, Moscow 2012, or in the articles by academician Sergey Rogov, the director of the Institute of USA and Canada Studies of the Russian Academy of Sciences.

Moscow ABM site with the development of new A-235 missiles (the Samolyet-M programme[14]), new modular Voronezh-type radars, Krona EWS radars, etc. The Russian government has already approved a major increase in its defence budget, up to 23 trillion rubles. The country has been enhancing its own missile defence, by placing new "modular" radar complexes on alert and by deploying more S-400 air defence systems and designing their S-500 follow-ups[15], which have a basic (though debatable, and never actually battle-proven) anti-missile capacity. Nevertheless, the outlines of the future "Airspace Defence" infrastructure are still unclear, with no distinct concept of how (and where) to deploy it.

The Russian military has accordingly announced plans to develop a new, heavy liquid-fuel ICBM capable of carrying large numbers of warheads, decoys, and other penetration aids[16]. Thus Russian strategic nuclear potential will not dwindle. This, according to its designers, could in future overcome any further U.S. ABM system though strength of numbers, new, roving hypersonic warheads which wander with no predictable trajectory while approaching a target, and new types of ABM penetration/saturation decoys. The same is said to be true of other new railroad-mobile ICBMs, reviving the famous, solid-fuel SS-24, which could also be fitted with Topol follow-ups, as well as the solid-fuel MIRVed Topol and Yars follow-ups.

While all those plans could be scuttled, as were many rearmament programmes in the past, due to the lack of funding, corruption and theft, mismanagement and technological and industrial inabilities to meet the planned goals, the repercussions for relations with the West and the state of the Russian economy could actually prove pernicious.

At the same time, on the diplomatic track, attempts by Moscow to try to consolidate something like a united anti-ABM front, bringing in China or other opponents of U.S. BMD plans, has not been ruled out. In any case, the development of the U.S. ABM global network only brings Moscow closer to its current Chinese strategic partner. If no compromise with Washington is achieved, Russia could suggest its technological cooperation and proven expertise to Beijing, in a hypothetical joint effort set to neutralize U.S. BMD systems' capabilities.

The entire ABM issue is excessively politicised, with the assessments of sober experts being eclipsed by paranoid invocations and regular propaganda. It serves well (like the rump Yugoslavia, Iraq, Afghanistan, Libya, Syria) to spur domestic nationalism and anti-American xenophobia in Russia while giving Moscow a major topic for further diplomatic offensives.

Worse, however, the ABM issue demonstrates the yawning gap in threat assessments, doctrines, and even basic democratic and societal values, in ideological principles between NATO and Russia. Both sides belong to different types/schools of thought on governance and types of socio-economic structures, while Russia is not quite integrated in Europe, demanding special rights and accusing Europe of double standards.

However, causes for optimism do exist. Even the Russian military are quite sure that the EPAA is no threat at all, as it is optimised mostly against medium–range targets, whilst generally performing poorly (according, for example, to the recent U.S. GAO report)[17]. The projected number of SM-3 interceptors in coming years would pose little real threat to the numerous warheads of the Russian strategic deterrent force.

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14 See: "Sistema A-235/RTCh-181M/OKR Samolyet-M" ["System A-235/RTCh-181M/OKR Samolyet-M"], *Military Russia Blog*, 1 April, 2010, http://militaryrussia.ru/blog/index-389.html.

15 "Na uroven' vyshe: Rossiya otkroyet proizvodstvo komplesov S-500 v 2015 godu" ["On the level above: Russia will open production of the S-500 systems in year 2015"], *Lenta.Ru*, 10 April 2012, http://lenta.ru/articles/2012/04/10/future.

16 "Russian missile chief claims shield-penetrating ICBM ready by 2018", *Russia Today*, 3 September 2012, http://rt.com/politics/russian-missile-forces-new-250.

17 "Standard Missile-3 Block IIB Analysis of Alternatives", Government Accountability Office, Washington, D.C., 11 February 2013, http://www.gao.gov/assets/660/652079.pdf.

The problem lies in the existence of a kind of "grey area" of the capabilities of the planned U.S. BMD force and the Russian strategic offensive potential. Both sides' militaries are usually inclined to diminish the capabilities of their relevant systems and to conceal the entirety of data on them. Thus a considerable "gap" regarding the real capabilities of interceptors (vis-a-vis the velocity of incoming warheads) exists, capabilities which may or may not be within the limits of declared or shown parameters.

There are promising ideas for future compromise solutions formulated in the flurry of recent reports, conference presentations and articles (for example, reciprocal visits to design labs and test sites, transfer of limited SM-3-related data to Russia, a Joint Missile Threat Assessment and Data Exchange Center manned by U.S. (NATO), and Russian military officers, etc.).

More extensive collaboration could range from simply exchanging intelligence data and assessments to launching innovative joint research and development programmes for shared anti-BMD technologies.

Realistically, however, such a high level of collaboration demands not simply a new quality in the relationship between Russia and the U.S. but the total elimination of the present-day climate of suspicion and inattention to the arguments of the other side. Cooperative U.S. (NATO)-Russian ABM collaboration, like stepping back from MAD, is not possible without democratisation[18] and modernisation progress in Russia when it actually joins the "free world" disparaging its imperial or "great power" ambitions and desire to become a kind of Soviet Union in Eurasia without the Communist ideology. As we are still, mentally or operationally, in Cold War mode, we need work on the tenets of strategic stability in a multi-polar world. Arms races between Russia and the West are anachronistic in the current global crisis situation, and must be avoided. Hence, a prompt technical solution must be found to this ABM conundrum, for this entire issue must be *de-politicised*.

The ABM problem must be debated on all levels—not just official but also academic, scientific, technological, NGO, youth organisation, public, political, etc. in order to accumulate the critical mass of facts, opinions and pressure toward a positive outcome.

[18] See the very interesting reports: L. Shevtsova and A. Wood, "Change or Decay: Russia's Dilemma and the West's Response", Brookings Institute Press, Washington, D.C., 2013; L. Shevtsova, "A new way for the West to contain Russia", The Financial Times, 7 February 2013, www.ft.com/intl/cms/s/0/8e0fea1a-7144-11e2-9b5c-00144feab49a.html#axzz2Q445MP14.

# The Role of Missile Defence in NATO Deterrence

Jacek Durkalec

At the 2010 Lisbon summit, NATO members agreed to build a territorial missile defence system and elevated missile defence to the role of a core element of the Alliance's collective defence.[1] From political, military, technical and financial perspectives, missile defence will be the most important capability development project for the Alliance for the foreseeable future. The ambitious plans have created the expectation that it could play a role for the Alliance that goes beyond defence against ballistic missile threats. Missile defence has raised hopes that it may become an integral part of NATO's deterrence posture, leading to a further reduction in NATO's reliance on nuclear weapons. These hopes, however, have sparked many controversies and have led to a deep and frank, conceptual discussion among the allies. NATO's work on the Deterrence and Defence Posture Review (DDPR) enabled the allies to achieve a basic consensus on the role of missile defence in deterrence. Still, the debate within NATO is not over.

## System Architecture

NATO missile defence is designed to "provide full coverage and protection for all NATO European populations, territory and forces".[2] NATO members in their official joint statements avoided naming any target country for which the system is being created, stating vaguely that it will provide coverage "against the increasing threats posed by the proliferation of ballistic missiles".[3] The system's development, however, is primarily driven by concerns related to Iran's ballistic missile technologies and its nuclear program.[4] The build-up of the system also can be justified by uncertainty related to developments in the security environment of the Middle East and North Africa, and concerns that WMD-armed ballistic missiles may fall into the hands of non-state actors. From the inception of the missile defence concept, NATO has highlighted that the system is designed against limited missile threats and would not be aimed at Russia, stressing that the Alliance would actively seek the cooperation of the Russians in this area.[5]

NATO missile defence will be built on common command-and-control (C2) backbone developed since 2005 for the Active Layered Theatre Ballistic Missile Defence (ALTBMD) system, designed to defend NATO troops and critical military and civilian infrastructure against ballistic missiles with ranges of up to 3,000 km. To upgrade the joint C2 element to support territorial missile defence, NATO members decided to add about €200 million to the €800 million that already had been planned to be spent on the original program.[6] The joint C2 backbone will link the interceptors and sensors provided voluntarily by individual NATO

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1 "Active Engagement, Modern Defence, A Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organisation, Adopted by Heads of State and Government in Lisbon", par. 19.

2 "Lisbon Summit Declaration Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Lisbon on 20 November 2010", par. 36.

3 "Lisbon Summit Declaration", *op. cit.*, par. 36.

4 Whether to name Iran as a ballistic missile threat was a contentious issue between France and Turkey. See: "PM Erdoğan clarifies position on NATO missile command", *Today's Zaman*, 23 November 2010.

5 "Active Engagement, Modern Defence", *op. cit.,* par. 19.

6 A. F. Rasmussen, "NATO Needs a Missile Defense," *The New York Times*, 12 October 2010.

members. Full operational capability of NATO territorial missile defence was planned for 2018 but there are some indications that it will not be available before 2020.[7] So far, NATO has announced interim operational capability, which provides only very modest joint C2 over a limited number of assets.

The crucial national contribution to NATO territorial missile defence will be the U.S. European Phased Adaptive Approach (EPAA). According to the EPAA concept presented by the U.S. in 2009, the deployment of a missile defence system in Europe would occur in phases.[8] Each successive phase provides further protection against ballistic missiles over a wider territory.[9]

The U.S. already has implemented Phase I of EPAA, which is designed to provide initial protection for critical infrastructure and U.S. soldiers stationed in southern Europe against short and medium-range ballistic missiles (SRBMs and MRBMs).[10] Since March 2011, a U.S. Aegis-equipped ship with SM-3 Block IA interceptors has been operating in the Mediterranean Sea.[11] Also, in January 2012, the U.S. deployed at Kürecik, in southeastern Turkey, a forward-based AN/TPY-2 radar that is able to detect ballistic missiles early in flight and provides precise tracking information. Last but not least, the U.S. established a C2 component of EPAA at Ramstein Air Base in Germany that facilitates linking U.S. elements with the NATO C2 backbone.

In 2015, the U.S. plans to commence Phase II of EPAA. It will involve the deployment of SM-3 Block IB interceptors in both sea- and land-based configurations to expand defences against short- and medium-range missile threats. A land-based SM-3 site will be installed in Romania at Deveselu Air Base. Phase III of EPAA, beginning in 2018, will see the deployment of SM-3 Block IIA interceptors and more advanced sensors to more effectively counter intermediate-range ballistic missile (IRBMs). Interceptors will be deployed in two land-based locations and on Aegis-equipped ships. The second land-based SM-3 site will be located in Redzikowo, Poland.

According to the initial U.S. plans, EPAA was supposed to consist of four phases. Phase IV, envisaged for 2020, had been projected to not only augment protection of U.S. territory against intercontinental ballistic missiles (ICBM) but also strengthen the defence of Europe against IRBMs.[12] On 15 March 2013, the U.S. announced the cancellation of the SM-3 IIB missile interceptor, the key component of Phase IV that was expected to provide this capacity. The U.S. stressed that the three phases of EPAA will "still be able to provide coverage of all

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[7] For more, see: "Missile Defence Fact Sheet", *NATO Public Diplomacy Division*, 21 June 2011, www.nato.int. According to NATO Deputy Secretary General Ambassador Alexander Vershbow, the full operational capability of the NATO system will be achieved "early next decade". "NATO and Missile Defence", a speech by NATO Deputy Secretary General Ambassador Alexander Vershbow at the 2013 RUSI Missile Defence Conference, London, 12 June 2013, www.nato.int.

[8] See: "Fact Sheet on U.S. Missile Defense Policy: A 'Phased, Adaptive Approach' for Missile Defense in Europe", The White House, 17 September 2009, www.whitehouse.gov.

[9] The article refers to the following categories of ballistic missiles: short-range ballistic missiles (SRBM) with a range of 1,000 km or less; medium-range ballistic missiles (MRBM) with a range of between 1,000 km and 3,000 km; intermediate-range ballistic missiles (IRBM) with a range of 3,000 km to 5,500 km; and intercontinental ballistic missiles (ICBM) with ranges greater than 5,500 km.

[10] See: "Remarks of Frank A. Rose, Deputy Assistant Secretary, Bureau of Arms Control, Verification and Compliance , at the Royal United Services Institute (RUSI) London, United Kingdom June 12, 2013", U.S. State Department, www.state.gov.

[11] From 2014, U.S. Aegis destroyers will be based at the Rota naval facility in Spain (the first two will arrive in 2014 and an additional two in 2015).

[12] See: "Fact Sheet on U.S. Missile Defense Policy", *op. cit.*; "DoD News Briefing with Secretary Gates and Gen. Cartwright from the Pentagon", U.S. Department of Defense, 17 September 2009, www.defense.gov.

European NATO territory".[13] Instead of relying on interceptors deployed in Poland, the U.S. decided to strengthen the protection of its territory by increasing the number of Ground-Based Interceptors (GBIs) already deployed in Alaska and California and keeping open the option of building a third GBI site on America's East Coast. By scrapping the SM-3 IIB interceptor, the U.S. seemed to finally resign from the idea to directly augment protection of its own territory by systems based in Poland and limited the original role of EPAA to the direct defence of Europe.

As EPAA is adaptable to the level of threat and availability of technologies, its further development remains an open question. The currently envisaged capabilities might be sufficient, or even too robust to tackle future challenges. Depending on the threat and technological developments, the U.S. might also see a need to augment them. It could not be excluded that the U.S. may in the future pursue a modified Phase IV, which could involve the deployment in Europe of additional sensors and Aegis-equipped ships, increasing the number of launchers and interceptors at the land-based sites, or installing at a future date a more-advanced kill vehicle atop the SM-3 interceptors.[14]

While U.S. EPAA would be critical for the defence of European territory, NATO missile defence architecture could be strengthened by individual contributions from European NATO members. Especially valuable would be European sensors, as they could supplement NATO MD coverage by providing additional early warning and tracking information. So far, the Netherlands has made a commitment to upgrade the radar installations on its four frigates to perform such a mission. It should not be excluded that countries such as Germany, Denmark or UK will follow the Netherlands' lead by adapting radar on their vessels to missile defence missions.[15] In addition, Germany is exploring developing an airborne infrared sensor, and France has proposed a concept for a shared early warning satellite.

The European-owned interceptor missiles that could be linked with NATO missile defence so far include only systems that can be used to protect only relatively small areas or strategic assets. While of limited value to the defence of a large portion of territory as the U.S.-owned SM-3 systems, they could provide additional protection to the allies most vulnerable to short-range ballistic missile attacks, such as Turkey. So far, only the Netherlands and Germany have contributed their Patriot batteries to the NATO system.[16] Additional future contributions may include additional European-owned Patriot systems, SAMP/T systems developed by France and Italy, or potentially, theatre missile defence systems planned to be acquired by Poland.[17] At some stage, the Europeans may decide to acquire or develop interceptors that could supplement U.S. SM-3 missiles in territorial defence. For example, some NATO members have already discussed the concept of the collective acquisition of SM-3 interceptors and their deployment on European ships.[18]

## Missile Defence and Deterrence: A Debate

NATO considerations about the role of missile defence in deterrence were not only a result of the decision to build the system. To a great extent they were a byproduct of a renewed

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13 "Missile Defense Announcement**,** As Delivered by Secretary of Defense Chuck Hagel, The Pentagon, Friday, March 15, 2013, U.S. Department of Defense, www.dod.gov.

14 Personal Interview with DoD officials, February 2013.

15 "British Destroyer to Participate in U.S. Missile Defense Trials", *Defense Update*, 7 March 2013.

16 "NATO Missile Defense From Rhetoric to Reality", Ambassador Ivo Daalder's Remarks on NATO Missile Defense, at the Missile Defense Conference, 10 September 2012, http://nato.usmission.gov/sp_061012.html.

17 R. Kupiecki, Polish Deputy Minister of Defense, "Polish Perspectives on Missile Defense", CEPA, 7 March 2013, www.cepa.org/ced/view.aspx?record_id=377.

18 S. Frühling, S. Sinjen, "Missile Defense: Challenges and Opportunities for NATO," *NATO Defense College Research Paper*, no. 60, July 2010, p. 6.

intra-Alliance nuclear debate that accompanied work on NATO's 2010 Strategic Concept and the follow-up process of the Deterrence and Defence Posture Review (DDPR).[19]

The central element of the debate was the rationale for the further deployment in five European countries of about 180 U.S. B-61 nuclear gravity bombs assigned to the Alliance.[20] The role of missile defence to deterrence was heavily analysed through its possible impact on current nuclear arrangements within NATO.

The debate to a lesser degree touched upon the missile defence relationship with strategic nuclear forces, which are considered the supreme guarantee of Alliance defence (especially U.S. strategic forces but also the "independent" strategic nuclear forces of the United Kingdom and France). Even so, nuclear weapons owners especially were very careful not to agree on any joint NATO position that may be inconsistent with their national nuclear policies and their perception of the missile defence relationship with their strategic nuclear capabilities.

On the one side of the debate, ambitious missile defence plans were perceived by some European NATO members, especially Germany, as an additional argument that supported their quest for a further reduction, and ultimate removal of U.S. non-strategic nuclear weapons from Europe.[21] In their view, NATO should clearly recognise that missile defence has the potential to review a mixture of capabilities, including changing requirements for nuclear forces. Germany highlighted the need for discussions on the role of missile defence in the deterrence framework in each phase of the U.S. EPAA.[22]

The position of advocates of a direct link between missile defence and a reduction in the role of non-strategic nuclear weapons was largely driven by their doubts about the feasibility of NATO's current nuclear posture rather than their confidence in the effectiveness of missile defences. According to some NATO countries, U.S. non-strategic nuclear weapons based in Europe are remnants of the Cold War and are of "questionable military value".[23]

Their positions seem to be reflected in arguments of some think tank experts who underlined that there is no plausible scenario in which non-strategic nuclear weapons could be used and that they have no relevance in tackling the security challenges of the 21st century security environment. Consequently, in their view, steadily moving from traditional deterrence by retaliation to deterrence by denial offered by missile defence would better address the real security needs of NATO members.[24]

The other advantage of offsetting the role of non-strategic nuclear weapons by missile defence was that in contrast to nuclear weapons, relying more on missile defence was seen as having no negative impact on NATO members' credibility in non-proliferation and disarmament efforts. The lessening emphasis on nuclear weapons was perceived as contributing to greater NATO member consistency with the spirit of the Non-Proliferation

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19 "Deterrence and Defence Posture Review", *NATO Press Release (2012) 063*, issued on 20 May 2012, www.nato.int.

20 For more about the nuclear debate and current NATO nuclear arrangements, see: T. Nichols, D. Stuart, J.D. McCausland, *Tactical Nuclear Weapons and NATO*, U.S. Army War College Strategic Studies Institute, April 2012.

21 I. Traynor, "Germany and France in nuclear weapons dispute ahead of NATO summit," *The Guardian*, 18 November 2010; Ambassador Rolf Nikel, "The Future of NATO's Nuclear Weapons", *Nuclear Policy Paper*, No. 9, ACA/BASIC/IFSH, November 2011, p. 2, http://tacticalnuclearweapons.ifsh.de.

22 Personal interviews with officials from Germany, NATO HQ, September 2011.

23 See, for example: R. Nikel, Commissioner of the Federal Government for Arms Control and Disarmament, a speech at Berlin Framework Forums: Creating the Conditions and Building the Framework for a Nuclear Weapons-Free World, 21 February 2013, p. 2, http://tacticalnuclearweapons.ifsh.de/pdf/130221%20MPI%20Er%C3%B6ffnungsrede%20Nikel.pdf.

24 O. Thraenert, "Nuclear Arms and Missile Defence in Transatlantic Security", in European Security and the Future of Transatlantic Relations, R. Alcaro, E. Jones (eds.), Istituto Affari Internazionali (IAI), April 2011, p. 83.

Treaty and sending a clear signal of their commitment to creating conditions towards a nuclear weapons-free world.

The other point was that missile defence could overtake the current role of non-strategic nuclear weapons as the most important manifestation of the transatlantic link. Replacing nuclear sharing by missile defence-sharing could "liberate nuclear sharing from the burden of its role as the most important military anchor of the transatlantic relationship".[25] Some officials and experts advocated that missile defence in Europe might replace the role of non-strategic nuclear weapons in Europe as the most profound sign of the U.S.'s extended deterrence umbrella and the most important link between NATO members and U.S. strategic nuclear forces.[26]

On the other side of the debate were countries sceptical of the role of missile defence in decreasing reliance on nuclear weapons. This cautious approach seems to have been held from the outset by most NATO members.

Even states such as Belgium and the Netherlands, which favoured changes in the nuclear posture, underlined the more prominent role of offensive conventional forces in deterrence and in the lessening saliency of nuclear weapons.[27]

The country that most vociferously insisted that missile defence can complement but not substitute for nuclear deterrence was France.[28] Even if France remained outside NATO's nuclear arrangements,[29] it wanted to avoid any collective NATO decision that may directly or indirectly put into question or de-emphasize the role of French nuclear forces. France warned that missile defence could become a new Maginot line and could provide NATO with a false sense of security.[30] Along with other countries with a cautious stance on changing NATO's current nuclear arrangements, for example Central and Eastern European states, France maintained that missile defence and nuclear weapons are totally different categories of armaments and even credible missile defence does not change the need for possessing credible deterrence by retaliation.

Some NATO members such as the Baltic States disagreed with the arguments that missile defence could replace the political role played by U.S. non-strategic nuclear weapons in maintaining the transatlantic link and in signalling NATO's resolve to face any potential adversary.[31] Also, in their view the reassurance effect of missile defence is lower than that of non-strategic nuclear weapons. They underlined that missile defence is designed against adversaries with limited missile capabilities. It does not represent a universal capability as it cannot, as with non-strategic nuclear weapons (NSNW), be utilised as a comprehensive

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25 O. Thraenert, "NATO and Missile Defense; Opportunities and Open Questions," *CSS Analysis in Security Policy*, No. 86, December 2010.

26 According to the personal viewpoint of a Norwegian official, in 30 years missile defence might play a role as the only remaining U.S. military footprint in Europe and at the same time the only visible manifestation of the transatlantic link. Missile Defence could also ensure Allied cohesion in future conflicts. Personal interview, NATO HQ in Brussels, September 2011.

27 Personal interviews at NATO HQ in Brussels, September 2011.

28 For more on the consistency of the French position on the relationship between missile defence and nuclear deterrence, see: H. Vedrine, "Report for the President of the French Republic on the consequences of France's return to NATO's integrated military command, on the future of transatlantic relations, and the outlook for the Europe of defence", 14 November 2012, p. 7; P. Zajac, "NATO's Defense and Deterrence Posture Review: A French Perspective on Nuclear Issues", *Nuclear Policy Paper,* no. 7, ACA/BASIC/IFSH, April 2011, p. 3, http://tacticalnuclearweapons.ifsh.de.

29 France is the only NATO country outside NATO's Nuclear Planning Group, the senior body on nuclear matters in the Alliance where specific policy issues associated with nuclear forces are discussed. For more, see: www.nato.int.

30 Personal interview with a French official, NATO HQ in Brussels, September 2011.

31 D. S. Yost, "The U.S. debate on NATO nuclear deterrence," *International Affairs*, vol. 87, no. 6, p. 1429.

deterrence for all NATO members against all potential adversaries. Limited missile defence capability against threats stemming from the proliferation of ballistic missiles was not seen as something that might play a role comparable to non-strategic nuclear weapons in a very unlikely but still possible crisis involving Russia.[32]

In general the Baltic States and the other states from Central and Eastern Europe preferred that any reduction of U.S. NSNW from Europe should result from Russian reciprocal steps related to its disproportionally larger arsenal of NSNW rather than as a result of the implementation of a NATO missile defence system.

The cautious approach to a missile defence contribution to deterrence seemed to be influenced by the fact that NATO territorial missile defence is far from being established. The overall NATO commitment to build the system is not without caveats. According to the Lisbon Summit Declaration, the NATO missile defence system will be developed by taking into account, "the level of threat, affordability and technical feasibility, and in accordance with the latest common threat assessments agreed by the Alliance".[33] Similarly, the U.S contribution will depend on a U.S. assessment of the need and feasibility of the system. Timeframes and implementation of EPAA is contingent upon the ballistic missile threat and availability of proven and cost-effective MD technologies.[34]

Also, even if a territorial missile defence system would be established, its sustainability as a deterrent would be more fragile in comparison to offensive capabilities. Its real deterrence-by-denial value would depend on its effectiveness, which, however, would not be static but would depend on developments in the threat environment. If states such as Iran increase both the quality and quantity of their missiles, defence could become operationally unreliable and financially unaffordable.[35]

NATO members also seemed to take into account that U.S. EPAA is designed to be flexible and adaptable to an evolving security environment in which the enemy gets a vote. It provides the possibility for the fast relocation of elements of the system to places where it is most needed. The number of U.S. assets in Europe, even after initial deployment, could decrease as the result of a lessening ballistic missile threat and needs stemming from U.S. security commitments in other regions, especially in East Asia.

Of utmost important to discussions within NATO was the position of the United States—the "donor" of non-strategic nuclear weapons assigned to the Alliance and crucial territorial missile defence capabilities. In the 2010 Ballistic Missile Defence Review, the U.S. recognized that "the role of U.S. nuclear weapons in regional deterrence architectures can be reduced by increasing the role of missile defences and other capabilities".[36] During the intra-Alliance debate, the U.S. position did not seem to be as straightforward. The U.S. seemed to take a role of mediator of the divergent European positions. According to the U.S., NATO should "broaden" its deterrence by pursuing territorial missile defence.[37] It suggested the contribution of missile defence to deterrence without directly linking it with changes in NATO's nuclear posture.

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[32] Personal interviews with officials from Latvia, Lithuania, and Estonia at NATO HQ in Brussels, September 2011 and October 2012.

[33] "Lisbon Summit Declaration", *op.cit.*, par. 36.

[34] For more, see: "DoD News Briefing with Secretary Gates and Gen. Cartwright from the Pentagon", U.S. Department of Defense, 17 September 2009.

[35] J. Samaan, "The day after Iran goes nuclear: implications for NATO", *NATO Defense College Research Paper*, no. 71, p. 8.

[36] "Ballistic Missile Defense Review Report," U.S. Department of Defense, February 2010, p. 23.

[37] The U.S. proposal to broaden deterrence with missile defence was included in a list of nuclear principles presented by then-U.S. Secretary of State Hillary Clinton at a meeting of NATO foreign ministers in Tallinn in April 2010. See: Oliver Meier, "NATO Chief's Remark Highlights Policy Rift", *Arms Control Today*, May 2010.

The U.S. from the beginning seemed to advocate that although missile defence might in the future lead to some modifications in the overall "mix of capabilities", including requirements for a nuclear mission, it is too early to predict its concrete impact and to strictly define the mutual relationship between missile defence and nuclear forces. It will mostly depend on whether missile defence capabilities would work as advertised.[38] Such a stance seemed to influence the positions of those states that argued that any increase in the missile defence role should be incremental. Before making any impact, missile defence has to be introduced gradually to military doctrine, plans and military exercises.[39]

## Consensus and Its Limits

The outcome of NATO's debate on the contribution of missile defence to deterrence was included in the Deterrence and Defence Posture Review delivered at the NATO Summit in Chicago in May 2012. It assessed the current mix of NATO nuclear, conventional and missile defence capabilities.

In general, the document avoids overestimating the impact of missile defence and indicates that granting it a more central role in the Alliance's deterrence and defence posture is a matter for the future. In contrast to nuclear forces and conventional capabilities, DDPR does not speak about the current role of missile defence but only lists what its role will be and what missile defence can or is expected to do.

In the interpretation of this by the majority of the member states of NATO, the role of missile defence in deterrence would be smaller in comparison to nuclear weapons but also even to conventional forces.[40] Its lesser place in NATO's hierarchy of capabilities may be inferred from the DDPR statements. As nuclear weapons are described as a "core component", conventional forces as making an "indispensable contribution", missile defence is described only as an "important addition" to NATO's overall capabilities for deterrence and defence.[41]

DDPR indicates that missile defence "will become an integral part of the Alliance's overall defence posture" and is a "purely defensive" capability.[42] Some officials from NATO member states emphasize that missile defence is not "missile deterrence".[43]

One reason for such an assertion might be that deterrence by denial provided by missile defence in contrast to "traditional" deterrence by nuclear retaliation is not perceived as deterrence *per se*. Deterrence by denial is seen as a weaker form of deterrence provided not only by missile defence but also by other conventional capabilities. Any role of missile defence in deterrence is not seen as its primary task but rather as a side effect of the credibility of missile defence in relation to its effectiveness in defensive tasks. According to DDPR, missile defence can only complement, not substitute for nuclear weapons in deterrence. To highlight the role of nuclear weapons as the ultimate guarantee of their security, the NATO allies declared that "as long as nuclear weapons exist, NATO will remain a nuclear Alliance" and that the "Alliance's nuclear force posture currently meets the criteria for an effective deterrence and defence posture".[44]

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38 Personal interview with U.S. officials, NATO HQ, October 2012.

39 Personal interviews with Hungarian (Budapest, Hungary) and Romanian (Bucharest, Romania) MFA officials, March 2012.

40 Personal interviews, NATO HQ in Brussels, October 2012.

41 B. Tertrais, "Beyond US Nuclear Weapons? NATO and Strategic Deterrence by 2020", in *A Problem Deferred? NATO Non-Strategic Nuclear Weapons after Chicago* [H. Chalmers, M. Chalmers, A. Berger eds.], *Whitehall Report* 4-12, October 2012, p. 15.

42 "Deterrence and Defence Posture Review", *op. cit.*, pars. 18, 20.

43 Personal interviews , NATO HQ in Brussels, October 2012.

44 "Deterrence and Defence Posture Review", *op. cit.*, pars. 8, 9.

Even the complementary role of missile defence remains, however, uncertain as it depends on the reliability of the system.[45] Only if effective can missile defence complicate an adversary's plans by, for example, lessening the susceptibility of NATO members to nuclear coercion by states with limited arsenals, providing damage mitigation in the event of a failure of deterrence by retaliation, and buying additional decision time during crises by lessening the need for pre-emptive attack and giving more time for an appropriate offensive response.

DDPR also echoes limited confidence in the sustainability of the effective deterrence-by-denial capability provided by missile defence. It underlines that "like other weapons systems, missile defence capabilities cannot promise complete and enduring effectiveness".[46]

DDPR reflects a NATO consensus that missile defence can contribute to deterrence only against threats posed by the proliferation of ballistic missiles "from outside the Euro-Atlantic area". DDPR makes it clear that missile defence is "not oriented against Russia nor does it have the capability to undermine Russia's strategic deterrent" and that NATO members will continue to actively seek Russian collaboration in this area.[47] This statement confirms that NATO will keep an open door to cooperation if Russia is willing. It also demonstrates that none of the allies views missile defence capabilities as a potential deterrent vis-ŕ-vis Russia.

It might be argued that as long as the anxiety of some NATO members towards Russia exists, some NATO members will be very reluctant to recognise the substantial role of missile defence in NATO's overall deterrence posture.

Still, it did not preclude that for some NATO allies, the deployment to their territories of U.S. missile defence sites could be perceived as bolstering U.S. extended deterrence against any, though currently unlikely Russian threats. The reassurance effect of missile defence does not, however, result from the capability of the system to intercept Russian missiles, but rather from having U.S. "boots on the ground" in their territory. For example, for Poland the deployment of a U.S. SM-3 site will be an achievement of one of its strategic objectives: hosting on its territory a permanent U.S. military installation that provides a direct link between Polish security and the defence of other NATO members.

During the DDPR process, NATO members did not answer all of the questions related to the role of missile defence in deterrence. They deliberately left some issues unaddressed, leaving room to manoeuvre for future discussions.

Noteworthy, the Allies did not answer one of the major question that led to their decision to start the DDPR process. While it is clear that missile defence will not replace the role of nuclear weapons in deterrence, DDPR does not imply nor negate any link between the implementation of missile defence and a reduction of the number and role of nuclear weapons, especially non-strategic nuclear weapons. DDPR did not define the interrelationships between nuclear weapons, conventional forces and missile defence in the overall mix of NATO capabilities. It remains unclear how different capabilities might influence each other, whether an increase in one category could lead to a smaller requirement for the other.[48]

The NATO allies seem to have achieved consensus that reductions of non-strategic nuclear weapons are contingent upon changes in the broader security environment, Russian reciprocal steps and finding alternative concepts for how to ensure the broadest possible participation of the allies in nuclear-sharing arrangements.[49] Still, they do not totally disregard

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45 "Deterrence and Defence Posture Review", *op. cit.*, par. 20.

46 "Deterrence and Defence Posture Review", *op. cit.*, par. 20.

47 "Deterrence and Defence Posture Review", *op. cit.*, par. 21.

48 KH. Kamp, "NATO's New Nuclear Consensus", in: *A Problem Deferred? NATO Non-Strategic Nuclear Weapons after Chicago*, *op. cit.*, pp. 10–11.

49 "Deterrence and Defence Posture Review", *op. cit.*, pars. 12, 26, 27.

the notion that the implementation of a missile defence system may to some degree influence their future decisions.

Also, DDPR left to further discussion whether missile defence can replace the role of non-strategic nuclear weapons as the visible manifestation of the transatlantic bond and instrument for coupling the U.S. and its European allies. It only claims that missile defence will "further strengthen the transatlantic link, and contribute to the indivisible security of the Alliance".[50]

As the U.S. has resigned from pursuing the fourth phase of EPAA and since it would not be able to intercept ballistic missiles in flight towards the U.S., the case for coupling it to the role of NATO missile defence could be weaker. Yet, the three phases of EPAA would still manifest a robust U.S. contribution to the defence of the European allies. Also, the phases would provide an additional link between the U.S. security and defence of Europe. The first three phases of EPAA provide protection for U.S. forces and citizens in Europe. The U.S. radar in Turkey can provide some additional early warning information that may contribute to the protection of the U.S. homeland.[51] Also, EPAA Phase III would defend the U.S. early warning radar station in Fylingdales (UK), critical to the defence of the U.S., and could be used to prevent "certain tactics which could be used to defeat a purely U.S.-based system".[52]

The document states that missile defence could signal NATO determination to deter and defend any threat against the safety and security of NATO members' populations. It, however, leaves open to broad interpretation what it means in practice. For example, it does not exclude the potential deterrent value of the deployment of theatre ballistic missile defences in territories of NATO members that face limited ballistic missile threats such as Turkey, where Patriot batteries have been located.[53] It is, however, unlikely that NATO will clearly define scenarios in which such the added value to deterrence of missile defence will be exploited. As decisions about such deployments in all cases are taken individually by the limited number of countries that own theatre ballistic missile defences, NATO members will prefer to retain flexibility in this area. Any future decisions about similar actions will be taken on a case-by-case basis.

With regards to the overall contribution of missile defence to NATO's deterrence posture, it is not only important what DDPR says but also what it omits. The document does not say anything about the dissuasive role of the currently planned NATO missile defence system. It may suggest that at least some NATO members do not believe that missile defence, at this stage and taking into account the current perception of its effectiveness, can influence the decisions of a potential adversary whether to develop certain ballistic missile capabilities.

It will be a matter of future discussion whether the announcement of ambitious NATO plans, especially the three phases of EPAA, would influence Iranian decision-making on the development of its ballistic missile technologies. It seems also uncertain how NATO's dissuasion strategy relates to the implementation of its missile defence plans—whether NATO and the U.S. would push towards the implementation of their current plans by 2018 to demonstrate their commitment to tackle any future threat from the south, even if the development of a ballistic missile threat may be slower than expected, or whether NATO, and especially the U.S., will synchronise the implementation of their plans with intelligence assessments of the progress of the ballistic missile threat, sending the message to any potential adversary that its actions will always be timely matched by the U.S. and NATO.

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50 "Deterrence and Defence Posture Review", *op. cit.*, par. 18.

51 "Remarks of Frank A. Rose, Deputy Assistant Secretary, Bureau of Arms Control, Verification and Compliance, at the Royal United Services Institute (RUSI) London, United Kingdom June 12, 2013", U.S. State Department, www.state.gov.

52 See: Transcript from Panel Discussion on European Missile Defense Architecture, The United States and Global Missile Defense Conference, Atlantic Council, 12 March 2013, p. 30.

53 W. Lorenz, P. Elman, "NATO Solidarity with Turkey Gives a Boost to the Alliance's Territorial Defence Guarantees", *PISM Bulletin*, no. 3 (456), 7 January 2013.

## Conclusions

The debate about the role of missile defence in the overall mix of capabilities was the first in-depth NATO discussion about contribution of missile defence to deterrence. It was unique in its complexity and variety of perspectives. NATO's position required the achievement of consensus among 28 countries with diverse interests and perspectives. NATO members succeeded in elaborating the joint language, notwithstanding some contradictory initial positions.

The NATO members' consensus included in the Deterrence and Defence Posture Review reflects a very cautious approach to the role of missile defence in its overall deterrence posture. In the eyes of the allies, missile defence's deterrence value:

- remains a matter for the future;
- is uncertain as it depends upon the reliability of future capabilities;
- will not be universal as it will be relevant only to adversaries with limited ballistic missile arsenals;
- will not be independent, only complimentary to the deterrence role of nuclear forces;
- will be lower in the hierarchy of deterrence capabilities in comparison to not only nuclear but also conventional offensive capabilities;
- will be dynamic and difficult to sustain rather than static and taken for granted.

In addition, NATO members did not exclude that missile defence may contribute to overall deterrence posture by playing a reassurance role in terms of a demonstration of the U.S. commitment to European defence and by signalling NATO resolve in regional crises. The dissuasive effect of missile defence, while problematic, might be a topic of future discussions.

Importantly, the NATO allies did not answer the question that in fact led to NATO's debate about the role of missile defence in deterrence. DDPR does not provide an unequivocal response whether missile defence could in any way lead to a reduction of NATO's reliance on non-strategic nuclear weapons. NATO members decided that ambiguity better serves NATO cohesion. Absent any progress in NATO–Russia talks on transparency, confidence-building and reciprocal reductions of non-strategic nuclear weapons or a strong push within the Alliance on unilateral NATO steps, this issue will go back on NATO's agenda during talks on the next Strategic Concept around 2020. Of course, such a renewed debate on the contribution of missile defence to deterrence will take place only if currently planned missile defence assets would be in place.

# The Traps of Burden Sharing: The (Doomed?) Case of the NATO Missile Defence Project

Marcin Terlikowski

There has always been somewhat of a problem with burden-sharing in the North Atlantic Alliance. In such an asymmetrical organisation as NATO, in which the U.S. is not only a clear political leader but a centre of military power, the equal distribution of the burden has never really been possible. Ideas for how to better balance American and European commitments to the Alliance have a long history. One of the most recent, and the most promising, is the NATO Missile Defence project. Aiming to equip the Alliance with territorial missile defence capability, it is bound to amalgamate various national contributions into a single system, testifying to the burden-sharing concept in practice. This article briefly describes the particular features of the NATO MD project that make it a potentially successful burden-sharing exercise. It argues that the potential for this remains unexploited because of the weak commitment of European NATO allies. Next, it analyses the obstacles on the way to its full implementation, indicating strategic, economic, operational and technical issues. This way it aims to answer the question of what would be required to renew the burden-sharing policies within the Alliance.

## The Embedded Imbalance: Burden-sharing in NATO

From the very moment of NATO's inception, the U.S. accepted the need to pay a premium for providing its European allies with—extraordinarily costly—defence and deterrence. Motivated by geostrategic reasons, America was at that time willing to pay a high price for keeping Western Europe democratic and able to withstand the pressure of the Soviet Union. It's needless to say that Europeans were more than happy to accept the U.S. as the virtual sponsor of NATO. Nothing has changed the European assumption that the U.S. is determined to invest in NATO: not the evolution of the American approach to European security, which started even during the Cold War, not the rising European ambitions to be more independent in security and defence policy, epitomised best by attempts to build genuinely European military capacity, first within the Western European Union and then in the EU, and finally, not the soaring costs of modern defence equipment and operations.

In such a setting, the burden-sharing debates in NATO had a very specific dimension. Namely, the economic or operational significance of projects proposed to balance the U.S. and European contributions to NATO were far less prominent than their political weight. It couldn't be any different. Ever since NATO was born, the U.S. has been outperforming its European allies with regards to defence expenditures by an average ratio falling at around 70:30, including over the last two decades after the end of the Cold War.[1] Joint capability development projects were also possible thanks to U.S. political and technological leadership, as were live exercises. However, it was the post Cold-War operations that ultimately gave evidence of the weakness of NATO's European caucus. From the very first NATO mission in Bosnia in the mid-1990s through the ISAF operation in Afghanistan and to the recent aerial intervention in Libya, American military capabilities have formed the core force and enabled all of those missions. In the context of NATO operations, the burden-sharing discussions have been merely about convincing

[1] See, e.g., J. Becker, "Strategic Culture and Burden Sharing in NATO: False Friends?", The United States Air Force Institute for National Security Studies, 2012, www.usafa.edu/df/inss/researchpapers.cfm.

Europeans to provide political support to allow stronger legitimisation operations, and at least basic capabilities ("boots on the ground"), which could ease strained U.S. forces.[2]

A good illustration of the distorted burden-sharing practice in NATO is the case of U.S. tactical nuclear weapons deployed in Europe. Stored in selected American bases in Europe, in case of a conflict they were meant to be used by European Allies, operating under a single NATO chain of command. This way, America would have provided the core capability (namely the B-61 nuclear, free-fall bombs) while the Allies were "taking the burden" of delivering it to the selected target by providing so called dual-capable aircraft. Further, they accepted the fact that their bases would be hit by Soviet forces in the early phase of a potential conflict precisely because they hosted the nuclear bombs.[3] However, the operational significance of the "nuclear burden-sharing" initiative was questionable even during the Cold War—delivering nuclear weapons on aircraft in conditions of a full-scale war was utterly difficult, compared to missiles and rockets. But, doing so was a political vehicle, showing that NATO's non-nuclear Allies were ready to share the "burden" of keeping NATO a nuclear Alliance. After the fall of the communist bloc, U.S. tactical nukes became a true relic of the Cold War, but surprisingly enough, their political significance has been kept high, particularly by Central and Eastern European NATO members.[4] It is worth noting that these political factors were cited by the U.S. as justification for allocating funds for the upgrade of the B-61 bombs (the so called Life Extension Programme), with a cost of up to $10 billion.[5] This illustrates best how a specific model of politically motivated burden-sharing has been rooted in NATO's thinking on distributing the costs of common defence.

In this context, it does not come as a surprise that the original idea of equipping NATO with missile defence had an insignificant burden-sharing dimension. The ALTBMD project (Active Layered Theatre Ballistic Missile Defence) assumed that a number of Allies will plug-in their national assets (radar, land- and sea-based shooters, etc.), both existing and under development, to create theatre-based missile defence capacity.[6] The key goal of the project was to make all national elements interoperable and linked with a common command-and-control system.[7] The initiative, endorsed back in 2004 at the Istanbul Summit, has had a hard time. One of its components, meant to be a flagship of U.S.–European defence industrial cooperation, and therefore a re-interpretation of the burden-sharing concept, was the MEADS air- and missile-defence system, developed jointly by the U.S., Germany and Italy. Its spectacular failure following the pullout of the U.S. and, consequently, other partners, from the project is itself a vivid illustration of the burden-sharing problems within the Alliance and a testimony to the political insignificance of the ALTMBD project (the MEADS was meant to be the most modern system plugged into the common NATO MD infrastructure).[8]

The ALTBMD surfaced on the radar of political leaders only when it was proposed by the U.S. in 2009 to "upgrade" it to perform a task of not only theatre but also territorial missile defence. The change would require additional investment into the ALTMBD C2 system, the U.S.-provided sea-based Aegis BMD (largely Arleigh-Burke class destroyers) and future Aegis

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[2] For more, see: E. Hallams, B. Schreer, "Towards a 'post-American' alliance? NATO burden-sharing after Libya", *International Affairs*, vol. 88, no 2, 2012, pp. 314-318.

[3] See: K.-H. Kamp, "NATO's New Nuclear Consensus", in: "A Problem Deferred? NATO's Non-Strategic Nuclear Weapons after Chicago" [H. Chalmers, M. Chalmers, A. Berger eds.], *Whitehall Report,* April 2012, p. 7.

[4] For more, see: Ł. Kulesa, "Reduce U.S. Nukes in Europe to Zero, and Keep NATO Strong (and Nuclear). A View from Poland", *PISM Strategic File*, no 7, March 2009.

[5] J. Lewis, "A Steal at $10 billion", *Foreign Policy Blog*, 5 September 2012.

[6] The primary ALTMBD task is to protect NATO forces deployed for operations: "Media Fact Sheet—NATO Active Layered Theatre Ballistic Missile Defence (ALTBMD)", August 2011, www.nato.int.

[7] See: D. Kiefer, "ALTBMD", 2011 Integrated Air and Missile Defence Conference materials, available at www.dtic.mil.

[8] "Germany will not pursue MEADS", *Reuters*, 16 February 2011.

Ashore systems and additional European contributions.[9] This way, a merely interoperability-oriented ALTBMD initiative evolved into a strategic project of the whole Alliance. As some began to put it, the NATO MD project could have become a new transatlantic "glue", replacing the nuclear-sharing agreement. And this link itself is an interesting testimony to the political grievance of the latter project.[10]

## Flexibility as Panacea for Burden-sharing Problems?

In theory, the currently planned architecture of the allied missile-defence capability responds well to the demands of a successful burden-sharing project. The chief reason is that already by design the project amalgamates different dimensions of burden-sharing: economic, operational and political. Already its two core elements illustrate this particular feature: while the U.S. individually provides Aegis BMD and future Aegis Ashore systems (both within the so called European Phased Adaptive Approach, or EPAA), the command-and-control backbone (i.e., the "upgraded" ALTBMD C2 system) will be a joint effort, funded from a common budget. This way, the American national contribution is balanced against a NATO-wide effort.[11] Even if in economic terms the U.S.-provided elements of the system are far more expensive then the C2 backbone, both are equally important in operational terms. In other words, the imbalance in the economic contribution to the project is countered by the equal operational importance of the contributed assets.[12]

Further, the planned architecture of the system allows member states to freely choose the form of their contributions and, thus, enables more tradeoffs in terms of burden-sharing. Choosing to contribute with new or upgraded assets, some Allies might prefer to take on more of an economic burden now, and—in the future—possibly also bear the political costs of being involved in the system. This is precisely the case of the Dutch idea to modernise their frigates' radars so they can be linked with the Aegis BMD system.[13] Some other Allies might choose to accept more of a political burden than an economic one, namely, by making available national facilities for elements of the NATO system. This is the case for Turkey, which has declared it will host American radar that will provide additional data for the Aegis BMD/Aegis Ashore systems.[14] Further, Poland, Romania and Spain have declared their intent to host other U.S. facilities—respectively, a land-based interceptor battery, additional radar, and a harbour for Aegis BMD-equipped destroyers.[15] Finally, if the concepts of such things as a joint pool of interceptors or upgrading both radar and the launch batteries on German and Spanish frigates to

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9 For more, see: R. Knops, "Missile Defence: The Way Ahead For NATO", report for the NATO Parliamentary Assembly, October 2011, pp. 2 -5, www.nato-pa.int.

10 See: T. Flockhart, "Hello Missile Defence, Goodbye Nuclear Sharing?", *DIIS Policy Brief*, Danish Institute of International Affairs, November 2010.

11 The EPAA originally consisted of four phases, with Phase 1 being merely a deployment of Arleigh-Burke class destroyers in the Mediterranean sea combined with building the early joint-C2 system. For more, see e.g., S. Pifer, "Missile Defence in Europe Cooperation or Contention?", *Arms Control Series Paper*, Brookings, 8 May 2012, p. 11, www.brookings.edu.

12 Actually, the European NATO members are likely to cover most of the C2 system, since it is funded from the NATO Security Investment Program, to which the U.S. provides only around a quarter of the funds. J. Durkalec, *op. cit.*, p. 67.

13 The Netherlands will modernize the "Smart-L" radar system based on its De Zeven Provinciën class frigates so it can feed data to the Aegis BDM system. See, e.g., "Enhancing NATO's Missile Defence", NATO Press Release, 13 March 2012, www.nato.int.

14 This is AN/TPY-2 early-warning, ground-based radar, which allows for early detection of a ballistic missile launch and tracking. See, e.g., "Malatya's NATO radar site formally declared operational", *Today's Zaman,* 1 March 2012.

15 For a more detailed outlook of proposed European commitments to the NATO MD system, see: J. Durkalec, "NATO Missile Defence: In Search of a Broader Role", *Polish Quarterly of International Affairs*, no. 1/2012, pp. 66–69.

let them use SM-3 missiles are implemented, the participating states would take on much more of an operational burden than they do by just operating sensors.[16]

All in all, the MD project might allow more burden-sharing within the alliance. Even if it were limited to a situation in which the core job of developing the missile defence technology and deploying its backbone (the Aegis BMD/Aegis Ashore) were done by the U.S., the total economic, operational and political weight of other allied contributions would likely be perceived as balancing the American commitment, at least at the political level.

This, however, would require not only completion of the already planned elements of the system but also adding extra, European-provided assets to the system. And this is precisely the biggest challenge for the NATO MD project, leading to question about its chances to become a successful burden-sharing exercise. What limits the likelihood that the system will significantly grow with additional European contributions is a combination of strategic, economic, technological and operational factors. Altogether they negatively affect the motivation of governments to join the common MD system and, consequently, jeopardise its future as an example of a burden-sharing project.

## Strategic (Mis)Perceptions

To start with, a dwindling perception of the strategic need to deploy an MD system is one of the key barriers to its development. It's needless to say that up until recently MD was a contentious issue within NATO.[17] While the U.S. had been pushing for the development of the system, many NATO members saw no strategic rationale behind it. Perceived by the U.S. as a crucial answer to the missile and nuclear programs of "rogue states" (with Iran and North Korea at the forefront), MD became an iconic project of the of G.W. Bush administration. At the same time, a large group of European NATO Allies considered the threat relatively distant and supported the U.S. either for reasons of solidarity (as did the United Kingdom, Netherlands, Denmark and Norway) or mainly because of vested national interest in having American military assets deployed on their territories, which was seen as an additional security guarantee (Poland, Czech Republic).[18] As other states, such as France or Germany, did not hide their reluctance towards joining the U.S. plans, there was no political room to make the project common, and it was considered merely "a substantial contribution to the protection of Allies from long-range ballistic missiles" proposed by the U.S.[19]

With the change of the system's architecture announced by U.S. President Barack Obama in 2009, the U.S. shifted from a focus on the technical and operational aspects of the project (how to intercept ballistic missiles in various scenarios) to cost-efficiency and the evolution of the threat itself (how to respond to the current Iranian missile capability). Because of this, the dynamics of the discussions changed utterly: the threat perception and cost-effectiveness became central issues. With that, critics of the MD system found themselves on the same page with the U.S. administration.[20] Further the NATO factor came into play as MD

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16 T. Eshel, "Integrating European Radars with AEGIS/SM-3 Missile Defenses", *Defense Update*, 11 March 2013.

17 See, e.g., O. Meier, "Europeans Split Over U.S. Missile Defense Plans", Arms Control Association, April 2007.

18 See: C. McArdle-Kelleher, S. Warren, "An Ambivalent Bush Legacy: Missile Defense Systems in Europe", Watson Institute of International Studies, Brown University, August 2008.

19 "Bucharest Summit Declaration Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Bucharest on 3 April 2008", item 37, www.nato.int.

20 This change is illustrated best by the joint declaration from the NATO 2010 Summit in Lisbon, which stated that the development of the MD system will "[take] into account the level of threat, affordability and technical feasibility, and in accordance with the latest common threat assessments agreed by the Alliance". "Lisbon Summit Declaration Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Lisbon", 20 November 2010, item 36, www.nato.int.

gradually morphed from an American national undertaking to a common tool for defending Allied territories from ballistic missiles.

Both developments might have been initially seen as factors, which would speed up the advance of the MD system. With a more unified perception of the threat and a common, NATO-provided political framework for developing the whole program, it was almost deemed to have a successful re-launch. Instead, it has dragged on. The underlying reason has been the lack of understanding for a strategic need to deploy the system and the economisation of the debate.

True, the advance of the Iranian nuclear program makes it almost obvious that the final aim of Teheran is to build a deliverable atomic warhead. But in 2013, the NATO Allies, including the U.S., view the threat and the way it can be contained by an MD system in a much different way than was presented by the U.S. back in 2006/7. It is widely understood that a nuclear Iran would use its capacity rather to deter the West from intervention, than actually attack the U.S. or—most likely out of unlikely scenarios—its European or Middle Eastern allies.[21] With no doubt it is a disturbing perspective: Iran resorting to nuclear blackmail and threatening to use atomic weapons if the international community decided to counter its power-projection policy in the region (such as re-arming Iranian proxies, most notably Hezbollah, or blocking the Strait of Hormuz). Nevertheless, it is a different category of threat than Iranian ballistic missiles reaching targets in Europe or the Middle East.[22]

In other words, the narrative about the strategic need to deploy Missile Defence has changed utterly. While NATO Allies recognise the seriousness of the threat, they also want a cost-effective approach. And, if America, the core driver of the MD system idea, no longer believes that the threat from Iran is imminent or existential, Europeans have no reason to be more adamant about the strategic need to deploy the system.

There is also an "elephant in the room" where MD strategic implications are concerned: Russia. Despite being aware that the MD project is an exclusively NATO undertaking, some Allies would not like to see a further strain in relations between NATO and Russia as a result of the development of more robust Allied MD capacity. Unwilling to give Russia a say in the strategic and operational aspects of the project—as Moscow has proposed many times in the form of a "sectoral" missile defence concept—these Allies are at the same time wary of further jeopardising the already difficult NATO–Russia relations.[23] Consequently, they avoid a situation in which a new declaration of a significant contribution to the MD project would give Russia a reason for rhetorical attacks and accusations of attempts to contain Russia's strategic arsenal. Regardless of the fact that the MD perception as a strategic challenge is gradually waning in Russia (and the cancellation of the EPAA's fourth phase reinforced this trend), it is more than likely that Russian officials would use any new momentum in the project to increase anti-Western rhetoric. And this is something which a number of Allies would not like to happen out of a desire to keep their bilateral relations with Russia on the "business as usual" level. Consequently, the ways to constructively engage Russia in the MD project (or "re-assure" the Kremlin, as some have put it) are for some Allies as important an element of the policy towards the project as operational issues.[24]

As a result of these changes, the MD project can now enjoy universal NATO political support, but relatively little concrete commitments. It is driven more by solidarity than by

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21 See, e.g., J. L. Saaman, "The day after Iran goes nuclear: Implications for NATO", *Research Paper*, no 71, NATO Research Division, 17 January 2012, p. 3.

22 For the German position, see, e.g., M. Paul, "Missile Defense: Problems and Opportunities in NATO-Russia Relations", *SWP Comments*, no 19, July 2012, p. 7.

23 For more, see: I-N. Zyga, "NATO-Russia Relations: 'Sticking Point' or 'Game Changer'", *Working Papers*, no 2/2012, Carnegie Moscow Center, p. 8.

24 See: M. Paul, *op. cit.*, p. 4.; S. Pifer, *op. cit.*, p. 19.

strategic reasons. And most Allies are completely fine with its slow pace, seeing interim operational capability as already a success.[25]

## The Economic Dimension of the MD System

Money is another prominent factor hampering the development of MD. The dwindling defence budgets and capability cuts are a new reality in NATO and will remain a driver of security policies for the Allies for years to come.

In theory, the MD project seems to be well-tailored for austerity-era defence policy. What makes it a particularly attractive joint-capability development exercise is both its flexible forms of participation by individual allies (plugging in existing assets, developing new ones, making available national infrastructure for system elements, etc.) and partial funding from a common budget (the C2 backbone system). Precisely for this reason it has been chosen by NATO as a flagship of the "smart defence" initiative, which aims to draw on collaborative endeavours to boost overall Allied defence capacity.[26] Nevertheless, there are some immanent features of the programme that make its economic feasibility questionable in the current budgetary situation.

First of all, there is no cheap and easy way to plug concrete new assets into the MD system. Its current architecture is designed to allow European-provided additional sensors and effectors (launchers) to complement the U.S. national system, Aegis. But these potential European contributions, or capabilities, largely do not exist. They need to be either built or developed, or seriously modernised, to be interoperable with existing elements of the American systems. Both options mean investments into new sensors (as with the French early-warning Spirale satellite system, developed for national needs but made available for NATO BMD), an upgrade of existing weapons platforms (the Dutch frigates), or a common pool of interceptors (a recent proposal by NATO's Industrial Advisory Group).[27] How difficult it may be to persuade countries hit by austerity to invest more in MD is best illustrated by the failure of early proposals to develop European alternative launchers that could supplement existing U.S.-made SM-3 missiles.[28]

There are two chief reasons that make governments reluctant to spend money on an MD system. The very basic issue is, obviously, the noted lack of readiness to acknowledge the imminence of the missile threat from the Middle East and its existential character. Consequently, any investment in the MD project is largely seen by Allies as non-critical for their security, and, as such, is prone to drop off the agenda of necessary expenditures, withering under the pressure of austerity policies.

The second problem is the narrow perspective for industrial benefits from participation in the project. In the early days of the MD project, it was sometimes presented as one of several means to reinvigorate transatlantic defence industrial cooperation and bring more balance into the mostly one-way street in defence trade between the U.S. and Europe.[29] Concepts of

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[25] It was declared at the 2012 NATO Summit in Chicago. See: "NATO declares interim missile defence capability", NATO Press Release, 20 May 2012, www.nato.int.

[26] M. Terlikowski, "Not as Smart as It Could Be: the NATO Smart Defence Initiative—Chicago and Beyond", *PISM Strategic File*, no 22, May 2012, pp. 1–2.

[27] See: J. De Jonge, "European Missile Defence: A Business Case for Transatlantic Burden Sharing", *CEPA Issue Brief*, no. 129, 30 April 2013, p. 2, www.cepa.org.

[28] France, which has by far the most developed missile industry in Europe, has calculated that developing an AEGIS BMD-like system would cost at least €2.5 billion and require a 10-year long investment programme. At the same time, the U.S. is spending yearly around €9 billion for all components of its MD system (not only the Aegis system). J. Zamenick, "Obama's European Missile Defense Strategy: Will France Play Nice?", *The Monitor*, Winter 2010, pp. 37–38.

[29] S. Lunn, "NATO and Territorial Missile Defense: A 'No Brainer' or More Questions than Answers?", *Transatlantic Missile Defence*, Atlantic Council, November 2010, pp. 3-4, www.acus.org.

developing alternative European interceptors, sensors or even platforms for carrying them were discussed as those elements of the project that were particularly worth examining. Yet, nothing suggests that there will be any outcome of those discussions, and European industrial involvement in the MD project will be much limited.[30] The reason is that developing new interceptors, sensors or—particularly—platforms was assessed as economically not feasible.

Any potential European government that would invest in the development of, for example, a new interceptor for the NATO MD system would inevitably seek not only operational and political benefits from having a concrete contribution to an Alliance-wide project (and, most likely, also new capability for its national needs), but it would also count on business benefits for its defence industry. These would stem from both technology transfer (implied by the need of interoperability with the American-made Aegis BMD system) and potential further sales to third countries.

For the MD system, neither option is, however, likely. The U.S. has been traditionally reluctant to transfer cutting-edge technologies anywhere, including to its European Allies. And if it eventually agreed, it would most likely limit the options to use and/or develop its missile-defence technologies in other, European-made weapons. Thus, any European element of the MD system would have to be developed in close partnership with American companies, and—most probably—under their technological leadership. Further, even in such cases the export market for this kind of state-of-the-art missile defence system, or even its components, is very limited. It is important to remember that the Aegis SM-3 system was developed precisely to intercept ballistic missiles and designed to address U.S. operational and technical requirements. It's needless to say that this kind of capability is not yearned for by many governments, for both cost and political reasons. At the same time, there is an abundance of cheaper and equally effective air- and missile-defence systems lacking the upper-tier intercept capacity. All in all, the very architecture of the MD system prevents it from becoming a common U.S.–European defence industrial exercise and a genuinely common capability development project.

## Too Little Faith in Technology?

Finally, there are operational and technical issues that limit the willingness of governments to contribute to the MD system. First is the perception that the technology is neither mature nor combat-proven. Despite a multitude of tests, of which a significant number have ended with success, the Aegis BMD system has not earned universal recognition as an effective counter-missile system. Particularly, experts point out its arguably limited efficiency against the new generation of missile threats and salvo attacks. The technologies that might allow re-entry vehicles to mislead the interceptor are in the reach of an increasingly larger group of states. Multiple and manoeuvrable re-entry vehicles, decoys and stealth technology are the biggest challenges for the system in its current stage of development. To make it effective against these countermeasures would mean further investments.[31] The other challenge is salvo attack—it remains uncertain how the system would react in case of a coordinated attack of a number of missiles, launched from different azimuths. Whereas this perspective is remote, it leads to a final operational problem—the limitations of territorial coverage of the system.

The effectiveness of the NATO MD system depends not only on the number of interceptor-carrying platforms, but on the sensors. It is rarely discussed that fully effective defence of the whole territory of European NATO members will be ultimately contingent on the

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[30] B. Kreienbaum, "European Missile Defence Architecture - a chance for European and Russian Defence Technologies", speech presented at the 2012 RUSI Missile Defence Conference, London, May 30–31, 2012, www.rusi.org.

[31] For more about the economic feasibility of missile defence in the salvo attack scenario, see: "Next steps in missile defence", *Security and Defence Agenda Report*, 27 September 2012, p. 7, www.securitydefenceagenda.org.

deployment of additional radars and sensors, in addition to what has been planned as the U.S. contribution within EPAA. Without these European assets—which are often mistakenly seen as unnecessary—the operational effectiveness of the NATO BMD system might be easy to challenge. In other words, by not providing additional sensors, the Europeans decrease the potential operational effectiveness of the system. At the same time, the issue of efficiency of the system in a real operation is precisely what prevents governments from contributing more concrete assets. Thus, the whole MD project is locked in a vicious circle. To break it would require a change in approach to missile defence as such and additional money for investments. Neither is likely in the coming years.

## Conclusions

The NATO MD project has been designed as one of the most advanced burden-sharing initiatives the Alliance has ever attempted to launch. What makes it unique is the flexibility of the commitment forms and the relatively equal operational value of both the American and potential European assets contributed to the system. If implemented fully, the MD project could indeed serve as a new transatlantic "glue", making U.S. and its European Allies work hand-in-hand to protect NATO territories from ballistic missile threats. Whereas the previous burden-sharing endeavours in NATO, such as the nuclear-sharing project or the efforts to have more of a European commitment to Allied operations, have brought mixed operational results, and their significance was mostly political, the MD project could become the very first operationally successful case of burden-sharing.

Nevertheless, the chances for that are limited, at least in the current situation. Burdened with the legacy of the G.W. Bush national Missile Defence initiative, these efforts have to cope with the problem of a lack of real understanding of its strategic significance and, consequently, commitment from the European Allies. It is not only scepticism with regards to the Iranian threat to Europe that limits the contributions. Neither is it only the Russian factor, which, though, makes many European states still think about ways to involve the Russians in the MD project rather than debate the operational and strategic modalities of the system itself. The chief reason is the economy and the American "pivot" to Asia. The Europe-wide austerity bounds the hands of the NATO Allied military planners, which are literally prevented (often in legal form) from making any new investments unless there is a strong economic case, i.e., the government may lose more money on stopping a given project than if it continues with covering it. Not seen as a crucial strategic endeavour, the NATO MD project lacks a strong industrial dimension, such as technology transfer or export opportunities, which usually force governments to keep such multinational projects running (see the case of the Eurofighter or F-35 Joint Strike Fighter).

The underlying reason for the European lukewarm approach to MD is, however, the profound change of the American approach to European security. Although many may argue that there is no such thing as a U.S. pivot to the Pacific and that America will always be committed to European security, the reality is different. Again, it is austerity that forces the U.S. to choose strategic priorities, and Europe—relatively secure—is not among them any longer. With that, the American commitment to the MD project—as perceived in Europe—is far from sure, despite continuing assertions from the U.S. side. The cancellation of the EPAA's fourth phase, which involved deploying American MD assets in Europe tasked to defend U.S. soil from ballistic missiles (no matter how reasonable the arguments were) has only added a new layer of mistrust in U.S.–European relations. Unless there is a new transatlantic "compact" that would define new mutual obligations and expectations of the U.S. and its European NATO Allies (or nuclear and missile technology proliferates even further across the Middle East, which cannot be excluded given the political turmoil in the region), the MD project is very likely to remain limited to the existing contributions. If this is the case, its potential for being a burden-sharing initiative will never be exploited.

# Proliferation, Missile Defence and Deterrence in the Middle East: New Arms Race or Stabilisation of the Region?

Marcin Andrzej Piotrowski

The Middle East is the source of many threats, from existing arsenals of ballistic missiles with conventional warheads to a few countries that also have unconventional warheads. The lack of transparency in defence doctrines by Middle East countries is complicating any analysis of missile defence in the region. Currently, only Israel possesses nuclear weapons and advanced antiballistic and counter-rocket defences. Prospects for the nuclearisation of Iran are increasing the risk that Saudi Arabia will pursue a similar arsenal and that multipolar nuclear deterrence among these two countries and Israel will result. The region will remain unstable, however progress on missile defence in Israel and the countries of the Gulf Cooperation Council (GCC) might be a stabilising factor in any future crisis initiated by Iran.

## Uniqueness of the Middle East and North Africa

Apart from the changes caused by the Arab Spring of 2011, the Middle East has always been the centre of international interests. This situation is tied to many internal and inter-state conflicts. The changes of subsequent Arab regimes could re-arrange relations among them and change the strategic map of the region. The countries of North Africa and the Persian Gulf are left without a multilateral architecture of regional security that could regulate issues of arms control. These problems and the ambiguity or secrecy of defence policies in the region are complicating research on nuclear deterrence relations in the Middle East as well as the exact role of missile defence.[1]

The majority of countries in the region are signatories of global agreements (NPT, CTBT, BWC and CWC), but this has not prevented some of them from amassing arsenals of mass destruction. Many of them are seeing their neighbours as enemies and questioning the arbitrary state boundaries drawn after 1945. Military expenditures are serious burdens for the national economies of all countries of the region. Global reserves of oil and natural gas situated within "the arc of instability" are engaging external actors, especially the U.S., EU, Russia and China. These same actors are also the main suppliers of military equipment for the countries of region. Although the majority of these countries have traditional ties with the West, they are also constantly growing their strategic interdependence with Far Eastern countries.[2]

Ballistic missiles in the Middle East became instruments not only of conventional and unconventional deterrence but also weapons on battlefields. The region has experienced many instances when these weapons were used. Missiles were introduced in the '60s and '70s to the armed forces of the countries, which at this time were allies of the U.S. and USSR. First-time ballistic missiles were used by Egypt and Syria (SRBM Scud and FROG) against Israel in 1973 and then without success by Libya against the NATO base on Italian Lampedusa Island (two Scud-Bs) in 1986. The most widely used missiles, Scuds, were launched during the Iraq-Iran war, especially during the so called War of the Cities (1986-1987).[3] Serious implications were

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[1] Israel, despite its traditions of democracy and civilian control over military, is no exception from other countries.

[2] About changing geopolitics of region see: G. Kemp, *The East Moves West. India, China, and Asia's Growing Presence in the Middle East*, Brookings Institution Press, Washington, D.C., 2010.

[3] Iraq imported and modified Scuds from China, Egypt and the USSR, and Iran received its missiles from Libya, Syria and the DPRK.

tied the use of 90 Scuds by Iraq against Israel, Saudi Arabia and Bahrain in 1990. Ballistic missiles and tactical rockets were also used during the Yemen civil war in 1994.[4] Iran started to build its own ballistic missile arsenal and used it against bases of the armed opposition of the People's Mujahedeen located in Iraq (the last time was in 2002). During the invasion of Iraq in 2003, this country again used its missiles against its neighbours and the forces of the U.S. in the region. The Middle East is also the first region in which non-state actors used intensive attacks with tactical rockets. These were used against Israel by Lebanese Hezbollah in 2006 and HAMAS in 2008 and 2012. Also, the Syrian civil war has seen arsenals of FROG and Scud missiles used by the government of Syria against the opposition and civilian population (2012-2013), resulting in the deployment of NATO Patriot batteries in Turkey.[5]

Ballistic missiles are adding a dangerous dimension to Middle Eastern conflicts and are conducive to the escalation of any crisis, usually with consequences for the whole region. This might be illustrated by the takeover of command of Iran's naval forces by the Revolutionary Guard Corps in 2008, with accompanying incidents involving U.S. Navy vessels that almost caused an Iranian–American conflict.[6] Regularly repeated Iranian naval exercises in the area of the Strait of Hormuz have had a clear impact on the global market of oil. The tactical rockets used by Hamas also caused a rapid escalation of military crises with and retaliation by Israel.

The short distances between the capitals of the Levant and the Gulf complicate any missile defence and civil defence planning, which should be able to react to immediate warnings. Population and strategic infrastructure are located within and close to these capitals and even a single ballistic missile with a nuclear warhead might cause irreversible damage. Ballistic missiles are eliminating the illusion of distance between Israel and Iran, currently the region's main rivals. Technological progress and the growing ranges of Middle Eastern ballistic missiles are revealing the illusion of distance between the region and Europe, and in the near future even to U.S. territory.[7] In this complicated context, it is not surprising that since the '90s leading experts and advocates of missile defence in Israel have seen it as a stabilising factor in any military crises in the region, potentially limiting them or defusing them in more dangerous situations.[8]

## State of Proliferation of Unconventional Arsenals in the Region

Ballistic missiles are the most preferred delivery means for conventional as well as unconventional warheads in the Middle East. From the point of view of a country with ballistic missiles and potential victims, even missiles with conventional warheads are strategic forces. Investing in missiles is cheaper than building advanced air forces, with their potential for a high attrition rate of aircraft and pilots in any conflict. This preference for ballistic missiles is caused by their technical and military parameters. They are especially attractive for countries with less advanced military doctrines because of their:[9]

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[4] See: M. K. Said, "Missile proliferation in the Middle East: A regional perspective", *Disarmament Forum*, no. 2, 2001, pp. 49-61.

[5] See: M.R. Gordon, Eric Schmitt, "Syria Fires More Scud Missiles at Rebels, U.S. Says", *The New York Times*, 20 December 2012.

[6] The U.S. and Iran have been without normal diplomatic relations with Iran since 1979, and Tehran has rejected approaches by U.S. CENTCOM to open a "hotline" to avoid future similar incidents in the Gulf.

[7] See this point in: I. O. Lesser, A. J. Tellis, *Strategic Exposure: Proliferation Around The Mediterranean*, RAND Corporation Arroyo Center, Santa Monica 1996.

[8] See: U. Rubin, "Missiles and missile defence in the Middle East: A regional view", *RUSI Journal*, October 1997, pp. 74-75.

[9] Compare: A.W. Hull, *Role of Ballistic Missiles In Third World Defense Strategies*, Institute for Defense Analyses for Strategic Defense Initiative Organization, Alexandria 1991, pp. 6-12, with A. Karp, *Ballistic Missile Proliferation. The Politics and Technics*, Oxford University Press for SIPRI, Oxford 1996, pp. 29–50.

- simplicity in terms of personnel training and operations during real-time warfare;
- ranges, which is important for attacks on military and civilian logistics targets;
- high effectiveness (destructive and psychological effects) when used with unconventional warheads and/or satellite guidance for greater accuracy;
- potential of surprise because of their high speeds and devastating warheads if there are no or only limited missile defences in the region;
- survivability and opportunities to hide them, which increase with the use of mobile launchers and silos as well as solid-propellant engines (shorter launch preparation);
- relevance to demonstrating the military might of a country, blackmailing neighbours, or building regional prestige.

There are differences in estimates of the number of ballistic missiles in the Middle East (see details in Table 1). These estimates suggest that the largest arsenals are in the armed forces of Iran, Syria and Israel, followed by Libya, Egypt and Yemen. The available information and technical estimates suggest a preference for short-range missiles (SRBMs), including a variety of models with ranges from 70 to 800 km. At the same time, it should be stressed that some countries are progressing in the technological quality of their arsenals. This is the case with Israel and Iran, which have their own space research programmes. Iran, Israel and Saudi Arabia also have medium- and intermediate range ballistic missiles (MRBMs/IRBMs). These three countries are capable of striking the majority of capitals in their neighbourhood (to 2,000-3,000 km) or even targets in Western Europe, Scandinavia, Russia and South Asia (see parameters, Table 2).

Israel has had a nuclear weapons monopoly in the Middle East for more than four decades, which is de facto accepted by the West and causes frustration for the rest of the countries in the region. Israel continues with its policy of nuclear ambiguity (no confirmation or denial that this arsenal exists), at the same time it is a member of the IAEA without being a signatory of NPT. Subsequent leaders of Israel have stressed that their country will not be the first to introduce nuclear weapons to a conflict, which suggests a no-first use rule. Apart from difficulties in the verification of information about the Israeli arsenal, it is commonly believed that it might be used only as an instrument of mass retaliation in case of an unconventional attack on Israel, the so called Samson option. It is also believed that Israel produced its first crude nuclear devices in 1967, probably conducted a nuclear test in 1979 and maybe again in 1980. Israel might have between 80 and 200 nuclear warheads now, and according to other estimates 80 warheads and fissile materials for another 120 warheads. The Israeli arsenal might be delivered by Jericho ballistic missiles (previously, also by LANCE missiles) and by bombs delivered by fleets of multipurpose long-range airplanes (F-16I and F-15I).[10] Some experts also assume that Israel originally developed in the 1980s longer-range ballistic missiles for the purpose of deterring the USRR from becoming involved in crises on behalf of the regimes in Damascus, Tripoli and Baghdad.[11]

Currently, Iran is the most serious challenge to Israel, seen there officially as an existential threat. In previous decades, Israel was guided by the so called Begin doctrine, which stipulated that it would deny the military nuclearisation of any other country in the Middle

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[10] T. McDonell, "Nuclear pursuit: Non-P-5 nuclear-armed states, 2013", *Bulletin of the Atomic Scientists*, vol. 69, no. 1, 2013, pp. 62-70. See also the different perspectives on the history of the nuclear programme and assumed strategy of Israel in chronological order: F. Barnaby, *The Invisible Bomb: The Nuclear Arms Race in the Middle East*, I. B. Tauris, London, 1989; S. Hersh, *The Samson Option: Israel's Nuclear Arsenal and American Foreign Policy*, Random House, New York, 1991; Avner Cohen, *Israel and the Bomb*, Columbia University Press, New York, 1998; Z. Shalom, *Israel's Nuclear Option: Behind The Scenes Diplomacy Between Dimona and Washington*, Sussex Academic Press, 2005; and, M. Karpin, *The Bomb in the Basement. How Israel Went Nuclear and What That Means to the World*, Simon & Schuster, New York, 2006.

[11] A.W. Hull, *op. cit*, p. 5.

East.[12] This doctrine were manifested in effective Israeli Air Force preventive strikes on reactors in Iraq in 1981 and Syria in 2007, which eliminated these countries' military nuclear programmes. The nuclear arsenal of Israel strengthens its security, similar to the preservation of its conventional forces' quality edge over its neighbours. The Israeli nuclear arsenal was also an important additional factor in motivating Arab countries to build their own nuclear weapons. This arsenal is also a central issue for Egypt and its concept of a nuclear weapons-free zone in the Middle East.[13]

Iran and Israel are progressing in the modernisation of their ballistic missile arsenals. It seems that other countries in the region will be forced to decide in this decade whether they want to join this arms race. Especially impressive is Iran's progress, according to the perception of Israel and Western countries, as it is tied closely to nuclear ambitions of regime in Tehran. According to information verified by the IAEA, Iran was working until 2003 on an adaptation of its Shahab-3 missiles to deliver payloads with a nuclear warhead.[14] The Iranian ballistic missile arsenal even now—without nuclear warheads—is perceived by Tehran as an important means of conventional deterrence and retaliation towards the U.S. and Israel.[15]

During the last decade, Iran moved from being an importer of missile technologies to a country that constructs and produces SRBMs and MRBMs, including those with solid fuel engines. Iran's progress has forced the modernisation of arsenals in Israel and Saudi Arabia, which do not want to accept a nuclear Iran. The uncertainty of the estimates is also connected with the growing risk that civilian nuclear programmes in Saudi Arabia and Egypt could be those countries' replies to Iran's steps. At the same time, Israel and the GCC are most determined to invest in the development of their own defences against Iranian ballistic missiles and tactical rockets. Some experts are also optimistic, stressing the obsolete character of the Saudis' CSS-2 missiles and low probability that similar or more advanced missiles would be delivered by China.[16]

The civil war in Syria raises many questions about the future of its chemical arsenal, which could be delivered by ballistic missiles and is probably the largest of its kind in the Middle East.[17] In the last few decades, Syria invested heavily in its chemical weapons arsenal and means of delivery. The reason for this was the need to balance the nuclear potential of Israel and its almost impenetrable air defence during the wars of 1973 and 1982. Syria has been especially interested in the very accurate SS-21 missiles and Scuds with heavier warhead payloads. With the end of Soviet-provided supplies, Syria turned to the DPRK and Iran for its newest SRBMs, potentially threatening to targets in Israel, Jordan, Turkey and Iraq.[18] Also during

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[12] See: Sh. Brom, "Is The Begin Doctrine Still A Viable Option For Israel?", in: H. Sokolski, P. Clawson (eds.), *Getting Ready For A Nuclear-Ready Iran*, U.S. Army War College, Strategic Studies Institute, Carlisle 2005, pp. 133–158.

[13] M. K. Said, "Layered Defense, Layered Attack: The Missile Race in the Middle East", *The Nonproliferation Review*, Summer 2002, pp. 37–46.

[14] See details in: IAEA Board of Governors, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran: Report by Director General*, Vienna, November 2011, Appendix, pp. 11–12.

[15] Compare statements in: "Iran Will Attack to Defend Itself: Khamenei", *Reuters*, 20 March 2012 and Office of the Director of National Intelligence, "Unclassified Statement for the Record on the Worldwide Threat Assessment of the U.S. Intelligence Community for the Senate Select Committee on Intelligence", Washington, D.C., 31 January 2012, p. 6.

[16] See: M. Elleman, "Banning Long-Range Missiles In the Middle East: A First Step For Regional Arms Control", *Arms Control Today*, May 2012, pp. 14–20.

[17] See: M. A. Piotrowski, "Potential Problems with Syria's Chemical Arsenal", *PISM Bulletin*, no. 83 (416), 12 September 2012.

[18] For more, see: *Ballistic Missile Proliferation: An Emerging Threat*, System Planning Corporation for the Strategic Defense Initiative Organization, Arlington, Va./Washington, D.C., 1992, pp. 38–39, and I. O. Lesser, A. J. Tellis, *op. cit.*, pp. 72–74.

the 1990s, Syria became a pillar of the "Resistance Front" against Israel, together with Iran and Hezbollah. The conflict in Syria may now also result in the transfers of ballistic missiles and launchers to Hezbollah, a force that already has various types of tactical rockets and is interested in ballistic missiles capable of reaching the main cities of Israel.

It should also be noted that moderate Arab regimes, such as those in Algeria, Morocco, Jordan, Lebanon, Kuwait, Oman and Qatar, have for many decades not been interested in the creation of their own weapons of mass destruction. Other positive aspects of the situation in the Middle East have been the decisions by Iraq and Libya to abandon their unconventional weapons programmes, first because of international sanctions and pressure, then by the collapse of their radical regimes. The intervention in Iraq in 2003 proved that its weapons of mass destruction programme had been halted—contrary to U.S. estimates—and that it was not an immediate threat to its neighbours.[19] Libya's arsenal of Scuds was a source of concern to its neighbours, including Israel and countries in NATO's "Southern Flank". The Qaddafi regime tried without success to buy Soviet SS-12 and Chinese CSS-2 missiles, then decided to buy North Korean Scud-Cs and work on an indigenous Al-Fatah missile with a range of more than 900 km.[20] Libya's decision in 2003 to abandon its chemical and nuclear weapons programmes also meant the end of the risk that it had the appropriate ballistic missiles to deliver those payloads. Libya decided in 2004 to transfer away its five Korean Scud-Cs, with a range of 800 km, and announced plans to reduce its huge arsenal of Scud-Bs, with a range of more than 300 km.[21] The Libyan revolution of 2011 has not resulted in a visible renewal of interest in weapons of mass destruction, however some questions about the former regime's ballistic and chemical assets remain open.[22]

## Obstacles to ICBM Progress in the Middle East

Irrespective of the ballistic missile defences in the Middle East, there are some positive factors in the region, such as the many barriers to the development of ballistic missiles arsenals there. While importing or the indigenous development of short-range missiles are relatively cheap, the development of longer-range missiles is a much more expensive and complicated enterprise. This rule is confirmed by a review of estimates of expected progress in regional ballistic missile programmes with intercontinental ranges of more than 5,000 km. The costs for these missiles are so high that after two decades only Israel and Iran had progressed in this field. Both countries were more or less successful in work on their own space launch vehicles, i.e., construction useful also in ICBM development.

Whether there was a potential threat from these ICBMs was the subject of internal debates in the U.S. Congress and both the Bill Clinton and George W. Bush administrations. In 1993 and 1995, Congress ordered intelligence estimates, which concluded that the missiles of Iran and Iraq may have ranges limited to the Middle East.[23] These conclusions were contested by Republican congressmen, who ordered two audits of the information and the methodology of

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19 See the most comprehensive documentation and analysis of U.S. intelligence knowledge and mistakes in: *The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction: Report to the President of the United States*, Government Printing Office, Washington, D.C., March 2005, pp. 45–249.

20 I. O. Lesser, A. J. Tellis, *op. cit.*, pp. 54–55.

21 See: Judith Miller, "U.S. Says Libya Will Convert Missiles to Defensive Weapons", *The New York Times*, 11 April 2004.

22 N. E. Busch, J. F. Pilat, "Disarming Libya? A reassessment after the Arab Spring", *International Affairs,* vol. 89, no. 2, 2013, pp. 451–475.

23 Compare: National Intelligence Council, *Unclassified Excerpts: Prospects for the Worldwide Development of Ballistic Missile Threats to the Continental United States (NIE 93-17)*, Washington, D.C., November 1993, and National Intelligence Council, *President's Summary: Emerging Missile Threats to North America During The Next 15 Years (PS/NIE 95-19)*, Washington, D.C., November 1995.

the U.S. intelligence community. The first audit was conducted by the Government Accountability Office (GAO), and the second by a panel of experts chaired by Robert Gates, a former director of the CIA. Because the conclusions of both audits did not satisfy advocates of ballistic missile defence, Congress in 1998 formed another panel of experts, this time chaired by Donald Rumsfeld. After reviewing all the intelligence information and estimates, Rumsfeld's panel concluded that Iraq had ambitions but was without the capability to build an ICBM. However, Rumsfeld's report also indicated that Iran had similar intentions and its potential capabilities to develop an ICBM was possible within the following five years.[24]

Rumsfeld's report also had a strong impact on the decision to build the American system of National Missile Defense (NMD). In the 2001 National Intelligence Estimate, there was a more critical and comprehensive analysis of the capabilities of Iran, Iraq, Pakistan, India and the DPRK to build ICBMs. U.S. intelligence agencies agreed in this report that with the continuation of UN sanctions and lack of foreign assistance, Iraq would not be capable of building an ICBM. U.S. intelligence also stressed the evident lack of a scientific-industrial base in Libya, and that it would only accomplish this by importing technologies from the DPRK. The American agencies presented in their common report very different estimates of the timeframe needed by Iran to build its own ICBM: some concluded that it would be impossible before 2015 without foreign assistance, while other agencies assumed this possibility before or around 2020.[25]

Later reviews of U.S. intelligence estimates in the period 2009-2010 concluded that Iran would be slower in progressing towards an ICBM and implied the priority of the U.S. and its allies should be in investments in defences against medium-range ballistic missiles (MRBMs). According to these estimates and reviews of threats, a new plan was adapted for defences within the NATO framework, namely European Phased Adaptive Approach (EPAA) and plans to strengthen the defences of U.S. allies in the Middle East.[26]

## Development of Missile Defence Capabilities in the Middle East

Threatened by potential missile and rocket attacks from various locations, Israel developed its own anti-ballistic missile and counter-rocket systems. Thanks to its own experience and research and development, Israel became a leading country in these technologies. It is conspicuous by comparing the systems developed by the U.S. and Israel and the arsenals of the U.S. and its Arab allies (see parameters, Table 3). The Israeli systems were initiated to meet the threat of Syrian SS-21s and Scuds. When Israel was the target of Iraqi missiles in 1990 during Operation Desert Storm, the U.S. deployed a few Patriot PAC-2 systems in Israel to defend against the Iraqi attacks. Unsatisfied with the effectiveness of the Patriots, Israel decided to develop its own defence systems, foreseen as "multilayered" and inter-operational with the American systems.[27] In parallel to the projected ballistic missile threats, Israel has developed and further tested radar for and modifications to its Arrow-I (Hetz-I) system since 1995.

Similar to what happened in the U.S., two schools of thought about ballistic missiles and tactical rockets formed in the 1990s in Israel. Critics and sceptics have questioned the sense of an "Israeli shield" on the basis of strategic and economic arguments since a potential enemy

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[24] See: *Report of the Commission to Assess the Ballistic Missile Threat to the United States (Executive Summary)*, U.S. Government Printing Office, Washington, D.C., July 1998.

[25] See: National Intelligence Council, "Foreign Missile Development and the Ballistic Missile Threat Through 2015 (Unclassified Summary of a National Intelligence Estimate)", Washington, D.C., December 2001, p. 4, 9-12.

[26] See: *2010 Ballistic Missile Defense Review Report*, Department of Defense, Washington, D.C., February 2010, especially pp. 4-8. This report is echoing the conclusions of intelligence estimates on ballistic programmes in Iran and the DPRK prepared during 2009.

[27] Since 2001, Israel regularly conducts the *Juniper Cobra* exercises, testing its own and the U.S. PAC batteries and including Aegis-class ships. In 2008, the U.S. also deployed its own AN/TPY-2 X-Band radar in the Negev Desert.

would always attempt to increase its advantage by launching more missiles or rockets, thus investments in a modern offensive arsenal was a better option for them than developing defensive systems.[28] On the other hand, proponents of the defensive systems stressed the growing range of ballistic missiles and progress in Iran's nuclear programme. With Israel's lack of "strategic depth" and inadequate missile defence, the threat would become serious not only to its civil population and economy but also to its strategic forces. In the view of the second camp, an effective ballistic missile defence system would enhance Israeli military flexibility, nuclear deterrence and guarantee an adequate response to a nuclear ballistic missile strike by Iran or some other country in the region that might develop such an arsenal.[29]

In the last few years, supporters of plans for an indigenous "multilayered shield" gained support amongst Israeli experts and decision-makers. At the same time, Iran became the main supplier of light missiles and tactical rockets to non-state groups hostile to Israel. During the conflict between Israel and Hezbollah in 2006, the militia fired more than 4,300 rockets and missiles, which killed 53 Israelis and paralysed the country and its economy. During Operation Cast Lead in 2008, Hamas fired 3,200 rockets and Israel lost 13 soldiers and civilians. Israel's response was to accelerate the development of the Iron Dome counter-rocket and ant-ballistic missile system. A successful test of the system took place during Operation Pillar of Defence in November 2012. In this case, Hamas fired more than 1,500 rockets and missiles, but only a third of them targeted urban areas in Israel. Almost 500 "smart" missiles were launched by Iron Dome and destroyed 421 Palestinian rockets, i.e., the effectiveness level was about 80-90% and Israel was perceived as the victorious side, as only five soldiers and civilians were killed during that conflict.[30]

Anti-ballistic missile systems gained importance in Israel's defence budget, though the majority of their development has come with help and been financed by the U.S. Almost $440 million from the American annual $3 billion in total military assistance to Israel has been dedicated to research and development and deployment of the various systems.[31] Each system is either independent of or an element of a sophisticated air, missile and rocket "shield" over the country:

- Arrow-3 was designed to be used against warheads on Iranian MRBMs and IRBMs (Shahab-3, Ghadr-1 and Sejjil-2);
- Arrow-2 was designed against Scuds from Syria and Egypt;
- American PAC-2 and PAC-3 are deployed against SRBMs and UAVs from Syria or Lebanon (and potentially also from Egypt);
- David's Sling was developed for use against SRBMs, air attacks, cruise-missiles and heavy tactical rockets from Lebanon or Syria;
- Iron Dome was deployed against Kassam and Katyusha rockets fired from Lebanon or the Gaza Strip.[32]

Israel is also studying other types of very short-range counter-rocket and anti-mortar defences. Among future options are laser systems, but these projects are still extremely expensive, so priority has been given to additional Iron Dome batteries. However, laser systems

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[28] See for instance: R. Pedatzur, "Missile defense systems won't protect Israel", *Haaretz*, 2 December 2010.

[29] Compare: U. Rubin, "Missile Defense and Israel's Deterrence against a Nuclear Iran", in: E. Kam (ed.), *Iran and a Nuclear Iran: Implications for Arms Control, Deterrence, and Defense*, Institute for National Security Studies, Tel Aviv 2008, pp. 65–81.

[30] See more about Iron Dome in: A. Patel, "Beyond the Iron Dome: Placing Missile Defense in its Regional Context", *RUSI Analysis*, 23 November 2012.

[31] See: J. M. Sharp, *U.S. Foreign Aid to Israel*, Congressional Research Service, Washington, D.C., March 2012, pp. 11–14.

[32] Initially, Iron Dome was foreseen for defence of military bases (4–5 batteries) but under pressure of Israeli public opinion it will cover also the main cities of Israel (up to 13–15 batteries).

have not been excluded in the future, when they became cheaper and more capable of augmenting the existing "shield". Another important element of the Israeli defence is an effective civil defence capable of early warning and evacuations. Israeli civil defence in synergy with the whole "shield" is able to minimise injury to the civilian population and damage to infrastructure.

In contrast to the rapid progress of Israel's "shield" are the delays and gaps in the anti-ballistic missile and counter-rocket systems of the GCC and U.S. forces in the Gulf.[33] Members of the Sunni GCC are showing their traditional hostility towards Shia Iran and are concerned about its influence in a post-Saddam Iraq. Saudi Arabia and Bahrain were threatened by Iraqi Scuds in 1990 and again with by attacks from 14 Scuds in 2003. In recent years, GCC members have come under threat from Iran and its ambitions in the Gulf.[34] Since 2006, the U.S. has been trying to promote regional military integration amongst members of the Council, including air and missile defences. The majority of the GCC's militaries have air defences (mainly HAWK systems), but it is not enough for defence against the types of missiles and rockets preferred by Iran.[35] Even with the full integration of the U.S. and GCC ballistic missile defences into one system, these countries might not be able to survive a mass, coordinated attack by Iran. As with Israel, the GCC countries need their own "multilayered shield" against parallel and subsequent salvos of more advanced missiles or rockets.[36] Also from these reasons the defences of the GCC might have been perceived by Iran for some time as being weaker and easier to penetrate than attacks on Israel or the NATO/EPAA systems.

The contours and elements of a common GCC missile defence system are slowly building up, though without Oman. After 1991, members of the GCC started to purchase American PAC-2 batteries—first Saudi Arabia (two or three batteries with 761 missiles), then Kuwait (five batteries with 210 missiles). During 2008-2010, these same countries also received U.S. government approval for modernised radar and purchases of the newest PAC-3 missiles, which can be used on the PAC-2 launchers. Kuwait ordered 209 missiles and the UAE 288, while Qatar ordered three batteries with 246 PAC-3 missiles. In this same period, American companies also began negotiations with members of the GCC about the modernisation of their PAC batteries. For many years, the main obstacle to the interconnection of these national batteries into one defence system was the reluctance of some countries to share sensitive information with their neighbours in real time. During the last few years, this attitude has changed. With delivery of the first batteries of the THAAD system to U.S. Army, new opportunities opened for selling them to the UAE and Bahrain, which are first likely users of the system outside of the U.S. Currently, the Emirates is also interested in buying two THAAD units with 96 missiles and two AN/TPY-2 radar installations for $3.5 billion.[37]

The UAE and Qatar are also crucial to the American plans for interoperability between the systems in service among GCC members and U.S. Central Command (CENTCOM). The CENTCOM strategy foresees the permanent deployment of two additional batteries of Patriots to Saudi Arabia, Bahrain, Kuwait and Qatar. Full integration of the CENTCOM and GCC

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[33] Turkey is in a similar situation, however it also foresees the need for protection by the NATO/EPAA system.

[34] See: "GCC states fear Iranian nuke, regional war", *Defense News*, 24 April 2006, and "Iranian Threat Drives GCC Military Plans", *Defense News*, 5 November 2007.

[35] See more detailed analyses of the GCC members' security in: Michael Knights, *Troubled Waters: Future U.S. Security Assistance in the Persian Gulf*, Washington Institute for Near East Policy, Washington, D.C. 2006.

[36] Iran, with its short distances between coastlines within the Gulf could at the same time use heavy tactical rockets for deception and disruption of the whole GCC defence systems as well as ballistic missiles and cruise missiles against selected targets.

[37] These plans are scaled-back from 2007, when the UAE wanted to buy three THAAD units with 147 missiles for $7 billion see: J. Binnie, "Gulf states request more ballistic missile defense systems", *Jane's Defence Weekly*, 6 November 2012.

systems would also reduce the need for the permanent and robust deployment of U.S. forces in these countries, while also strengthening the role of U.S. Navy vessels. U.S. ships (currently one or two Aegis-class cruisers) would be needed to defend against Iranian salvos of Shahabs. Integration of the Gulf and U.S. systems would also be supported by American AN/TPY X-band radar in Qatar, synchronised with identical radars in Turkey and Israel.[38] Completing these plans in the near future would mean that GCC and CENTCOM assets would be protected by a more effective mix of PACs, THAAD and Aegis systems against missiles, but quite probably without any counter-rocket systems for the next few years.

## Risk of Nuclear Multi-polarity in the Middle East

The progress of the Iran's nuclearisation in recent years presents many dilemmas and challenges for nuclear deterrence planning by the U.S. and Israel. There is a lack of comprehensive and satisfying analyses of the role of missile defence depending on the direction of events with Iran. The Iranian strategic calculus is the subject of much analysis and speculation, including to what extent its nuclear weapons might help it change the regional status quo. Among analysts, there is an unresolved dispute about the impact of a nuclear Iran on the stability or instability of the region. The leading proponents of "nuclear optimism" argue that the nuclear dyads (Israel-Iran, Israel-Saudi Arabia, and Iran-Saudi Arabia) will be relying on tested rules of deterrence. They also suggest the rationality of a nuclear Iran and imply it will have lower risks for conflicts in the Middle East.[39] On the other hand, "nuclear pessimists", including the government of Israel, think that a nuclear Iran will be hard to deter, and it might cause more proliferation and an uncontrolled escalation of every crisis in the region.[40]

The current U.S. administration is stressing its disagreement with a nuclear Iran, however there are many indicators of an American preference for a strategy of "extended deterrence" or "active deterrence" towards Iran. According to the *2010 Nuclear Posture Review*, the U.S. will be working on a dialogue with its regional allies on a credible and effective deterrence of any potential aggressor. Elements of enhanced deterrence might include U.S. nuclear forces and the superpower's cooperation with allies on missile defence.[41] However, this American strategy is not based on automatic security guarantees or nuclear retaliation against an aggressor. It is also officially coherent with and augments Obama's idea of nuclear "Global Zero", i.e., a long-term commitment to full nuclear disarmament. Due to that, this strategy might be perceived as weak by Iran. It might be further weakened by the difficulty of official declarations that the civilian population of Iran would also be a target of nuclear retaliation. As it previously had stressed, the Obama administration accelerated missile defence of the GCC and is trying to enhance its and Israel's interoperability with the U.S. systems. This approach in U.S. intentions should strengthen the durability of its allies against any potential blackmail or nuclear attack by Iran.

In the Middle East context, the problem with security guarantees and nuclear deterrence might be particularly acute for Saudi Arabia and the smaller members of the GCC. Existing bilateral military agreements between the U.S. and the GCC members were made without formal obligations to react against aggression, such as with NATO (Article 5 of the Washington Treaty). It is also doubtful if Saudi society would accept official military dependence on the U.S.

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38 Compare also the U.S. and the GCC plans in: D. E. Sanger, E. Shmitt, "U.S. Speeding Up Missile Defenses in Persian Gulf", *The New York Times*, 30 January 2010, and A. Entous, J. E. Barnes, "Pentagon Bulks Up Defenses in the Gulf", *The Wall Street Journal*, 17 July 2012.

39 See especially: K. Waltz, "Why Iran Should Get the Bomb: Nuclear Balancing Would Mean Stability", *Foreign Affairs*, vol. 1, no. 4, July-August 2012, pp. 2–5.

40 See, for instance: F. Kagan, "Deterrence Misapplied: Challenges in Containing a Nuclear Iran", *CFR Working Paper*, May 2010.

41 Compare to *Nuclear Posture Review Report*, Department of Defense, Washington, D.C., April 2010, pp. 31–33.

Moreover, after the U.S. troops withdrawn from Iraq in 2011, its forward military presence in the Gulf was also reduced. Sunni monarchies are also doubtful about the U.S. or Israel's nuclear position vis-f-vis Iran, and in conventional military forces they cannot rely on Shia-dominated Iraq as a regional balancer. However the optimists stress that Saudi Arabia will not abandon its alliance with the West (and anyway Pakistan is not an alternative option for the U.S.) but there are more indicators and signals about possible plans for Riyadh's "Sunni bomb" to balance Iran.[42] The Saudis are concerned that a nuclear Iran would be more assertive and aggressive towards Arab countries, for instance, by supporting regimes, militias or terrorist groups friendly to Tehran. These issues have current examples in its policy towards Syria, Lebanon, Iraq and even Bahrain, where U.S. "extended deterrence" might not be adequate.

The Obama administration also is against preventive strikes on Iranian nuclear installations, as Israel has many times postulated. The U.S. is giving priority to non-military options and stressing that the nuclearisation of Iran is also against American interests in the region. This American rhetoric about Iran and support for missile defence cooperation are perceived as insufficient by many Israelis, whose country is also without a formal security guarantee from the U.S. The majority of Israeli decision-makers and experts do not believe in the rationality of the regime in Tehran—which is condition for a stable deterrence strategy.[43] For Israel, this means a dilemma about whether to make deep revisions in its national military doctrine or the need to fully adapt to the U.S. strategy. As it seems now, the new Israeli doctrine might be based on a combination of open deterrence and changes within the structure of its nuclear forces. Ballistic missile defence might here be a crucial element for Israel, especially for the protection of its strategic forces against a first strike by Iran. Equally important is strengthening Israeli capabilities for retaliatory strikes, with the high probability of the main Iranian cities as targets.[44] This direction of thinking in Israel seems to be confirmed by Israel's efforts to build its own strategic sea forces. These might be based on cruise missiles (Harpoon and Popeye Turbo) with nuclear warheads, deployed on modified Dolphin submarines, delivered to Israel by Germany (currently, the Israeli navy has three ships and another three are planned by 2018).[45]

Obviously, Israel's full dependence on its own nuclear deterrence capabilities may be tied to further investments in national satellite reconnaissance and early warning systems, somehow and preferably independent from U.S. assets. On the other hand, in case of a decision by Israel to adapt to the U.S. nuclear strategy, there would be a need for the clear formalisation of special relations between the countries. In short, depending on the calculus by the U.S. and Israel, their nuclear relations could be a reminder of the UK's special status or the nuclear autonomy of France during the Cold War. A decision by Israel about the coordination of nuclear

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[42] See opposite and representative opinions in: K.J. McInnis, "Extended Deterrence: The U.S. Credibility Gap in the Middle East", *The Washington Quarterly*, vol. 28, no. 3, summer 2005, pp. 169–186, and C. H. Kahl, *et al.*, *Atomic Kingdom: If Iran Builds the Bomb, Will Saudi Arabia Be Next?*, Center for a New American Security, Washington, D.C., February 2013.

[43] The stability of nuclear deterrence between the U.S. and the USRR was named MAD (Mutually Assured Destruction), but many experts are doubtful of the application of this rule to Iran. See a critique about applying the MAD rules to Iran in: R. Tira, "Can Iran be Deterred?", *Policy Review*, October 2011, pp. 39–47.

[44] See more about the conclusions of the so called Daniel Group Project in: L.R. Beres, "Israel's Uncertain Strategic Future", *Parameters*, vol. 37, no. 1, spring 2007, pp. 37-54.

[45] Speculation about the naval nuclear forces of Israel started in the 1990s when potential threats emanated from Iraq, Syria and Libya. Compare in chronological order: D. Raviv, Y. Melman, "The Mideast Goes MAD. Israel's Subs and the New Balance of Nuclear Might", *The Washington Post*, 15 July 1990; E. Blanche, "Israel's submarine menace", *The Middle East*, no. 10, 2002; N. Friedman, "Israel Purchases German submarines", *USNI Proceedings*, no. 3, 2006; and R. Bergman, "Operation Samson: Israel's Deployment of Nuclear Missile on Subs from Germany", *Der Spiegel Online*, 4 June 2012.

deterrence with the U.S. would mean further integration of the missile defence systems of both countries.[46]

## Conclusion

The Middle East's specific situation comprises many conflicts, lack of military transparency and confidence-building measures, as well as short distances for ballistic missiles strikes and risk of a rapid escalation of even local crises. This region is full of many, relatively advanced ballistic missile arsenals, with the longest-range missiles owned by Israel, Saudi Arabia and Iran. For more than four decades, Israel has possessed a regional nuclear monopoly and it is now concerned about the prospects for the nuclearisation of Iran (an attitude shared with Saudi Arabia). Even without missile defences there are many obstacles to countries of the region that want to build ICBMs. Threats from the Middle East are also smaller with Iraq and Libya resigning from their own ballistic missile and weapons of mass destruction programmes. Currently, only Israel has built its own "multi-layered shield" and is a leading country in anti-ballistic missile and counter-rocket defences. Israel's unique position is still in contrast to the gaps and weaknesses of the missile defences of the Arab countries of the Gulf. In all probable scenarios involving Israel's nuclear deterrence (also assuming serious changes in its doctrine), this country will work to further improve its missile defences. Leading Israeli experts believe that missile defences might be important elements of crisis management if Iran is able to create a nuclear arsenal. Extended deterrence and assistance with missile defence seem to be connected priorities for the U.S., who (like Israel) wants to maintain maximum flexibility in case of any military crises involving Iran.

[46] Obviously, this paragraph is also purely speculative in nature and is based on interviews with Israeli experts in Tel Aviv and Jerusalem in October 2012. Assuming no Russian or Chinese assistance for the foreseeable future and in almost all imaginable scenarios, a nuclear Iran might lack ballistic defences of its strategic forces.

**Table 1: Estimates of Middle Eastern Ballistic Missile Arsenals**

| | NASIC 2009 | IISS 2012 | Jane's 2012–2013 | TAU INSS 2011–2013 |
|---|---|---|---|---|
| **Bahrain** | No information | 9 launchers for 30 ATACMS | 9 launchers for 30 ATACMS | 9 launchers for 30 ATACMS |
| **Egypt** | Fewer than 25 launchers for different SRBMs | – 9 launchers for FROG-7<br>– 9 launchers for Scud-B | – 240 launchers for 100 Scud-B/C<br>– No-Dongs were never received | – 24 launchers for 100 Scud-B and 90 Scud-C<br>– 24 No-Dong |
| **Iran** | – Fewer than 100 launchers for Scud-B, Scud-C, Fateh-110 and CSS-8<br>– Fewer than 50 launchers for all variants of Shahab-3<br>– Sejjil-2 not yet deployed | – Likely 30 launchers for 175 CSS-8<br>– Likely 12-18 launchers for 200-300 Scud-B/C<br>– Likely 12-15 launchers for Shahab-3<br>– In development TEL for Sajjil-2 | – Unknown for Fateh-110<br>– Around 50 launchers for 200-300 Scud-B/C<br>– Up to 25 launchers for Shahab-3<br>– Around 20 launchers for less than 100 CSS-8<br>– Unknown for BM-25 | – 16 launchers for CSS-8<br>– Unknown quantity of Fateh-110<br>– 20 launchers for 300 Scud-B and 100 Scud-C<br>– 10 launchers for 300 Shahab-3<br>– 18 BM-25 (status unclear) |
| **Israel** | No information | – Up to 100 Jericho-1 and Jericho-2<br>– 7 LANCE in reserve | – Up to 200 Jericho-1/2<br>– MGM-52C LANCE removed from service | – 12 launchers for MGM-52 Lance<br>– Unknown for upgraded Jerichos |
| **Libya** | Fewer than 100 launchers for SRBMs | – Some FROG-7<br>– Some Scud-B | – 45 launchers for FROG-7<br>– 80 launchers for up to 450 Scud-B | – 80 launchers and up to 500 different versions of Scud-B |
| **Saudi Arabia** | Fewer than 50 CSS-2 | – 10 launchers for up to 40 CSS-2 | – Up to 50 CSS-2 | – 8-12 launchers for 30-50 CSS-2 |
| **Syria** | Fewer than 100 launchers for SRBMs | – Unknown for M-600<br>– 18 launchers for FROG-7<br>– 18 launchers for SS-21<br>– Probably 12 launchers for different versions Scud-B/C | – Unknown for M-600<br>– 18 launchers for 100 FROG-7<br>– 18 launchers for few dozen SS-21<br>– 18 launchers for Scud-B<br>– Unknown for Scud-C/D | – Unknown for M-600<br>– 18 launchers for SS-21<br>– 18 launchers for 200 Scud-B<br>– 8 launchers for 80 Scud-C<br>– Unknown for Scud-D |
| **UAE** | No information | – 100 ATACMS<br>– 6 launchers for up to 20 Scud-B | – 100 ATACMS<br>– Unknown for Scud-B, reported not-operational | – 100 ATACMS<br>– Likely 6 launchers for Scud-B |
| **Yemen** | Fewer than 25 launchers for SRBMs | – 12 launchers for FROG-7<br>– 10 launchers for SS-21<br>– 6 launchers for 33 Scud-B | – About dozen launchers for FROG-7<br>– Estimate of 10-80 SS-21<br>– 6 launchers for more than 30 Scud-B/C | – 4 launchers for SS-21<br>– 6 launchers for Scud-B |

Prepared by the author, based on: *Jane's Strategic Weapons Systems*, IHS Jane's Information Group 2012, National Air and Space Intelligence Center (NASIC), *Ballistic And Cruise Missile Threat*, Wright-Patterson AFB 2009, Tel Aviv University-Institute for National Security Studies (TAU INSS) Military Database and International Institute for Strategic Studies (IISS), *Military Balance 2012*, Routledge for IISS, London 2012.

**Table 2. Ranges and Sophistication of Ballistic Missiles in Middle Eastern Countries**

| Models and names | Propulsion System | Range | Payload (warhead) | Probable Circular Error | Comments |
|---|---|---|---|---|---|
| **R-65 (FROG-7)** | Single-stage solid | 68 km | 200-457 kg | 400-700 m | Soviet SRBM sold in large quantities to Algeria, Egypt, Iraq, Libya, Syria and Yemen. |
| **OTR-21 Tochka (SS-21 Scarab, Toksa)** | Single-stage solid | 70-120 km | 482 kg | 95 m | Soviet/Russian SRBM after 1983 sold to Syria and Yemen; re-sold from Syria to the DPRK for copying as a Toksa. |
| **CSS-8 (M-7, Tondar-69)** | Two-stage solid propellant | 150 km | 150–250 kg | Unknown | Chinese SRBM produced in Iran; might be useful as a tactical combat weapon. |
| **ATACMS MGM-140B** | Single-stage solid | 165-300 km | 227-560 kg | 10 m | American SRBM sold to Turkey, Bahrain and UAE. |
| **LORA** | Single stage solid | 200 km | 440-600 kg | 10 m | Israeli SRBM, in service probably since 2007. |
| **Fateh A-110 (M-600)** | Single-stage solid | 200-210 km (other versions 250 km) | 500 kg | 100 m | Iranian SRBM that might be useful against targets in Kuwait, Bahrain and UAE; Syria is producing a version called M-600. |
| **Scud-B (R-17, Hwasong 5, Shahab-1)** | Single-stage liquid | 300 km | 985–1,000 kg | 450 m | Soviet, then Korean SRBM sold in large quantities to Egypt, Iran, Iraq, Libya, Syria, UAE and Yemen; produced also in Iran and Syria. |
| **Scud-C (Hwasong 6, Shahab-2)** | Single-stage liquid | 500–550 km | 700-770 kg | 450–500 m | Korean SRBM sold to Iran, Libya, Syria and Yemen, also produced by Iran; might be used against targets in the Gulf. |
| **Scud-D (Hwasong 7, Scud-ER)** | Single stage liquid | 700-800 km | 500 kg | Estimated at 50 m | Modification of Korean Scuds sold to and produced in Syria. Might be used against Israel and Turkey. |
| **Shahab-3** | Single-stage liquid | 1,300-1,500 km | 600-750 kg | Estimated at 500–1,000 m | Iranian MRBM based on No-dong that might be useful in strikes on the capitals of Israel (likely main target), Turkey and Afghanistan. |
| **Ghadr-1** | Liquid first-stage, solid second-stage | min. 1,600 km, max. 2,000 km | 750 kg | Unknown | Iranian MRBM that might be useful in strikes on the capitals of Israel, Egypt, South Europe, Russia, Pakistan and Central Asia. |
| **Jericho-2 (YA-3)** | Two-stage solid | 1,500 or 3,500-4,000 km | 1,000 kg | Unknown, likely low accuracy | Israeli MRBM, probably 90 in service since 1989; might be able to strike most capitals in the Middle East. |
| **Sajjil-2/ Ashura** | Two-stage solid | 2,000–2,400 km | 750 kg | Unknown | Iranian MRBM that potentially might be useful against the same targets as the MRBM Ghadr-1. |
| **BM-25 (Musudan, No Dong-B)** | Two-stage liquid | 2,500-3,000 km (Iranian version) | 1,200 kg | Estimated at 1,000 m | North Korean MRBM/IRBM, 18-19 sold to Iran; potentially useful in strikes on capitals of the North Africa, Central Europe and Russia. |
| **CSS-2, Dong Feng-3A** | Single-stage liquid | 2,600-2,900 km and 4,000 km | 2,150 kg (likely also 1,000 kg) | Low accuracy, estimated at 1,000 m | Chinese IRBM, special version for Saudi Arabia; in the kingdom's service since 1987, might be used against Iran. |
| **Jericho-3 (YA-4)** | Two or three-stage solid | 4,800-6,500 km | 750-1,300 kg (likely MIRV) | Unknown, but high accuracy | Israeli IRBM based on Shavit SLV, speculations about deployment to service in 2011 or 2012. |

Prepared by the author, based mainly on *Jane's Strategic Weapons Systems*, IHS Jane's Information Group 2012 and NASIC, *Ballistic And Cruise Missile Threat*, Wright-Patterson AFB 2009.

**Table 3. Anti-ballistic and Counter-rocket Systems in the Middle East Region**

| Models and names | Propulsion | Range | Warhead | Comments |
|---|---|---|---|---|
| **Arrow** | Solid, two-stage | 500 km | HE | Prototype Israeli (national) theatre ballistic missile defence system; developed since 1988, first deployed in October 2000. |
| **Arrow-2** | Solid, two-stage | 250-1,500 km | HE fragmentation | Israeli theatre ballistic missile defence (mobile) system, first deployed in 2005; currently Israel has three batteries with 24 missiles; system designed and developed by IAI, Boeing and LMI. |
| **Arrow-3, Super Arrow** | Solid, two-stage missile | 1,500-2,500 km | Kill Vehicle, inertial guidance (greater accuracy than Arrow-2), destroying target in exo-atmosphere | Israeli system designed as upper tier in the Arrow family; uses hypersonic Arrow interceptor, Green Pine radar, Citron Tree C3I centre and launch control centre; developed since 2007, first test in 2012, planned for service in 2014-2015; developed by IAI (65 %) and Boeing; total U.S. contribution to the Arrow projects above $1 billion. |
| **Aegis SM-3 Block IA, SM-3 Block IIB** | Solid, three-stage missile RIM-161 | 160-500 km | Kill Vehicle, destroying target in exo-atmosphere | American BMD system against IRBM and MRBM threat, currently deployed on Aegis-class destroyer ships in CENTCOM region, in future also on CG(X) cruisers. |
| **THAAD** | Solid, one-stage | 150-200 km | Kill Vehicle, destroying target in exo-atmosphere or endo-atmosphere | Mobile U.S. Army BMD system for high-value targets (cities, airfields, etc.), tested since 2005 and in service since 2012; the system uses mobile AN/TPY-2 X-band radar and might be complementary to PACs; developed by Lockheed Martin, might be sold to UAE and Qatar. |
| **PAC-2** | Solid, one-stage | 100 km | HE fragmentation | Mobile American SAM system, first used in combat during the Gulf War in 1991 with a 40% claimed success rate; developed by Raytheon, Hughes and RCA, and sold by the U.S. to Israel, Saudi Arabia and Bahrain. |
| **PAC-3** | Solid, one-stage | 100 km | HE fragmentation | Upgraded in 1996-2001, this version of the PAC system was designed by Lockheed Martin to be interoperational with other SAM and TBM systems; sold by the U.S. to Israel, Saudi Arabia and Bahrain. |
| **David's Sling, Magic Wand** | Solid, two-stage missile (Stunner) | 70-250 km | Kill Vehicle, advanced steering control | Designed in Israel as an air- and missile-defence system, a successor to the HAWK SAM and PAC systems and developed by the Israeli firm RAFAEL and Raytheon; the U.S. has provided $330 million in aid for the project since 2006 and the system will be operational in 2013-2014. |
| **Iron Dome** | Solid, one-stage missile (Tamir) | 10-70 km | HE fragmentation | Developed by the Israeli firm RAFAEL and Elta as a counter-rocket (C-RAM) system; since 2010, the U.S. has provided $1.21 billion for developing this system and deploying it; first deployed operationally in 2011, successfully tested in combat in 2012. |
| **Bavar-373** | Solid (?) | Unknown | Unknown | Declared by Iran as "more advanced" than the Russian S-300PMU; officially planned to be operational in 2013, but it is either a copy of the S-300 or a mock-up for R&D tests (or even for disinformation aimed at the West). |

Prepared by the author based on the IHS Jane's Group databases and fact sheets from the Missile Defense Agency and producers' publications.

# Missile Defence, Deterrence and Strategic Stability in Southern Asia

A. Vinod Kumar

Owing to the presence of two nuclear dyads, namely China-India and India-Pakistan, Southern Asia is often described as among the most volatile regions in the world. Though the region was an extended theatre of the superpower rivalry of the Cold War, the acquisition of nuclear weapons by the Chinese, through their first nuclear test in 1964, reshaped the strategic dynamics of this region. After initially attempting to gain security guarantees and mount a non-proliferation firewall against the Chinese nuclear challenge, India went on to demonstrate its capability to develop a nuclear explosive device with its Peaceful Nuclear Explosion (PNE) in 1974. Pakistan followed suit by initiating its pursuit of nuclear weapons. Through the 1980s and early 1990s, both nations were engaged in an covert nuclearisation effort, until May 1998 when a series of nuclear tests made them de facto nuclear weapons powers.

Subsequently, nuclear deterrence began evolving in this region, with India following the Chinese example of a no-first-use (NFU) doctrine, while Pakistan preferred ambiguity on its nuclear first-strike thresholds. Even as nuclear weapons seemed to create stability in the China-India equation, despite their force disparities, Pakistan's propensity to engage in low-intensity conflict with a nuclear overhang constantly destabilised the India-Pakistan dyad. As India grappled with this condition, the more worrisome concern was the China-Pakistan proliferation nexus, which stretched from missile systems to the nuclear program. India eventually took the first plunge in the development of ballistic missile defence (BMD) systems as one of the ways out of these asymmetries. Despite its technological prowess, China began this pursuit a little later, largely due to its declared inhibitions against such technologies, though its eventual effort veered towards mimicking the American capability.

The introduction of missile defence systems in Southern Asia opens a phase of strategic conditioning whose varied dimensions are evolving and yet to be fully comprehended. As of today, the Indian and Chinese missile defence programs are in advanced development phases with individual strategic objectives but with implications for the regional strategic environment.

## Nuclear Deterrence and Missile Defence: The Offence-Defence Balance

Though missile defence technologies are still in various stages of development, critics are resolute in terming them as destabilising and with potential to generate competition among nuclear weapons states.[1] Besides the prevalent scepticism on the credibility of this technology and their exorbitant development costs, such criticism is driven by the assumption that missile defence will vitiate the existing nuclear deterrence equations, calibrated around the concept of mutual assured destruction (MAD) and mutual vulnerability. An analogy could be drawn to the competition of strategic defences[2] between the two superpowers in the 1960s that threatened to undermine their deterrence equation. The MAD equation eventually prevailed through the Anti-Ballistic Missile (ABM) Treaty of 1972 after they agreed to refrain from the development of

[1] Y. Butt, "The myth of missile defense as a deterrent," *Bulletin of the Atomic Scientists*, 8 May 2010, www.thebulletin.org/web-edition/features/the-myth-of-missile-defense-deterrent; see also, P. Podvig, "The false promise of missile defense," *Bulletin of the Atomic Scientists,* 14 September 2009, www.thebulletin.org/web-edition/columnists/pavel-podvig/the-false-promise-of-missile-defense.

[2] For an overview of the early ABM programs, see "Missile Defense: The First Sixty Years," *Missile Defense Agency Backgrounder*, 15 August 2008, www.mda.mil/mdalink/pdf/first60.pdf.

ABM systems.[3] With the U.S. withdrawing from the treaty, and no such arrangements for deterrence stability in other nuclear dyads, speculation now abounds on the likely impact of interception technologies on nuclear deterrence.

However, laying such apprehensions to rest, proponents of BMD technology consider it relevant for the strategic ambiguities of the post-Cold War period, riven by the proliferation of missile systems, new threshold states and relative effete of the non-proliferation regime to curb these challenges. The key strategic driver for missile defence pursuits is the imperative of plugging vulnerabilities and the need to integrate defensive systems with offensive forces to provide comprehensive security—the underlying theme of President George W. Bush's May 2001 speech, in which he called for a "break from the adversarial legacy of the Cold War."[4] But no matter how one looks at it, the impact of BMD systems on nuclear deterrence is certain, yet managable. Hence, it is significant to understand how this co-relation evolves, and the implications thereof.

This paper proceeds with the proposition that irrespective of the region where missile defences operate, their impact on deterrence will be shaped by whether they add to offensive capability or favour defensive dominance. Though the intention here is not to undertake a theoritical examination, this proposition is in line with the Offence-Defence Theory, which postulates through the concept of a security dilemma that an increase in one state's security decreases the security of the other.[5] Assuming that missile defences could inherently add to the net offensive capability of a state, it could have a cumulative effect on deterrence, which is likely to cause a security dilemma, especially if the other state does not have BMD capabilities. The potential for such a disturbance of eqillibrium could be inferred from two conceivable scenarios:

(a) A BMD-armed nuclear state will have a higher possibility of defending against a first-strike and then retaliate, thus enhancing the costs of an attack for the adversary. This is the fundamental defensive role attributed to BMD systems, with the assumption they will create more deterrence stability by reducing the incentives for pre-emptive strikes. However, the BMD-armed state's ability to plug its vulnerability inherently reduces the deterrence quotient of the adversary and thereby disturbs the existing deterrence equation between the two states.

(b) On the other hand, a BMD-armed state will also have incentives to strike first with the confidence of defending against retaliation (or limiting damage), thus encouraging it towards adventurism. This is a condition that could invariably drive instability in a dyad where one state has the monopolistic acquisition of BMD systems.

A state without BMD capability will be restrained in such a condition, while the BMD-armed rival could have an intimidation propensity and favour escalation even in conventional conflict situations, and invariably contribute to an environment of offensive dominance. To its adversary, this accounts for a deterrence failure that could force it to either counter the BMD system through a massive offensive build-up or the acquisition of a similar defensive capability, thereby leading to competition and consequent instability.

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[3] Initially, two ABM deployments, one for the capital and another site, were allowed to be within a radius of 150 km over designated areas, with not more than 100 launchers and six radar units permitted. The 1974 protocol to the treaty restricted ABMs to a single area. While the Soviets maintained *Galosh* outside Moscow, the U.S. deployed *Safeguard* in Grand Forks, which it closed down in 1976.

[4] Text of the speech available at www.fas.org/nuke/control/abmt/news/010501bush.html, accessed on 15 March 2013.

[5] R. Jervis, "Cooperation under the Security Dilemma", *World Politics*, 30 (2), January 1978. Other important analytical works that followed his formulations were S. Van Evera, "Offense, Defense and the Causes of War", *International Security*, 22 (4), Spring 1998; Ch. L. Glaser and Ch. Kaufmann, "What is the Offense-Defense Balance and Can we Measure it?", *International Security*, 22 (4), Spring 1998; S. M. Lynn-Jones, "Offense-Defense Theory and Its Critics," *Security Studies*, 4 (4), Summer 1995; K. A. Lieber, "Grasping the Technological Peace: The Offense-Defense Balance and International Security", *International Security*, 25 (1), Summer 2000, etc.

However, considering that BMD systems are inherently presented as a defensive mechanism and have yet to reach credible operational maturity, their actual deterrence potential could eventually depend on the adversary's assessment of how much defensive depth the possessor has gained and its own self-confidence in its ability to counter them. Nonetheless, going by current trends, no nuclear state is ready to assume that the BMD systems of their rivals are purely for defensive purposes. Instead, even their mere presence is presumed to create a defensive advantage that could plug the vulnerability needed for mutual deterrence to operate. A competition for strategic defences by nuclear weapons states has thus become inevitable and is gradually shaping up as even countries such as China, which had been critical of missile defences, are now pursuing them. Hence, the real test of policy will not just be to know what missile defences will do to deterrence, but about how it will shape up when two nuclear adversaries develop them. Will the competition strengthen deterrence through a balancing of offensive and defensive forces or generate greater instability?

Irrespective of how this evolution develops, the more definite trend is about nuclear weapons states beginning to revisit their deterrence postures with the introduction of missile defences. The pursuit of this technology has reached a crescendo from which it will no longer be about a shield by the "good" guys against a few "rogues", but about every nuclear weapons state aspiring to develop such platforms against their nuclear rivals. At the core of this drive is not just concerns about vulnerabilities but also diminishing confidence in traditional deterrence models. Besides the fact that mutual vulnerability only sustained security dilemmas, deterrence itself has had a credibility problem in an environment of distrust and strategic competition.[6] In Bernard Brodie's words, "deterrence must thus remain effective, although it has no chance to prove its efficacy in practice. The automaticity of retaliation is taken too much for granted."[7] This condition is a truism, as nuclear powers operated in a psychological environment of varying confidence levels. Despite threats of massive retaliation and assured destruction or beaming confidence about survivable forces, the element of self-doubt about national survival and fear of annihilation underlines the psychology of deterrence postures.

Consequently, the realisation seems to have dawned that a new deterrence model could be pursued through active defences, once the initial clutter of competition and uncertainties are cleared and BMD systems begin to provide a convincing depth that favours defensive dominance. Though theorists will vouch for the existing model of deterrence by denial as finally shaping up in practice, there could be newer explanatory paradigms, such as defence with deterrence or even defensive deterrence, that could be pursued. While missile defences will continue to be chosen as a means of security maximisation, the scope for a new deterrence balance when there is parity of defensive capabilities cannot be ruled out, despite its scope being futuristic.

## Nuclear Deterrence in Southern Asia

It is thus worthwhile to examine whether the introduction of missile defence systems will create a defensive balancing or offensive dominance in Southern Asia. Considering that two dynamic and characteristically distinct nuclear dyads operate in the region, BMD systems are likely to create a volitile churning.

**The Chinese Deterrence Scheme.** As a leading votary of the Prevention of an Arms Race in Outer Space (PAROS) initiative, China had long opposed missile defence systems, arguing that U.S. programs such as the Ground-Based Mid-Course Defense (GMD) system and other

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[6] See R. Powell, "Nuclear Deterrence Theory, Nuclear Proliferation and National Missile Defense", *International Security*, 27(4), Spring 2003.

[7] B. Brodie, *Strategy in the Missile Age*, Princeton University Press, Princeton, 1959.

space-based platforms amounted to the weaponisation of outer space.[8] Fu Zhigang, a senior PRC official, was quoted as saying in the UN: "To pursue missile defence programs is part and parcel of the relevant country's long-term strategy to control outer space."[9] At the core of Chinese concerns about U.S. BMD are three issues: (a) long-range U.S. interceptors that could target China's Inter-Continental Ballistic Missiles (ICBMs), which form the vanguard of its nuclear deterrence; (b) the increasing presence of U.S. theatre defence systems in China's neighbourhood aggravates its security dilemma; and, (c) a domino effect from U.S. BMD deployment in Europe will spread to Asia. Rejecting the U.S. contention about "rogue states" as early as 2000, Ambassador Sha Zukang said: "[T]he history of missile defence programs and the acknowledged design capabilities of (NMD) show that the proposed system can be directed against China and can seriously affect China's limited nuclear capability."[10]

Though China has an NFU doctrine and had long projected limited nuclear retaliatory capability, its initial response to the U.S. BMD plans was to overwhelm such defences through a massive offensive build-up, deploying countermeasures to defeat the interceptors and integrating MIRV technology into its ICBMs.[11] However, by the middle of the last decade, China realised the need to pursue an active defence strategy to augment its deterrence, which entailed mimicking American interception platforms. In January 2007, Beijing startled the world by testing its Anti-Satellite (ASAT) system.[12] By demonstrating its mastery of outer-space interception, the expected next step was ballistic missile interception, which it did through an exo-atmospheric test in January 2010.[13] Bao Shixiu of the PLA Academy of Military Sciences justifies this shift aptly:

*China is threatened by U.S. policies in space, a reality that is compelling China to have its own space capabilities … A deterrent in space will decrease the possibility of the U.S. attacking Chinese space assets … Chinese deterrent policy in space will vigorously maintain the "active defence" strategy.* [14]

Beyond a new deterrence strategy, Chinese forays into ASAT and BMD systems are linked to its larger goal of seeking strategic parity with the U.S., besides addressing its regional threat environment. China foresees potential conflicts in at least three theatres: Taiwan (on reunification), and India and Japan (over territorial disputes). Apart from the fact that these potential conflicts could happen under a nuclear overhang, the U.S. is a common factor in all three theatres. However, any force augmentation by Beijing is an instant cause for a security dilemma in the region, with India being the most affected party. While India pursues its force

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8 On 12 February 2008, China and Russia presented at the Conference on Disarmament (CD) a joint draft of the "Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects", text available at www.reachingcriticalwill.org/political/cd/papers 08/1session/Feb12%20Draft%20PPWT.pdf.

9 F. Zhigang, "Concerns and Responses: A Chinese Perspective on NMD/TMD," a paper contributed to *Consultation on NATO Nuclear Policy, National Missile Defense & Alternative Security Arrangements*, Ottawa, Canada, September 28–30, 2000, quoted by P. Podvig and H. Zhang in "Russian and Chinese Responses to U.S. Military Plans in Space", *American Academy of Arts and Sciences*, 2008, http://belfercenter.ksg.harvard.edu/files/militarySpace.pdf.

10 Sh. Zukang, "U.S. Missile Defense Plans: China's View," *Disarmament Diplomacy* (43), 2000.

11 For an overview of Chinese efforts on countermeasures and other high-technology programs, see A. V. Kumar, "Ballistic Missile Defenses in 2030: Trends in Technology Development," in R. Dahiya, N. Goswami, and A. Lele (eds.), *Asia 2030: The Unfolding Future*, Lancer, New Delhi, 2010.

12 Sh. Kan, "China's Anti-Satellite Weapon Test," *CRS Report for Congress*, 23 April 2007, www.fas.org/sgp/crs/row/RS22652.pdf.

13 For an assessment of the 2010 Chinese BMD test, see A. V. Kumar, "The Dragon's Shield: Intricacies of China's BMD Capability," *IDSA Issue Brief*, 25 February 2010, www.idsa.in/system/files/IB_ChinasBMDCapability.pdf.

14 Remark in "Deterrence Revisited: Outer Space," *China Security,* Winter 2007.

modernisation with the objective of reducing the asymmetry with China, Beijing has of late begun to take its southern neighbour more seriously. From its confidence in deterring India through the deployment of Intermediate Range Ballistic Missiles (IRBMs) and short-range missiles in its Southern Military Regions and Tibet, China is now bracing for a technological contest after India's demonstration of its long-range Agni-V system in April 2012, which has the capability to hit Beijing.

**India's Dual Challenges.** India, on the other hand, has been sitting pretty, confronted by two nuclear rivals with a known nexus against it. Since the Chinese nuclear test in 1964, India's strategic objective has been to attain existential deterrence against China, though it was only after the 1998 test that India gained some confidence in this regard. Pakistan, though, seems to be the real catalyst for India's nuclear program to progress from an aspirational project to a credible deterrent. Whilst the 1974 PNE was meant to send a message to China and the guardians of the non-proliferation regime, the movement towards 1998 was forcefully driven by Pakistan's fledging nuclear and missile capabilities, which benefited from proliferation from China and North Korea.

Challenged by two nuclear rivals, India's deterrence posturing has also been dual-sided, though synchronised into a single doctrinal document.[15] With its NFU doctrine, India vows to use nuclear weapons only when attacked with weapons of mass destruction. India has always been troubled by the asymmetry of China's massive conventional forces and nuclear arsenal, besides the sense of uninhibited vulnerability to Chinese missile deployments. Though Indians assume that the commonality and prevalance of NFU will create stability in its nuclear equations with China, the imperative of countering this threat shapes its strategic planning. India realises that its nuclear deterrence will graduate from existential to credible only when it gains that elusive capability of hitting Beijing (and target the Chinese hinterlands). That objective was deemed fulfilled with the development of Agni-V.[16] While this accomplishment has been a morale-booster, the need to close the country's vulnerability to Chinese missiles propels its drive for advanced interception platforms.

The real challenge, though, for India's nuclear deterrent is Pakistan's nuclear behaviour. While India maintains NFU as its uniform posture, Pakistan has sought to maintain ambiguity on its nuclear first-strike thresholds with deliberately confusing articulations.[17] Pakistan has used this posture to its advantage by engaging in a low-intensity conflict (LIC) against India under a nuclear overhang, while managing to deter India's responses to this campaign with its nuclear brinkmanship.[18] India's inability to respond was illustrated in various crises between the two nuclear neighbours from 1990 to 2008 that had the potential for escalation to nuclear levels.[19] After the attack on India's parliament of December 2001 and a costly mobilisation effort termed Operation Parakram, through which India sought to force a change in Pakistan's behaviour, India eventually shifted to a new approach towards it

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15 Text of India's nuclear doctrine available at www.armscontrol.org/act/1999_07-08/ffja99.

16 "India test launches Agni-V long-range missile", BBC, 19 April 2012, www.bbc.co.uk/news/world-asia-india-17765653.

17 For a discussion on Pakistan's nuclear thresholds, see P. Cotta-Ramusion, M. O. Martellini, *Nuclear safety, nuclear stability and nuclear strategy in Pakistan: A concise report of a visit by Landau Network-Centro Volta*, Como, Italy, 2002, http://lxmi.mi.infn.it/~landnet/Doc/pakistan.pdf.

18 For analyses on the India-Pakistan nuclear relationship, see E. Sridharan (ed.), *The India-Pakistan Nuclear Relationship*, Routledge, New Delhi, 2007; Rajesh Rajagopalan, *Second Strike*, Penguin, New Delhi, 2005; D. T. Hagerty, *The Consequences of Nuclear Proliferation: Lessons from South Asia*, The MIT Press, Cambridge, 1998.

19 For a discussion on the various crises, see S. Ganguly and P. Kapur, *India, Pakistan and the Bomb,* Columbia University Press, New York, 2010.

through two major initiatives: (a) a new conventional doctrine termed Cold Start (a pro-active strategy)[20]; and, (b) a two-tiered missile defence plan.

While the new conventional battle doctrine advocates rapid offensive thrusts inside Pakistani territory without hitting its perceived nuclear tripwires, the elucidation of this strategy was also seen as a means to signal India's resolve to call Pakistan's bluff and initiate a limited conventional response to Pakistan-aided terror. That the latter was affected by this posturing was evident by its subsequent reactions, including a feverish campaign against Cold Start, terming it an offensive and provocative strategy, and the development of a tactical nuclear missile to target forward-moving Indian forces. The other Indian response has been the development of a two-tier missile defence system, which India feels could challenge Pakistan's first-strike capability and in the process, negate its deterrence value. When taken together with its nuclear triad, India feels its BMD system will strengthen its deterrence against both nuclear neighbours.[21]

**Pakistan's Postural Games.** Unlike China and India, which are largely seen as responsible nuclear states with their NFU postures, Pakistan has emerged as the Achilles heel of Southern Asia, with its nuclear one-upmanship and because it is seen as the most dangerous nation by virtue of being a hub of terrorism and proliferation. Apart from the low-intensity operations in India and the insurgency in Afghanistan, Pakistan has hosted the world's most dreaded terror groups with links to Al Qaeda. This condition was aggravated by an exposé on the A.Q. Khan network, which was found to be clandestinely trading in nuclear material with some proliferating countries and groups.

Thanks to such links, Pakistan was known to have achieved nuclear weapons capability by the mid-1980s. At the peak of the standoff with India during its Brasstacks exercise in 1987-88, Pakistan for the first time declared its nuclear capability and willingness to use it against India in the event of an attack.[22] Pakistan President Gen. Zia-ul-Haq's widely reported threat to India—"If your forces cross our borders by an inch, we are going to annihilate your cities,"—has been a sort of template rhetoric that Pakistan has subsequently indulged in at the height of various standoffs since then. While the 1990 crisis over the Kashmir insurgency was de-escalated with American intervention, the first instance of both militaries coming face-to-face after going overtly nuclear was in 1999 when Pakistani troops intruded into Kargil. By issuing numerous threats of a nuclear strike if India crossed the Line of Control (LoC), Pakistan sought to exacerbate the fragility of this nuclear balance. Since then, the India-Pakistan dyad has been viewed by the Western world as a nuclear flashpoint and has led to swift international intervention during subsequent flare-ups.

Attracting international attention has, in fact, been the primary objective of Pakistan's nuclear posturing, with its doctrine and crisis-behaviour conditioned accordingly. However, beyond these calculations, Pakistan's nuclear posturing is invariably India-centric and aimed at negating India's conventional superiority. Recognising the fact that India could defeat Pakistan's LIC strategy with a limited or massive conventional response, Pakistan's first-strike posture with ambiguous red lines is designed to deter India at all levels—sub-conventional, conventional and

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[20] The new doctrinal concept is a combination of "Cold Start"—the ability to launch quick strikes across the border without prior warning by moving rapidly to battle positions—and "integrated battle groups" which are offensive divisions used to penetrate border areas over a wide front. In 2011, the Indian Army discarded the term "Cold Start" in its communications and instead began referring to it as "proactive strategy". See, *Indian Army Doctrine*, Headquarters Army Training Command, Shimla, October 2004, ids.nic.in/Indian%20Army%20Doctrine/indianarmydoctrine_1.

[21] In January 2013, India tested its submarine-launched ballistic missile (SLBM), which forms the third leg of its nuclear triad, and will be integrated in its nuclear-powered submarines. See "India test-fires ballistic missile from underwater platform," *Press Trust of India*, 27 January 2013.

[22] President Zia-ul-Haq reportedly made this statement in an interview to *Time* magazine in the issue dated 30 March 1987. Zia also went on to remark that, "Once you acquire the technology, which Pakistan has, you can do whatever you like".

nuclear. Pakistan rejects India's NFU as merely declaratory, assuming that India will strike first if it has credible intelligence of Pakistani plans for a nuclear attack.

Though this combination of postural ambiguity and brinkmanship has worked wonders for Pakistan, things began changing in the post 9/11 environment with the Western world shifting focus to Pakistan's terror infrastructure. Though Pakistan managed to evade international pressure to act against its proxy groups, India's shift towards a proactive strategy began to challenge this status quo. With India projecting the resolve to take its response into Pakistani territory, Islamabad was beginning to doubt the credibility of its nuclear posturing. For that matter, Pakistan's irrational behaviour is seen only as a façade to deter India and attract international attention though it is aware of the consequences of a massive Indian retaliation, which, in the words of a former U.S. official, could imply "bombing Pakistan back to the stone age." In recent years, especially after the initiation of an India–U.S. nuclear deal, Pakistan has been forced to amend its nuclear behaviour, while also feverishly advancing its fissile stocks.[23] While centering its nuclear diplomacy on demonising India's Cold Start as escalatory and provocative, it also launched the Nasr tactical nuclear missile and Babur cruise missile in response to this doctrine.

However, the more insurmountable challenge for Pakistan is Indian advances in BMD technology. Besides concerns of losing its strategic advantage if India develops the capability to counter a first-strike, Pakistan feels this will endow India with the incentives to launch pre-emptive strikes. It is thus natural for Pakistan to assume that an Indian BMD with nationwide coverage will make its nuclear posture obsolete. To date, the only Pakistani response has been a declaration in May 2012 of naval second-strike capability through its Naval Strategic Forces.[24] With very few details on what this implied, the apparent intention was to convey the survivability of its nuclear forces in its Agosta submarines, however unclear their use as delivery vehicles. Though hinting at its ability to respond to an Indian first-strike or even a third strike following Indian retaliation, that neither the U.S. nor India responded to this signalling only undermined its purpose. Having been caught in its own postural conundrums, the only realistic avenue for Pakistan to counter Indian BMD would be to seek technology from Beijing. If that happens, the Southern Asian theatre will witness further churning.

## Missile Defence in Southern Asia: Technological Dimensions

This being the strategic backdrop, an important variable to understanding the future of missile defences in this region is to discern the direction of technological progress.

**China's Missile Defence Plan.** Despite its long-running anathema to space and missile defence systems, China has always valued the utility of air defence. Building upon systems acquired from Russia, China created a colossal inventory of air defence systems under the *Hongqi* (HQ) series, which was the air defence mainstay until the Russian S-300 PMU series was deployed for theatre defence. However, pursuant to its "active defence" strategy, China undertook the first ASAT with a reconfigured version of DF-21C or DF-25. Analysts believe the same system, termed KS/SC-19, possibly with improved precision and kill capabilities, was used for its first BMD test three years later. The Pentagon then confirmed that an exo-atmopsheric interception validated the Chinese capabilities in outer space. China had encouraged further

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[23] Pakistan had demanded that it should get a similar deal, though Washington rejected this by citing Pakistan's abysmal non-proliferation record. Worried over India's fissile stocks being freed up by the nuclear deal, Pakistan is desperately advancing its fissile production and has also blocked negotiations on the Fissile Materials Cut-Off Treaty (FMCT). Islamabad has also been engaging China to push for a campaign that would enable a similar deal and an NSG-waiver.

[24] A press release from Pakistan's Inter-Services Public Relations said: "HQ NSFC will perform a pivotal role in the development and employment of the Naval Strategic Force . . . which is the custodian of the nation's 2nd strike capability." See "Naval Chief Inaugurates Naval Strategic Forces Headquarters", Islamabad, 19 May 2012, www.ispr.gov.pk/front/main.asp?o=t-press_release&id=2067.

speculation on its BMD system by distributing photographs of its S-300 PMU in the press release announcing the test.

Three years later, China undertook the second test of a BMD system on 27 January 2013. Fewer details were released this time, adding to the speculation about whether a new system was tested. A handful of images circulated online of an interception "glare" indicated the possibility of an endo-atmospheric interceptor, which, if confirmed, would underline China's effort to create a multi-tier BMD architecture. Thereby, the 2013 test could have been a theatre defence system with the capability to intercept slower and shorter-range systems from close proximities, such as Taiwan, Japan and South Korea.[25] Though China will essentially try to match the U.S. capabilities in this segment, that the second test comes months after India's Agni-V opens the possibility that Indian systems are its potential target. China, meanwhile, has initiated a high-end technological drive focussing on advanced kill-vehicle mediums such as a high-energy laser and other directed-energy systems, as well as high-powered microwave weapons for its ASAT platform.[26]

As the Chinese advances reveal, it is becoming obvious that Beijing will project its space weaponry and interception capabilities as part of its grand strategic posture, which includes its rising global power profile, parity with the U.S. and a modern military capable of handling all gamut of threats and power projection roles. Missile Defence will add to this trend and contribute to a multi-pronged deterrence agenda, the aim of which is to:

(a) Sustain a colossal offensive inventory to project massive retaliation capability and wherewithal for first/pre-emptive strikes, if a situation arises;

(b) Develop a nationwide shield to protect its population and military assets from long-range threats, and deploying theatre defences against shorter-range threats;

(c) Continue to deter India through southern deployments, but also project the capability of its BMD systems to intercept Agni-V or other Indian systems; and,

(d) Create a regional missile defence counter to the U.S. by expanding coverage or transferring BMD systems to Pakistan.

**India's Missile Defence Pursuits.** India is believed to have initiated its quest for missile defence in the mid-1990s, after the Chinese transferred M-9 and M-11 missiles to Pakistan. The program was pursued secretly until 2006, when India's Defence Research and Development Organisation (DRDO) announced plans for a *Prithvi* Air Defence Experiment (PADE). Maintaining secrecy for over a decade is puzzling considering that nations developing BMD have sought to project such capability even at early development stages. A probable reason could be the uncertainty about developing a high-end technology whose global success rate is low, with even successful interceptions being conducted in highly simulated conditions. Certainly so, it surprised observers that the first PADE test in November 2006 was declared as a successful endo-atmospheric interception.

Subsequently, DRDO announced a multi-layer architecture with the PAD system for the upper-tier and the Advanced Air Defence (AAD) system for the lower. The handful of development tests on both systems had a suprisingly high rate of success. While the PAD has interception coverage for missiles with 1,000-2,000 km ranges at altitudes of 50-80 km, the AAD covers shorter-range missiles with interception altitudes of 15-30 km. Despite both being essentially endo-atmospheric interceptors, DRDO described the PAD as an exo-atmospheric interceptor with its own range definitions. Nonetheless, the high interception rate prompted DRDO to declare the system operational and ready for deployment in the National Capital

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[25] For an analysis of this, see A. V. Kumar, "Impressions on China's Second Missile Interceptor Test," IDSA Strategic Comments, 22 February 2013, available at www.idsa.in/idsacomments/ImpressionsonChinasSecondMissileInterceptorTest_avkumar_220213.

[26] See P. Podvig and H. Zhang in "Russian and Chinese Responses to U.S. Military Plans in Space," *op. cit.*, p. 9.

Region.[27] With its current range, the PAD could target Pakistan's *Ghauri-I* and *Shaheen-II*, and in principle provide extended area defence to major parts of northern India, depending on deployment permutations.

However, to endow nationwide coverage against longer-range and faster Chinese and Pakistani missiles, India needs exo-atmopsheric systems that could target incoming missiles with ranges of 3,000-5,000 km at interception altitudes of 120-150 km. This quest is currently pursued through the AD-1&2 system, though the effort is reported to be handicapped by the absence of suitable long-range tracking radar (LRTR). Currently, India uses the 600 km range Greenpine radar to support PAD, which has largely used *Prithvi* missiles as targets. For exo-atmospheric tests, DRDO will begin trials with *Agni* systems as targets, though actual interception may depend on the acquisition or development of LRTR.

On the other hand, India needs to finalise doctrinal and operational structures for its missile defence architecture. Currently, the Indian Air Force (IAF) has operational control over the programme so as to facilitate an integrated air and missile defence network against all air-breathing and missile threats. However, this structure may be revisited if and when India pursues a naval interceptor. Though no such initiative is currently on the table, the possibility of acquiring the Aegis Standard Missile (SM-3) as a naval variant from the U.S. cannot be ruled out. The India-U.S. Next Step in the Strategic Partnership (NSSP) of 2004 enshrined cooperation in missile defences, though this effort has been stymied by advances in the indigenous programme. Interestingly, India had earlier sought the *Arrow* system from Israel, but was blocked by Washington, which offered the *Patriot* Advanced Capability-3 instead. Nonetheless, the scope of collaboration with U.S. in the near future remains strong. The same applies to the Russians, with which India has an active technology sharing corridor, which could be extended to LRTR or even systems such as the S-500.

All such calculations, though, are intrinsically linked to the DRDO's ability to develop a nationwide architecture and the costs involved (currently estimated at INR 17,000 crores). Considering that a national mood has been created in favour of BMD, very few questions have been raised on the DRDO's development claims despite its poor record on other military technologies. That the political class and military and strategic communities have backed the program has in turn enabled DRDO to define its strategic dimensions and operational requirements. As such, the Indian BMD effort has to address the following operational and development goals: (a) with two nuclear rivals, nationwide coverage is imperative; (b) interception capability against all enemy missile platforms must be developed; (c) accessing LRTR, early-warning radar, optical and satellite-based sensors is needed; (d) dealing with China-Pakistan cooperation in BMD is important.

**Pakistan's Response.** With no technological riposte of its own, Pakistan has sought to counter India's efforts by declaring second-strike capability with survivable nuclear forces. With its signalling being ignored, Pakistan may lose the strategic edge of its ambiguous tripwires and first-strike posture. A limited impact by its first-strike, or its likely interception, will be compounded by fears of an Indian retaliation. As a result, Pakistan could be expected to rework its deterrence model and explore more credible options to keep India at bay. Though seeking confidence-building measures with India will be a likely action, the other alternative will be to tap China's support in countering India's BMD advantage, which could begin with an early transfer of Chinese air defence systems of the Hongqi series. A long-term possibility could be to seek Chinese BMD, either through the deployment of a matured system or the transfer of technology for Pakistan to develop a similar platform. Though there are no indications of such plans, extending the existing China–Pakistan technology patnership to BMD will be just a matter of time. China will justify such exchanges if and when India and the U.S. initiate cooperation on BMD.

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[27] "Missile Defense System Ready for Induction: DRDO Chief," *The Indian Express*, 21 March 2013.

## Conclusion

This paper attempted to explain the implications of missile defence on nuclear deterrence and strategic stability by examining the Southern Asian theatre. It argued that missile defences will add to the net offensive capability of nuclear forces and enhance its deterrence value, depending on how a BMD-armed state seeks to utilise its interceptor platforms: (a) as a defensive shield to protect or limit damage from a missile attack, or (b) using the shield to indulge in offensive action with an assurance of protecting itself from retaliation. Though the latter is seen as a cause of instability, many nations are coming around to the belief that gaining defensive depth will contribute to stability and augmenting deterrence. Considering that BMD technology is still evolving, it might be too early to conclude how these characteristics will shape up. The more definite feature, though, is the evolution of a new strategic environment wherein missile defences are being accounted for in deterrence calculi—a process that could also promote new deterrence equations and stability between nuclear states.

However, the progress towards more stable equations will be tumultuous, considering the security dilemmas that will emerge from the competition for BMD platforms. Stability, though, may not be improbable if and when an environment of parity exists on defensive forces. Like the mutual deterrence equations that emerged during the Cold War, a reinvigorated deterrence architecture with defences at its core may not be a strategic mirage. Rather, such an eventuality will be beneficial for global security through numerous manifestations, the most realistic being its ability to guarantee a credible arms reduction process. In other words, missile defence could be an effective stabiliser "towards zero" as much as it could be "at zero".

The Southern Asian theatre is a useful case study to understand how many of these dynamics are likely to evolve. While both China and India are adopting missile defences as a means to enhance their deterrence and correcting lacunas in their postures, Pakistan, after accruing benefits from nuclear imprudence, will be prompted to formulate postural changes that could be marked by responsible nuclear behaviour. Considering these possiblities, it could be inferred that missile defences may in the long run facilitate greater stability in the region within an inherent deterrence re-balancing.

# Missile Defence and Nuclear Deterrence Relationship in East Asia

Benjamin Goodlad

With tensions in the East Asia region continuing to escalate, the deployment of missile defence capability is of increasing importance. However, it is unlikely that the existence of such systems will negate the role of nuclear deterrence in the region. Indeed the subject of nuclear armament in both South Korea and Japan is no longer seen as taboo, with the debate about the possession of nuclear deterrence gaining more prominence in the face of tension with China and North Korea's recent nuclear and satellite launch tests. This paper will examine the role of missile defence in the East Asian theatre, and the impact it is likely to have on nuclear deterrence in the region.

## Missile Defence Capabilities

Before discussing the relationship between missile defence and nuclear deterrence, it is first necessary to outline the missile defence capabilities in the region. At present, the only states in East Asia with the ability to provide ballistic missile interception are Japan and China, while U.S. forces in the region provide an additional missile defence factor.

Japan has four Kongo class destroyers equipped with the Aegis ballistic missile defence system, consisting of the SPY-1 search radar with an estimated range of 1,000 km and the SM-3 Block 1A mid-course interceptor.[1] The deployment of two of these ships provides upper tier BMD coverage for the whole of Japan. On land, providing lower tier, point defence are 16 Patriot batteries equipped with PAC-3 interceptors. The PAC-3 has been developed to engage short and medium-range ballistic missiles, with an interception range of 15km.[2] Detection capability is provided by four new J/FPS-5 Early Warning 3D AESA radar systems, in service since 2009, as well as seven older FPS-3 sites which have been upgraded for the BMD role.

China is currently developing a ground-based mid-course missile defence system, with the latest test taking place in January 2013. Whilst little information has been revealed about the Chinese BMD programme, it is believed that the interceptor is based on the SC-19 anti-satellite (ASAT) missile. It has been reported that the system has been tested against two-stage ballistic missile targets, with the possibility that the most recent test was against a longer range missile.[3] However, intentions to roll out this technology have not yet been stated.

Whilst South Korea and Taiwan lack interception capability, both countries have deployed early warning radar which would form a crucial element of any future BMD system. Taiwan has deployed a single early warning radar unit, activated in time to detect North Korea's Unha-3 launch in December 2012.[4] South Korea has two Green Pine radars supplied by Israeli Aerospace Industries, whilst also deploying three KDX-3 destroyers. Equipped with the Aegis BMD system, the ships have the ability to detect and track missiles, although the capability to intercept is limited to low-altitude threats, because SM-2 rather than SM-3 missiles are carried. In a similar way, South Korea's land-based missile defence capabilities are limited to 48 Patriot batteries equipped with PAC-2 interceptors. A joint South Korea-U.S. research study in 2012

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[1] S. Saunders, *IHS Jane's Fighting Ships,* January 2013.

[2] C. Foss and J. O'Halloran, *IHS Jane's Land Warfare Platforms: Artillery and Air Defence.* November 2012.

[3] J. O'Halloran, *IHS Jane's Weapons–Strategic,* May 2012.

[4] M. Cole, "Taiwan's EWR comes online, tracks Unha-3", *IHS Jane's Missiles and Rockets*, 17 December 2012.

stated that the PAC-2 has an interception rate of less than 40% against short and medium-range ballistic missiles.

South Korea is effectively dependent on U.S. forces for missile defence capability. This security is provided by U.S. 7th Fleet, which has a total of nine Aegis equipped ships based in Japan, whilst the U.S. Army's Air Defense Artillery regiments provide PAC-3 batteries in Japan and South Korea. There are 12 batteries in South Korea and four in Japan. In addition, the U.S. has also deployed a TPY-2 radar in Shariki, in northern Japan, and plans a second deployment.

At the same time, while not deployed in the region itself, the U.S. Ground-based Midcourse Defense system plays an important role in providing protection against potential threats from East Asia, particularly from North Korea.

## Japan's Nuclear Deterrent

Japan does not have its own nuclear deterrent capability, and has traditionally shown opposition to any nuclear weapons programme. However increased tensions in the East Asia region in recent years have created a debate as to whether Japan will, or should, develop its own nuclear weapons. Support for Japan developing nuclear weapons technology was voiced in November 2012 by former Tokyo governor Shintaro Ishihara. Ishihara has repeatedly claimed that Japan is at a disadvantage because it does not have its own deterrent capability. Speaking at the Foreign Correspondents' Club of Japan on 20 November, Shintaro is reported to have said "Your words staggeringly lack clout unless you own nuclear weapons," calling on Japan to begin simulating the possession of nuclear weapons.[5] Whilst largely seen as outspoken, Shintaro's comments form part of a debate as to whether Japan will indeed seek to develop a nuclear strike capability, which has intensified following an amendment to the 1955 Atomic Energy Basic Law. The amendment, in the form of an appendix, tabled in June 2012, states "The safe use of atomic power is aimed at contributing to the protection of the people's lives, health and property, environmental conservation and national security."[6] The reference to national security has led to accusations that the wording of the law could be interpreted to allow nuclear development for military use.[7] Japan's leadership has maintained that its nuclear power will not be used for military purposes, but the mere fact that this debate exists points to the fact that it can be argued that Japan cannot rely on missile defence alone as a means of deterring North Korea and China. Indeed, the 2010 version of the Japanese Ministry of Defence National Defence Program Guidelines (NDPG 2010) states that "as long as nuclear weapons exist, the extended deterrence provided by the United States, with nuclear deterrent as a vital element, will be indispensable"[8] This represents official recognition of the fact that missile defence does not reduce the requirement for nuclear deterrence, a requirement that has featured in the NDPG since 1976.[9] However, whilst this statement is intended to emphasise the importance of nuclear deterrence, missile defence now plays an important role.

## South Korea's Nuclear Deterrent

Increased bellicosity on the part of North Korea's leader Kim Jong-un has raised the possibility of South Korea possessing a nuclear weapons capability. Two public opinion polls

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5 "Ishihara: Non-nuclear states lack international clout", *The Asahi Shimbun*, 21 November 2012.

6 Amendment to the Atomic Energy Basic Act (Japan), National Security Newswire, National Journal Group, July 2012.

7 K. Shamshad, "Japan's (un)clear nuclear ambition", *IDSA*, July 2012.

8 "National Defense Program Guidelines for FY 2011 and beyond", Japan Ministry of Defence, Tokyo, 17 December 2010, p. 2.

9 S. Takahashi, "Ballistic Missile Defense in Japan. Deterrence and Military Transformation", *Asie. Visions* no. 59 / *Proliferation Papers* no. 44, December 2012, pp. 20-22.

conducted in the aftermath of North Korea's third nuclear test in February showed support for an indigenous nuclear weapons capability, of 64% and 66% respectively.[10] This can be linked to the fact that, since the test, there has been a feeling of insecurity among the South Korean population, demonstrated by a further poll conducted by the Asian Institute for Policy Studies, which showed that 63% of respondents felt insecure following the nuclear test.[11] This is despite the fact that South Korea, like Japan, has the support of the United States through extended deterrent. There have been calls by commentators and politicians for South Korea to develop its own nuclear weapons, or at the least request that the United States re-deploy tactical nuclear weapons to the country.[12] For example, Lee Chun Geun, of the Korea Economic Research Institute, has argued that if South Korea developed its own nuclear weapons, pressure would then be put on China and the U.S. to stop North Korea's nuclear weapons programme. A significant difference between Japan and South Korea, aside from the obvious geographic issue of the Korean Peninsula, is that Seoul does not have the assurance of its own ballistic missile defence system. It is possible that the possession of a missile defence system could dampen calls for nuclear weapons to be located within South Korea, with deterrence continuing to be provided by the U.S. strategic deterrent. To further explain this argument it is necessary to explore the role of missile defence in Japan, where the relationship between BMD and extended deterrence already exists.

## Reasons for BMD

As stated in National Defence Program Guidelines (NDPG 2010), Japan views its ballistic missile defence as a deterrent, integrated with the U.S. policy of extended deterrence.[13] Missile defence serves the purpose of countering the threat of a limited strike, so called nuclear blackmail, which would involve a belligerent state launching or threatening the launch of either a single or very small number of missiles, having judged that such action would not provoke a full-scale response. The presence of missile defence would be likely to prompt the aggressor state to launch more missiles in order to ensure an effective strike, to the point where a response would be inevitable. This factor is believed to act as a deterrent, limiting the ability of states to use their ballistic missiles as a diplomatic tool to gain greater influence and power.[14]

Missile defence also provides re-assurance to the general population, providing a sense of protection. This latent sense of security can often be a factor in preventing escalation during a crisis, dampening calls for action against a ballistic missile threat. Evidence of this impact is evident in Israel, where the possession of Iron Dome missile defence limited calls for ground intervention during the 2012 conflict in Gaza. During the build-up to North Korea's recent test launches, Japan was keen to showcase the missile defence forces deployed around its islands. Rather than deterring North Korea from conducting the test, this was intended to re-assure the Japanese population that it was secure.

The United States has also stressed its missile defence capabilities in reply to North Korea's escalation. In March 2013, U.S. Secretary of Defense Chuck Hagel announced the intention to deploy an additional 14 Ground-Based Interceptors in Alaska as part of the Ground-based Midcourse Defense (GMD) system.[15] The move can be seen as an effort to

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10 T. Dalton and Y. Ho Jin, "Reading Into South Korea's Nuclear Debate", *Pacific Forum PACNet,* no. 20, Center for Strategic and International Studies, March 2013.

11 A. K. Sen, "North Korea tests new leader of South; Park Geun-hye 'no softie' to belligerence", *The Washington Times*, March 2013.

12 T. Dalton and Y. Ho Jin, *op. cit.*

13 Japan Ministry of Defence. *op. cit.*, p.2.

14 S. Takahashi, *op. cit.,* p. 23..

15 J. Hardy, "China cool on US BMD plans for Asia-Pacific region", *Jane's Defence Weekly*, 19 March 2013.

re-assure the U.S. population whilst simultaneously deterring North Korea from taking action in East Asia.

The United States has also re-affirmed its commitment to extended deterrence. Speaking in Seoul on 19 March, U.S. Deputy Defense Secretary Ashton Carter stated that all resources would be available to its allies, as part its commitment to extended deterrence offered by the U.S. nuclear umbrella, illustrating the centrality of nuclear weapons to deterring North Korean aggression.

## Challenges of Missile Defence

An argument that missile defence will not—and cannot—replace nuclear deterrence in the region can be made by assessing the effectiveness of each system.

Missile defence testing has, to date, been largely limited to single targets launched from set locations on pre-defined flight paths. It is yet to be determined exactly how effective these systems will be against a salvo of missiles launched from various locations at separate targets, as such complexity is difficult to replicate in a testing scenario. Such testing could also be seen as unnecessary, given that the threat is perceived to be from a low-scale launch rather than a mass strike, with nuclear deterrent being used to counter the latter.

In response to missile defence developments, states such as Pakistan and China have developed counter-measures and techniques designed to defeat such defences. These include the production of manoeuvring re-entry vehicles and multiple warhead payloads. Having developed its ground-based missile defence system, China is well positioned to examine further methods of defeating this type of system.

As well as the development of countermeasures for ballistic missile delivery, the deployment of low-flying cruise missiles also represents a significant challenge to missile defence systems. Flying close to the surface, cruise missiles are significantly harder to intercept due to their low radar signature and the higher radar noise levels created at low altitudes. Whilst ground-based long-range search radars are a key component of a ballistic missile defence system where the target is tracked at high altitudes, the curvature of the earth reduces their effectiveness against low-flying targets. Other issues such as airspace management and target identification are also significant, as demonstrated during the 2003 Iraq War, when two aircraft were mistaken for cruise missiles and shot down.

Despite these limitations, there remains a perception that missile defence undermines nuclear deterrence capabilities. China has been a vocal opponent of the U.S. missile defence programme, and has described the latest efforts by the U.S. to increase its missile defence capabilities as "provocative".[16] However, such protests have not prevented China from developing similar technologies in order to gain parity. In doing so, China has countered the perception that its influence is being eroded by not having missile defence capabilities, ensuring a level footing in any negotiations.[17] The fact that China has seen the need to counter this perception is an indicator that, while BMD may not replace nuclear strike as the primary form of deterrence, it is still seen as a critical capability.

## Conclusion

Missile defence systems, particularly in their current form, are unlikely to have a significant impact on the role of nuclear weapons as a deterrent. Whilst fielding ballistic missile defence, Japan continues to emphasise the importance of the nuclear deterrent provided by the

16 "China criticises U.S. missile defence plans", BBC News, 18 March 2013.

17 L.K. Saalman, "China's Evolution on Ballistic Missile Defense", *Proliferation Papers*, Carnegie Endowment for International Peace, August 2012.

U.S. extended deterrence strategy. Indeed, calls for Japan itself to develop its own nuclear weapons capability have increased in recent years following increased tensions with China.

Missile defence plays an important role in providing protection against the possibility of a rogue strike, offering reassurance to the population that some sort of cover is in place. In performing this role, missile defence, whilst not replacing nuclear deterrence, may dampen calls to develop further offensive capabilities, offering a de-escalating factor. Public demand for the deployment of nuclear weapons by South Korea could potentially be reduced if the country had a more significant missile defence capability. However, the limitations of missile defence against salvo-launched ballistic missiles or a cruise missile threat make it unlikely that it would be seen as a complete alternative to nuclear deterrent. Instead, missile defence is but one tool in an array of deterrence options, up to and including a nuclear strike.

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