INTRODUCTION
The topic of nuclear disarmament has made an impressive comeback since the four elder statesmen Shultz, Perry, Kissinger, and Nunn raised the issue in their 2007 op-ed piece in The Wall Street Journal. Embraced by its advocates as the only safeguard against the use of nuclear weapons and rejected by its opponents as a dangerous idealism, global nuclear zero has been debated thoroughly in academic and policy-making circles.

As scholars and policy-makers consider the desirability and feasibility of a world without nuclear weapons, a number of them have addressed the question of what role ballistic-missile defence (BMD) will play in the process.

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2 BMD can be categorized as strategic or tactical defence. The latter refers to systems like Patriot or terminal high altitude area defence, which protect troops or critical infrastructure in theatres of war against missiles with shorter ranges. The former includes systems like ground-based midcourse defence or Aegis, which are deployed to defend larger areas “such as population centers or entire countries” against attacks with missiles beyond 1,000 km ranges. This categorization blurs in the case of dense areas like the Middle East, where tactical systems might also have a strategic function.
of nuclear disarmament? This question is highly relevant to the debate over nuclear disarmament, because ballistic missiles are the backbone of global nuclear arsenals, given their unique characteristics: they are able to deliver nuclear payloads over large distances in short time, they are a lot harder to intercept than airplanes, and, once launched, they cannot be called back. Given the centrality of missiles in nuclear deterrence, scholars and policymakers have debated the impact of missile defences on nuclear deterrence and arms dynamics since the late 1960s. The debate has been led over the technological feasibility of BMD and whether it would be compatible with limitations and reductions of offensive weaponry, or rather an incentive for countries to maintain or even increase their arsenals. Likewise, authors who have recently discussed the role of BMD in nuclear abolition have identified missile defence either as a remedy or as an obstacle.3

This article takes a middle ground and adds two dimensions to the debate over the role of missile defence in nuclear abolition. First, the article broadens the focus and investigates the impact of BMD in the regional settings of the Middle East, East and South Asia, and Europe. In view of the upcoming Middle East WMD-Free Zone Conference (to take place in Helsinki in December 2012) this focus on the role of missile defence in regional settings is timely and relevant. It will be argued that the impact of BMD on the feasibility of nuclear zero at regional levels will be ambivalent. While the deployment of missile defence systems will contribute to the containment of nuclear ambitions of US allies in volatile regions, it will also add further momentum to existing arms dynamics. In Europe, BMD will most likely not materialize as a substitute for nuclear burden sharing within NATO because of intra-European disagreements over the role for missile defence and, in particular, constraints on public expenditure.

One can further distinguish defences that intercept missiles in their boost, mid-course, and terminal phases. For a detailed characterization of US missile defence systems see Samson Victoria Samson, American Missile Defense: A Guide to the Issues (Santa Barbara, CA: Praeger, 2010).

Second, the article investigates options for making BMD compatible with nuclear zero at the great-power level and extends the analysis to confidence building and arms control as largely neglected options. In this context, this article argues that BMD-cooperation will not succeed in creating trust among the great powers and will thus fail to remove missile defence as an obstacle to nuclear abolition. Given the unlikely prospect of BMD-cooperation, step-wise confidence-building and eventual arms control will be alternative and more viable options for aligning BMD with global zero, although movement in this direction is currently stalled.

The article proceeds in three steps, starting with the analysis of missile defence at the regional level. It then moves on to the great-power level and traces the possibilities and limits of BMD-cooperation. Finally, it focuses on confidence building and arms control as a further option for aligning BMD with the goal of global zero.

MISSILE DEFENCE ON THE REGIONAL LEVEL—ENABLER AND SPOILER

The feasibility of a world without nuclear weapons depends on how security dynamics develop at and between great-power and regional levels. As far as the regional level is concerned, Washington has promoted the idea that missile defence could improve regional stability in view of Iranian and North Korean nuclear weapons programs and aggressive rhetoric. According to

4 Following Holst, “Confidence-building measures (CBM) may be defined as arrangements designed to enhance...assurance of mind and belief in the trustworthiness of states and the facts they create [emphasis original].” Johan Jørgen Holst, “Confidence-building measures a conceptual framework,” Survival 25, no. i (1983): 2. Arms control can be defined as “all the forms of military cooperation between potential enemies in the interest of reducing the likelihood of war, its scope and violence if it occurs, and the political and economic costs of being prepared for it.” Thomas C. Schelling and Morton H. Halperin, Strategy and Arms Control (New York, NY: Twentieth Century Fund, 1961), 2. So, unlike CBM, which range from declarations of intent and channels of communication to regulations concerning the deployment of weapons or troops, arms control measures limit or reduce the quantity and quality of existing weapons.

5 This article draws on Thomas Schelling’s definition of stability, which he developed in the context of deterrence relationships. According to Schelling, a relationship can be “considered more stable, the less susceptible it is to political and technological events, information and mis-information, accidents, alarms, and mischiefs, that might upset it.” Thomas C. Schelling, “The Future of Arms Control,” Operations Research 9, no. 5 (1961): 723. In a regional context, stability therefore means that events or shocks (such as a nuclear weapons test by Iran) do not affect security dynamics and
US expectations, BMD will contain the desire of regional actors to develop an indigenous nuclear weapons capability as a reaction to nuclear programs in their neighbourhoods. To put it briefly, missile defence is to prevent reactive proliferation. In Europe, scholars and decision-makers are debating whether BMD could provide an alternative to NATO’s nuclear burden sharing and thus contribute to the abolishment of tactical nuclear weapons that are still deployed in Europe. This section of the article gives a brief overview of regional BMD capabilities and scrutinizes the expectations that they can contribute to the containment and reversal of nuclear proliferation and thus to the goal of global zero.

In the Middle East, Israel operates and plans the most advanced BMD program. Israel currently deploys six batteries of Patriot Advanced Capability-2 (PAC-2), three batteries of Arrow-2, and three batteries of Iron Dome, its newest defence system against short-range rockets and artillery. In the future, Arrow-3 (against missiles beyond 2000 km ranges), David’s Sling (against rockets of various ranges as well as cruise missiles), and possibly an upgrade to PAC-3 will add to this layered architecture. Although Israel will retain the edge in BMD, countries in the Gulf region will substantially increase their capabilities in the near future. Kuwait and Saudi Arabia will upgrade their PAC-2 capabilities, while the United Arab Emirates will receive PAC-3 and terminal high altitude area defence. In East Asia, Japan’s BMD program is the most advanced with Aegis systems on six warships and 16 batteries of PAC-3. Taiwan deploys PAC-3 but has halted the purchase of additional PAC-systems, allegedly for budgetary reasons. South Korea, which has long been skeptical of missile defences, plans to develop a BMD-system consisting of 48 PAC-2 interceptors and Aegis systems on three destroyers. Finally, Australia will receive three Aegis-equipped destroyers by 2016 and might acquire a fourth destroyer.  

the balance of power (i.e., strategic stability), and crises do not escalate into armed conflict (i.e., crisis stability).

In both regions, the United States is not only the predominant supplier of BMD technologies, but has also advocated the integration of national capabilities into regional defence networks. From Washington’s perspective, the build-up and integration of missile defences is intended to strengthen regional deterrence, protect friends and allies in times of crisis, and thus to contribute to the containment of further nuclear proliferation in volatile regions. In short, BMD is to "reinforce the global nonproliferation regime."7

It is indeed plausible that regional missile defence will have this desired effect of containing nuclear ambitions of US friends and allies in the Middle East and Asia, yet this effect will not derive from the qualities of BMD per se. A country operating missile-defence systems cannot be sure whether the technology will work effectively and would probably not bet the integrity of its population and critical infrastructure on a system that can be overcome by relatively simple counter-measures or saturation.8 So, rather than leading to the deployment of BMD per se, Washington’s involvement in regional BMD activities will reduce insecurity as a driver of nuclear ambitions in countries like Saudi Arabia or South Korea. The integration of US capabilities into regional BMD architectures will assure Washington’s friends and allies of its commitment to regional security, and the deployment of US-operated BMD components on allied soil will make deterrence of external threats more credible. In the Middle East, for example, the United States has operated an X-band radar on Israeli soil since 2008 and two Patriot batteries in the United Arab Emirates.9 To potential aggressors BMD therefore signals that a use of force could affect US troops and compel Washington to react (i.e., BMD has a trip-wire function); to US allies it signals Washington’s long-term commitment to their security and hence contributes to containing their demand for nuclear-weapons capability.

The downside of extending and integrating regional BMD capabilities is that these developments exacerbate regional arms dynamics in at least two ways. First, this effect derives from a second pathway of worst-case thinking regarding the performance of missile defence systems: as the defender will assume the fallibility of BMD, so will the attacker assume high effectiveness of existing or pursuing future systems, not least because the defender will have boasted of effectiveness. This worst-case thinking induces the attacker to take measures that will allow him to overcome the defender’s BMD capabilities. Second, missile defence supports domestic groups advocating the extension of nuclear and missile arsenals can use missile defences in making their case.

In South Asia, India’s planned BMD-system and, in particular, a possible external supply of respective technologies could instigate an action-reaction cycle between India and Pakistan. Breaking with its skepticism regarding BMD, New Delhi announced its intention to develop an indigenous, two-tiered BMD-system in 2001 and has conducted four interceptor tests ever since. India’s BMD capability is so far still only rhetorical and will probably be limited to a relatively small number of interceptors to protect critical nuclear infrastructure and populated areas. Yet New Delhi could extend its capabilities with external help. Washington and NATO have already reached out to India, which has also looked into Israeli and Russian missile-defence technologies. Pakistan is very anxious regarding potential increases of New Delhi’s military capabilities and could, following the pattern of worst-case thinking, eventually perceive an emerging risk to its nuclear and missile capabilities, which compensate its relative conventional weakness vis-à-vis


India.\textsuperscript{14} So the introduction of BMD could make it even harder to tackle the arms dynamic in South Asia, which would obviously run counter to the goal of abolishing nuclear weapons.

Last but not least, Europe, which had long been wary of strategic BMD and respective US initiatives, has recently warmed to the idea of NATO-wide missile defence. At their 2010 summit in Lisbon, NATO countries committed themselves to going beyond the active layered theatre ballistic missile defence program, which they had initiated in 2005 to provide NATO with tactical missile defence. Yet, despite this commitment, the future of NATO-BMD is uncertain, and so is the contribution of missile defence to the elimination of tactical nuclear weapons in Europe.

Going beyond tactical active layered theatre ballistic missile defence towards strategic missile defence will require European NATO members to extend their current capabilities in a significant way. In addition to the Patriot systems of Germany, Spain, the Netherlands, Greece, and (in the future) Poland, and the systems of France and Italy, strategic NATO defence will have to include more capable systems such as terminal high altitude area defence and/or SM-3. With a price of US$9 million for a single terminal high altitude area defence-interceptor and US$10 million for a SM-3 interceptor, the acquisition of strategic BMD will already be a very cost intensive endeavor, even if NATO countries decide to pool sea-based defence capabilities.\textsuperscript{15} In addition to the costs for acquisition, European NATO members will have to cover the costs for integrating and maintaining national capabilities. In view of the Eurozone’s current crisis, plans to cut national spending, and the traditional European reluctance to increase defence expenditures, the prospect for comprehensive NATO-BMD is dim. So, plus ça change, plus c’est la même chose: European contributions will most likely remain limited and US capabilities within the European phased adaptive approach will build the backbone of NATO missile defence for the foreseeable future.

In addition to uncertainties regarding Europe’s willingness and ability to afford strategic BMD, the role of European missile defence in transatlantic burden sharing has been contentious. Germany advocates the idea of using NATO-BMD as a new way of burden sharing and thus as an alternative to 150-


200 tactical nuclear weapons that are still deployed in Belgium, Germany, Italy, the Netherlands, and Turkey. While Norway, the Netherlands, Belgium, and Luxembourg go along with Germany’s position, France and new member states of NATO oppose BMD as an alternative to nuclear deterrence. For this second group, strategic missile defence is not a substitute for but rather an enhancement of nuclear deterrence. At any rate, the moment of truth for NATO’s BMD ambitions and Europe’s discussion of the future of burden sharing is drawing closer as the service life of Europe’s dual-use aircraft, which can be used to deliver nuclear and conventional payloads, will end with this decade. Given the financial pressures on countries within the Eurozone, BMD appears to be an unlikely candidate for an alternative to NATO burden sharing with nuclear weapons.

As this article has outlined so far, the impact of missile defence deployments on regional nuclear arms reductions and eventual disarmament will be ambivalent. The next section shifts the focus from the regional to the great-power level. It first explores the background of Russian and Chinese concerns vis-à-vis the missile defence plans of the United States and why BMD could spoil reductions and the abolishment of nuclear weapons. It then moves on to a critical examination of BMD cooperation, which scholars and decision-makers have presented as an option for increasing trust between the great powers and thus enabling the abolishment of nuclear weapons.

GREAT-POWER COOPERATION IN MISSILE DEFENCE—THE UNLIKELY ENABLER OF ABOLITION

The history of tensions between Moscow and Washington over US missile-defence plans in Europe indicates that regional developments in the realm of BMD are interlinked with the level of great-power relations. Russia had already taken issue with the US decision to withdraw from the Anti-Ballistic Missile (ABM) treaty and deploy its ground-based midcourse defence. But the plan of the George W. Bush administration to build an interceptor site...
for this system in Poland triggered fierce opposition. Although the Obama administration briefly eased this opposition with its attempted “reset” of US-Russian relations, tensions over the US-European phased adaptive approach and the overall scope of Washington’s missile defence have increased in recent months. Unlike Russia, China has reacted in a relatively muted way to US missile-defence initiatives. Nevertheless, Beijing has repeatedly articulated its concern over Washington’s involvement in regional BMD activities and in particular over its supply of missile defences to Japan and Taiwan on the grounds that these supplies could contribute to the remilitarization of Japan and encourage Taiwan to seek formal independence.

Russian and Chinese concerns regarding Washington’s missile-defence plans basically derive from two interrelated factors. The first factor is uncertainty over the future quantity and quality of BMD systems that are intended to protect the US homeland and regional US allies. Decision-makers in Moscow and Beijing fear that technological advancement and the extension of sensors and interceptors could at some point in the future endanger their second-strike capability. For Russia, which currently holds an arsenal of 1,566 warheads on 516 deployed delivery vehicles, this scenario is obviously far more distant than for China, which is estimated to have 178 warheads that are predominately deployed on land-based missiles.19 The second factor, which reinforces anxieties regarding future vulnerabilities, is that Moscow and Beijing view US missile defence not as an isolated issue but in connection with advances in other military-strategic areas such as anti-satellite technologies and conventional global strikes. So from their perspective, the United States is poised to consolidate its military preeminence at the expense of Russian and Chinese security.20 In view of increasing US capabilities in missile defences and offensive technologies, it is unlikely that Russia and China would be willing to reduce their nuclear

arsenals below a certain point. In other words, BMD will sooner or later become a block on the way to global zero.

Given the risk that BMD poses to the reduction and eventual abolishment of great-power nuclear arsenals, scholars and decision-makers have argued for great-power cooperation in missile defence. The advocates of BMD-cooperation expect that joint work on various dimensions of missile defence will assure Russia and China of Washington’s benign intentions and increase trust, which would contribute to the transformation of great-power relations and facilitate the elimination of nuclear weapons. In contrast to these expectations, the reality of BMD cooperation is fraught with uncertainties and pitfalls and is therefore unlikely to generate trust among the great powers. Cooperation with Russia is already an enormous challenge, and the inclusion of China would be even more complex and more prone to failure. Yet leaving Beijing outside a cooperative US-Russian framework would most likely increase China’s sense of vulnerability and give it an incentive to refuse limitations and eventual reductions of its offensive arsenal.

At a very fundamental level, a process of deepening missile defence cooperation requires a joint assessment of threats emerging from the ballistic-missile capabilities of other nations. Presidents Obama and Medvedev set the process of joint US-Russian threat assessment on course at their summit in July 2009. However, a leaked cable of the second round in this process, which took place in December 2009, shows that the two sides’ perceptions coincide on the issue of short-range missiles but still differ on the threat posed by long-range missiles. The cable summarizes the Russian position as follows: “While the Russians were prepared for discussions of cooperation at a strategic level on countering missile proliferation, their position remained the same: in their analysis, the missile programs of Iran and the DPRK are not sufficiently developed, and their intentions to use missiles against the US or Russia are nonexistent, thus not constituting a ‘threat’ requiring the deployment of missile defences.” It is not hard to imagine that an extension of the joint threat assessment to include China would run into even more vexing issues, such as India’s ballistic missile program, which is welcomed by the US but rivaled by China.

Another avenue for potential cooperation is sharing early-warning or tracking data and sensor data. As a first step in this realm, the joint data exchange center was revived at the July 2009 Obama-Medvedev summit.

after it had experienced a troubled past. In addition to its basic mission of exchanging information of US and Russian early-warning systems of ballistic-missile and space-vehicle launches, which is intended to avoid an accidental nuclear exchange, the joint data exchange centre can also gather data of missile launches by other countries. In the long run, the joint data exchange centre could make data available for joint missile defence systems and increase trust among the participants, not least because it would “compromise their national capability to initiate a preemptive attack on the surveillance system partner.”

Russia’s missile attack warning system, which is spread over the post-Soviet region, could also play a crucial role in future US-Russian missile defence cooperation. In particular, radar systems on Russia’s southern flank could provide important data from the zone of proliferation concern, which extends from North Africa to South Asia. By integrating US and Russian early warning radars, for instance in the joint data exchange centre, the efficiency and effectiveness of the systems could be substantially improved. In addition to sharing data on ballistic missiles, the United States and Russia could also explore the exchange of data on cruise-missile launches. As Dennis Gormely emphasizes in this context, NATO and Russia could expand their cooperative airspace initiative, which currently focuses on the exchange of air traffic data to detect potential terrorist airplanes, to also include data on cruise missiles.

Whether sharing data ultimately succeeds in reassuring the participating parties, depends on the characteristics of the information that is shared among them. Looking at the parameters of the joint data exchange centre, which were codified in a memorandum of agreement in 2000, John


24 See Arbatov and Dvorkin, Beyond Nuclear Deterrence, 153; Theodore Postol, “A Ring Around Iran,” New York Times, 11 July 2007, www.nytimes.com. In 2007, Russia offered the United States to share data of its early-warning radar site in Gabala, Azerbaijan. The proposal was meant to be a substitute for US plans to install a radar facility in the Czech Republic, yet the United States would only accept it as an addition to its BMD architecture in Europe and therefore rejected Russia’s offer.

25 See Gormley, The Path to Deep Nuclear Reductions, 40.
Steinbrunner identifies limitations to the exchange of information, which “are clearly designed to protect the underlying surveillance systems from direct scrutiny by the participating partner” and would ultimately fail to provide assurance. It remains to be seen whether Obama’s and Medvedev’s pledge to revive the joint data exchange centre will be followed by concrete steps to overcome these impediments and whether the parameters of data exchange will change to ease these limitations.

Ultimately, cooperation in the realm of missile defence could be extended beyond the exchange of data and sharing of sensors to the actual intercept of missiles. If the option of land-based boost-phase defence systems will be explored in the future, Russia and China could play an important role for geographical and technological reasons. Since these systems would have to be deployed near the launch site, both countries would, at least in principle, be ideal deployment areas for a defence against North Korean intercontinental ballistic missiles heading towards the US. As far as Iranian intercontinental ballistic missiles are concerned, the Caspian Sea or Tajikistan would be possible deployment areas within Russia’s sphere of influence. In addition, Moscow could provide high-speed interceptor-technologies for boost-phase defence, in which Russia is perceived to have an edge over the west.

In the context of deepened BMD-cooperation, the issue of command and control is a major bone of contention. As President Medvedev and Foreign Minister Lavrov have repeatedly emphasized in recent months, Russia expects to be treated as an equal partner in any joint BMD endeavor, a stance that reflects Moscow’s longstanding wish to be treated as a great power and peer. Accordingly, Russia’s leadership has proposed the idea of sectoral, NATO-Russian defence, which basically means that it would be Russia’s responsibility to intercept missiles flying over a delineated sector (including Russia and countries in its western neighbourhood) and headed toward NATO countries, including the United States. This would effectively limit US options for the intercept of enemy missiles, which would be highly

26 Steinbrunner, The Significance of Joint Missile Surveillance, 10.
problematic for Washington to the same extent that a limitation of Russian options would be a non-starter for Moscow.

In order to avoid this problem, Washington has proposed the development of independent systems that would share data on missile launches but not the responsibility for intercepts. Apparently, this proposal of independent BMD systems is less attractive to Moscow because it neither addresses the concern that US and NATO missile defence could at some point be directed against Russia and does not live up to Russia’s demand to be treated as an equal partner in any future BMD architecture. At its core, the idea of independent systems working together as a stabilizer on the way towards zero rests on the problematic assumption of approximate parity in BMD capabilities. As Dean Wilkening (who advocated the idea of connected but still independent systems in a recent article) argued, cooperation would have to “ensur[e] that all major ballistic-missile powers enjoy the benefits of defences at roughly the same rate.”\(^\text{29}\) However, neither Russia nor China has the capacity and interest to develop a BMD program that equals the multi-billion dollar program of the United States, and as was argued earlier, Washington is unlikely to share its BMD technology to compensate for this asymmetry. So the bottom line is that the idea of interdependent systems presents a continuation of the status quo.

Finally, if suspicion constrains the sharing of data on missile launches, it will be prohibitive for the sharing of technical information that would be required in more advanced stages of missile defence cooperation. Countries are reluctant to share technological information they fear might eventually proliferate to countries like North Korea or Iran.\(^\text{30}\) Sharing sensitive defence technologies among the United States—which have a decades-long history of inter-state alliance relations—has been troublesome,\(^\text{31}\) which indicates how difficult it will be to deepen BMD cooperation among countries.

As the analysis has shown so far, missile defence cooperation among the great powers faces an uncertain future. Mistrust is an enormous obstacle for the inclusion of China into a joint-missile defence program, and decades


of Cold War tensions have left a legacy of mistrust that impedes US-Russian cooperation in the realm of missile defence. Moreover, whether cooperation materializes also depends on the countries' management, which Pavel Podvig even considers to be "the most serious obstacle on the way to serious US-Russian cooperation in missile defense." According to Podvig, successful management ultimately depends on institutional backing, which, at least in the Russian case, still does not exist. Even if top-level decision-makers decide to cooperate, its implementation and success depends on whether mid-level members of the bureaucracies have stake in it.

As substantial BMD-cooperation among the great powers is unlikely to materialize and soothe the concerns of Russia and China, confidence building and arms control are further options for making missile defence compatible with the goal of a nuclear-weapons-free world. The final section of this article will analyze challenges and opportunities of this option, which has received comparatively little attention in the debate about missile defence and global zero.

CONFIDENCE BUILDING AND ARMS CONTROL—THE MORE LIKELY ENABLER OF ABOLITION

Confidence-building and arms control measures could assure Russia and China of US intentions and generate trust among the great powers, but as in the case of BMD-cooperation, a number of obstacles prevent progress in this direction. In the United States, the intensive debate over the alleged limitation of BMD in the Strategic Arms Reduction treaty (New START) demonstrated that US decision-makers, and in particular Republicans in Congress, categorically reject any constraint on the future development and deployment of missile defences. In addition to longstanding skepticism of arms limitations, which is particularly strong among the ranks of the GOP, technological considerations are another factor driving the rejection of BMD-related arms control by the United States. In contrast to US-Russian arms control, which regulated the quality and quantity of existing weapons or banned the development of new weapons (as in the case of the ABM treaty), a present-day limitation on missile defence would have to address future capabilities. These capabilities and their limitations cannot be quantified at

33 Personal correspondance with the author, 21 September 2010.
the present moment because future missile threats and the effectiveness of missile defence are unknown.\footnote{The author owes this point to Götz Neuneck.} So, a limitation on the number of launchers and sensors will not be in the cards for the foreseeable future.

Nevertheless, the United States already took first steps towards basic confidence-building measures. The Obama administration plans to establish a BMD-related dialogue with China\footnote{See “Ballistic Missile Defense Review Report,” 34.} and has offered Russia to observe flight test of its interceptors. So far, Russia has remained dismissive, is still insisting on a legally-binding document to guarantee that US/NATO missile defence is not directed against Russia, and has even made this guarantee a condition of further progress in BMD cooperation.\footnote{See “Russia Dismisses US Antimissile Test Proposal as Propaganda,” Global Security Newswire, 9 November 2011, www.nti.org; RIA Novosti, “’No-targeting pact’ key to missile defence deal with NATO—Lavrov,” 2 March 2011, www.en.rian.ru; Tom Z. Collina, “Russia Makes New Proposal on Missile Defense,” Arms Control Today 41, no. 3 (2011): 30.}

Moscow’s approach derives from at least three factors. First, it reflects Russia’s demand to be treated as an equal partner and great power in the international system. As such, Russia wants to be perceived as a strong player capable of setting rather than accepting the terms of agreements. Second, civilian and military decision-makers in Russia have traditionally been very skeptical of political agreements and have therefore insisted on legal arrangements with precise regulations of force levels. And third, Russia uses demands for more stringent measures, which are unfeasible for Washington, to blame the United States for stalling progress in this realm and unilaterally advancing its BMD program. The Russian military and military-industrial complex have pushed this approach of demanding the impossible and blaming Washington for its intransigence, because US rejections of more far-reaching measures help them in making their case for larger investments in certain types of weapons. It is therefore no coincidence that high-ranking members of Russia’s strategic rocket force have been very vocal in criticizing the US and proclaiming counter-measures against its missile defences.\footnote{See, for example, “Russia has to give proportionate response to US missile defence,” ITAR-TASS, 20 December 2011, www.itar-tass.com. The author would like to thank Gerhard Mangott for his input for this section.} At any rate, Moscow’s current approach makes progress even less likely, as its demands lend credence to concerns in the United
States that Russia is not willing to accept small steps and ultimately seeks to limit US advances in missile defence.

Given Washington's and Moscow's positions, there is currently no movement towards confidence-building. Should this stalemate continue, missile defence will most likely block substantial nuclear reductions and the eventual abolishment of nuclear weapons. The current obstacles are significant, but if Russian and US interest in nuclear abolition is genuine, they will be easier to overcome than the obstacles in the realm of BMD cooperation. To get the process of confidence-building going, Russia and China would have to accept that the United States cannot limit its BMD program at the current stage and that confidence-building can only advance by agreements on small steps. The United States, in turn, would have to reconsider the issue of legally binding guarantees that BMD is not directed against Russia and China. As in the case of other agreements under international law, this guarantee could include a withdrawal clause that would allow Washington to react to developments affecting its national security. Critics would note, however, that withdrawing from a legally binding agreement entails significant efforts in justification and political costs, as was illustrated by the US withdrawal from the ABM treaty in 2001.

In a next step, the United States could agree on no-deployment zones for its sea-based interceptors. As Postol and Butt argue for the case of European defence, "restricting the placement of Aegis cruisers such that they are not in the northwest Atlantic or northeast Pacific is one way of assuring the Russians that the United States would not have the ability to use the PAA to engage Russian intercontinental ballistic missiles post-apogee."38 However, Postol and Butt also note that the US Navy would probably resist an agreement and Russia and China would hardly be assured given the US ability to break out of the agreement in very short time.39 Yet, as one step in a series of confidence-building measures no-deployment zones could still contribute to assuring Russia and China of US intentions.

After a series of confidence-building measures and advancing nuclear reductions running in parallel, the question of limiting or even reducing BMD capabilities would inevitably reappear at some point. Even if great powers move towards nuclear zero, they would be concerned about

39 See Butt and Postol, “Upsetting the Reset,” 34.
vulnerabilities as a consequence of unilateral increases in BMD capabilities. Dean Wilkening suggests limiting BMD “to a level that does not threaten any major power’s retaliatory capability”40 in the final, transitory phase towards a defence-dominated world, but it also might be the case that limitations and reductions will have to be solved at an earlier stage to enable further reductions. Although limitations to missile defence seem unattainable from today’s point of view, governments able to accomplish deep cuts and the eventual elimination of nuclear weapons will have built sufficient trust allowing limitations and will see them as a necessary step towards the long-sought goal of global zero. The mechanisms to verify limitations or reductions are already well established and could include exchanges of data on missile defence programs, inspections of interceptor production facilities and bases, or national technical means such as satellite imagery.41

CONCLUSION
The aim of this article is to address the question of what role ballistic-missile defence will play in the abolition of nuclear weapons. In answering this question, the article focuses on regional security complexes and great-power relations. As far as the regional level is concerned, it is argued BMD will be helpful in containing the nuclear ambitions of US friends and allies, but at the same time it will maintain or even aggravate arms dynamics in the Middle East, South, and East Asia. In those regions, BMD will therefore play an ambivalent role as enabler and spoiler of nuclear abolition. In Europe, missile defence could provide an alternative way of transatlantic burden sharing and would thus make the withdrawal of tactical nuclear weapons more likely. However, due to intra-European disagreements over the role of missile defence and, above all, financial constraints, it is unlikely that strategic missile defence of NATO will materialize in the foreseeable future.

At the great-power level, missile defence could spoil further nuclear reductions and their eventual abolishment because Russia and China are concerned about future vulnerability. This concern derives from the open-ended nature of US BMD and the perception that missile defence in combination with other military technologies consolidates US preeminence

40 Wilkening, “Nuclear Zero and Ballistic-Missile Defence,” 120.
at the expense of Russian and Chinese security. In order to prevent BMD from becoming a spoiler, experts have argued for great-power cooperation to increase trust and thus enable nuclear abolition. This article argues that BMD-cooperation will be constrained by a series of substantial problems and will therefore most likely fail to infuse great-power relations with confidence. As a consequence, step-wise confidence building and arms control are the only feasible options to prevent BMD from becoming a spoiler of nuclear abolition. Although this option is stalled at the moment, it will be easier to overcome obstacles to progress in confidence building than in BMD-cooperation. Should the United States and Russia fail to achieve progress in confidence-building, missile defence will make it very hard to take next steps in nuclear reductions and will eventually spoil nuclear abolition.