Selected Essays on the Transition to a New Nuclear Order

Judith Reppy and Catherine McArdle Kelleher, eds.
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SELECTED ESSAYS ON THE TRANSITION TO A NEW NUCLEAR ORDER

Introduction

Judith Reppy and Catherine McArdle Kelleher

What conditions are needed for a stable transition to a new nuclear order, one in which the total number of nuclear weapons would be reduced to very low numbers, perhaps even zero? We have addressed the myriad issues raised by this question with funding from a grant on “Creating Conditions for a Stable Transition to a New Nuclear Order,” co-directed by Catherine Kelleher and Judith Reppy, from the John D. and Catherine T. MacArthur Foundation to the Judith Reppy Institute for Peace and Conflict Studies at Cornell University. The essays collected here are a sample of the work supported by the grant.

The goals of our project are three-fold: to take a fresh look at the theoretical underpinnings of the arguments about strategic security and nuclear doctrines; to encourage members of the younger generation (NextGen) scholars working on nuclear security issues to see themselves as part of a network that stretches from scholars in the field to active participants in the policy process; and to disseminate the products of the project to the policy community, in Washington and elsewhere. We have convened four workshops—in Berlin (December 2014); Ithaca, NY (November 2015); Monterey, CA (February 2016); and Washington, DC (May 2016)—and held several discussion dinners in Washington, DC. We received very welcome assistance in organizing these events from the German Marshall Fund, which hosted our Berlin workshop, and Bill Potter and Jeffrey Lewis at the Middlebury Institute for International Studies in Monterey. Elaine Scott and Sandra Kisner at Cornell provided invaluable support throughout, as did Ari Kattan, Jessica Gottesman, and Debak Das.

A number of themes have emerged from these meetings, which we outline below. First, however, it is worth discussing the broader context in which the project has unfolded. In a very real sense, the seeds of our project were sown by the “Gang of Four” op-ed in the Wall Street Journal in January 2007 calling for worldwide nuclear disarmament.¹ This call, coming from four highly

respected individuals in the policy world, re-invigorated the debate over the usefulness and dangers of nuclear weapons around the world, and spurred a number of similar calls from diplomats and politicians in other countries. In April 2009, President Obama gave an important speech in Prague, in which he stated that the United States was committed “to seek the peace and security of a world without nuclear weapons.” The shift in the political discussion encouraged scholars to return to the topics of strategic security and nuclear deterrence, topics that had fallen into neglect following the end of the Cold War. One such effort was a series of meetings organized by Catherine Kelleher under a grant from the Carnegie Corporation, which resulted in our co-edited book, *Getting to Zero.* In that volume the question of what a transition to nuclear zero would look like was broached, but not analyzed in detail. The current project is intended as a step toward filling that gap.

The dangers that nuclear weapons pose—from accidents, miscalculation in times of crisis, or their acquisition by non-state actors—have persuaded many people that a nuclear-weapons free world is desirable. The optimism that nuclear disarmament might be feasible was based in large part on the success of European countries following World War II in building a zone of peace across the European continent, historically the site of so many bloody wars, and on the peaceful dissolution of the Soviet Union. The Russian annexation of Crimea in spring 2014, however, ushered in a period of conflict in Ukraine and threw the validity of the European model into question. In Asia, stability has been threatened by North Korea’s detonation of nuclear devices and a more assertive international policy on the part of China. These shifts in the international situation have made it clear that a new nuclear order will have to be robust enough to weather unexpected political shocks, as well as the challenges arising from technological changes that can undercut strategic balances and other changes that we cannot foresee. As Harald Müller has cogently argued, global nuclear disarmament will not happen in a world that looks like the world of today, minus nuclear weapons. Instead, it will be the result of a step-by-step process of

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changing ideas, building new modes of cooperation and trust among states, and finding ways to respect regional differences within a global order.

The essays in this Occasional Paper offer ideas for this process. We have selected them from the larger number of commissioned papers and commentaries produced by the participants in the project. We have confined our choices to papers by NextGen participants and included examples from each of the four workshops. The issues discussed include new ways to frame deterrence logics, important both for understanding the history of the Cold War and current questions of nuclear learning (Harrington; Akhtar). Security perspectives both within and between regions are analyzed (Zhao; Martin), and the importance of cooperative approaches to security addressed (Kühn; Gheorghe).

Again, this is only a selection, limited by space constraints. All of the project papers can be found on-line at https://pacs.einaudi.cornell.edu/working-papers, and we commend them all to you. Taken together they offer a range of perspectives and arguments which we hope will stimulate further reflection and discussion on the issues before us.
The idea that nuclear weapons function as a global currency of power has been circulating among nuclear experts since at least the 1970s. It is a concept that resonates strongly with the experience of diplomats working in the fields of arms control and nuclear nonproliferation, particularly those who represent the interests of states without nuclear weapons.\footnote{States party to the Nuclear Nonproliferation Treaty (NPT) sign as ‘nuclear weapon states’ or ‘non-nuclear weapon states.’ According to the terms of the treaty the status of ‘nuclear weapon state’ is reserved for those countries that tested a nuclear explosive device prior to January 1, 1967, making it an exclusive club. There are five recognized nuclear weapon states: the United States, Russia, the United Kingdom, France, and China.} Despite widespread colloquial use of the analogy between nuclear weapons and economic currency, there has been relatively little work done to develop the analogy beyond surface-level similarities and connotations of prestige. This failure to take the analogy seriously and develop its implications could be because there appears to be an obvious limit to its applicability: Unlike coins, nuclear weapons explode. In other words, the fact that nuclear weapons are a categorically different object than economic currencies such as salt, gold, or fiat money, appears to limit the deeper structural homologies between the logic of deterrence and the logic of economic exchange. What does it mean to claim that nuclear weapons are best understood not first and foremost as a weapon of war, but as a global power currency?

In this paper I develop the analogy between economic theory and nuclear weapons as a currency of international power. I argue that although nuclear weapons may not yet function as a full-fledged currency of power, they are much like what one could think of as a global power commodity. Despite obvious differences, the structural homologies between the logic of deterrence and the logic of economic exchange run much deeper than what might previously have been supposed. Developing these structural similarities is the heart of the argument.

In the opening and closing sections I contest the two most common objections to the applicability of this particular economic analogy to the nuclear realm. First, the objection that nuclear weapons explode, while money does not, underestimates the role of physical violence in
establishing and maintaining the value of money. There are many theories of money, and where one comes down on the role of violence in establishing and maintaining the value of our economic currency depends on which theory one follows. Second, the tendency to underestimate the role of physical violence in economic exchange often leads people to assume that claiming nuclear weapons are a type of power commodity has little to do with hard security concerns. Rather than an argument about how and why deterrence works, there is a tendency to reduce arguments about nuclear weapons as a global power currency to the idea that nuclear weapons fulfill a desire for prestige. I argue that it is a mistake to conflate the role nuclear weapons (and nuclear materials more broadly) play as a global power currency with arguments about prestige because it sets up a false dichotomy between the pursuit of a state’s ‘real’ security interests and its desire for social standing. Rather, the transformation of nuclear weapons from a military instrument into a global currency of power is an extension of the security logic expressed by deterrence theory.

In addition to its contribution to developing a theory of nuclear weapons as a global power currency, this paper also makes a contribution to policy-relevant debates about nuclear nonproliferation negotiations. The idea that arms control and nonproliferation agreements are little more than window dressing and have no “independent effect” on state behavior (or at best explain variation at the margin) is a common refrain in realist thought. Until recently, this has meant that, relative to the importance these agreements are accorded at US think tanks and in policy circles, there was little academic scholarship being done on the nonproliferation regime itself. The dynamic has slowly begun to shift as younger political scientists have shown an increasing interest in testing hypotheses against data sets derived from the Cold War.² However,

the nonproliferation regime’s independent effect, in so far as they find one, is limited to coordinating the independent interests of non-nuclear weapon states in halting the spread of nuclear weapons, thereby decreasing the burden of enforcing the superpower consensus against rogues and outliers.³

In contrast, a theory of nuclear weapons as a currency of power renders visible the practices that are essential to understanding the role of nuclear technology in mediating this diplomatic realm of strategic interaction. Rather than discounting arms control negotiations as façades that hide a state’s real intentions, an interpretation of nuclear weapons as a ‘power commodity’ places arms control and nonproliferation negotiations at the center of the analysis as sites of exchange. Nuclear nonproliferation agreements, like the one just concluded between the P5+1 and Iran, are the primary vehicle for negotiating the terms of exchange.

The first section of this paper reviews the recent literature on causes of proliferation and makes the case that it is a mistake to reduce a theory of nuclear weapons as a currency of power to the pursuit of status or prestige. The second section establishes a link between a theory of nuclear weapons as a currency of power and nuclear deterrence theory by drawing out the parallel between Schelling’s distinction between ‘brute force’ and the ‘power to hurt,’ and the distinction in economic theory between products and commodities. In doing so it also introduces the main elements of a theory of nuclear weapons as a currency of power. The third section confronts the most common objection to a theory of nuclear weapons as a currency of power, namely that nuclear weapons “still explode.” In conclusion, I suggest avenues for future research that would further develop the policy-relevant aspects of this research agenda.

Nuclear Proliferation and the Mistaken Demand for Prestige

Despite its resonance with policymakers, the idea that nuclear weapons are a global power currency has played a minor role in the US debate about nuclear proliferation. US-based research on why states choose to build nuclear weapons is commonly understood to have two strands: ‘demand-side’ and ‘supply-side’ explanations. The primary puzzle that motivates this debate is that the nuclear dominos never fell as Albert Wohlstetter and others predicted they would. There is a significant gap between the number of nuclear capable states and those that have weaponized their nuclear programs.

The touchstone for the demand side literature is Sagan’s 1996 article “Three Models in Search of a Bomb.” In it, Sagan divides the existing literature into three main paradigms. His three-part structure maps loosely onto the demand-side debate even 20 years later. There are realists, who focus on the anarchic structure of the international system as driving a state to seek security; domestic institutionalists, who focus on the bureaucratic sources of foreign policy; and a third category that includes ‘constructivist’ arguments broadly construed to include norms, identity, and prestige. Sagan concludes that, although the realist model may best explain the most cases, the evidence supports a multi-causal approach. States do build the bomb when their security is threatened as a realist would contend, but there are also cases in which state behavior is better explained by bureaucratic bargaining processes or as a desire for international prestige.

Despite the fact that Sagan continues to argue that no one theory effectively dominates the field, there is a general bias towards security-based realist explanations. This bias supports a default assumption among realists that there is little to no linkage between the NPT and proliferation. It

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is not that they consider the NPT to be a cause of proliferation, but simply that they consider proliferation agreements largely irrelevant to the problem of proliferation.

In contrast, the supply-side literature, with its focus on the diffusion and availability of technology as a determinant of nuclear proliferation, finds fault with the NPT, which gives non-nuclear weapon states assistance with nuclear energy programs in exchange for abstaining from building a bomb. Not only do supply-side researchers find that the NPT’s effect on a state’s decision about whether or not to weaponize its nuclear program is marginal, but that the NPT spurs nuclear proliferation because it aids in the diffusion of nuclear technology. As Erik Gartzke and Dong Joon Jo put it in their 2007 article, “Determinants of Nuclear Weapons Proliferation”: “The NPT system variable probably has a slight normative constraint on proliferation, as the negative coefficient in the weapons stage implies. However, the inhibiting effect of the NPT is overcome by the stronger technological diffusion effect. Enthusiasm for the NPT among proliferation opponents thus appears to be misplaced.” Matthew Fuhrmann, in particular, seeks to flip the standard narrative on its head by stating unequivocally that, “the conventional wisdom [about nuclear cooperation] is wrong—and dangerous.” To summarize, he argues that civilian nuclear assistance increases the probability of weapons proliferation, especially if a country that already has an active civilian program becomes involved in a militarized dispute. Instead of attributing the gap between (a) the number of nuclear capable states and (b) those that have weaponized their nuclear programs to the existence of the NPT, according to this school of thought the gap is due to the US “nuclear umbrella.” In other words, the primary reason that states do not proliferate is that the United States extends its nuclear deterrent to allies through security guarantees.

These supply-side findings are not uncontroversial—tellingly, Fuhrmann’s data indicate that more than 99% of the time, civilian nuclear cooperation does not lead to a weapons program,

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10 Jo and Gartzke 2007; Fuhrmann 2009; Fuhrmann 2012; Kroenig 2010.
11 Jo and Gartzke 2007, 185.
12 Fuhrmann 2009, 8.
13 Fuhrmann 2009, 30.
much less a bomb, a statistic that highlights just how vanishingly small his findings are. They also fly in the face of received political wisdom. Campbell Craig and Jan Ruzicka refer to the network of “governmental agencies, international nongovernmental organizations, think tanks, and academic programs and institutes” that support and promote the twin goals of nonproliferation and disarmament as the “Nonproliferation Complex.” The nonproliferation complex takes as its point of departure a belief that the NPT—if it is properly implemented and maintained—is an effective policy tool. Analysts argue that the health of the NPT requires adherence to its grand bargain: it requires nuclear weapon states to uphold their Article VI commitment to the pursuit of disarmament. Jeffrey Knopf refers to this belief as the “linkage hypothesis,” the merits of which became a regular feature of the mainstream US foreign policy debate after the Obama administration made the link between the US commitment to disarmament under the NPT and the adherence of non-nuclear weapon states to nonproliferation a central feature of its 2009 Nuclear Posture Review.

Within this discursive landscape, the idea that nuclear weapons function of as a currency of power is typically interpreted as being a demand-side argument about prestige. K. Subrahmanyam, an Indian strategic affairs analyst and champion of India’s nuclear deterrent, developed the most extended treatment of the analogy between nuclear weapons and economic currency, and explained the connection to prestige. The interpretation of nuclear weapons as a ‘global power currency’ has long been influential in India, one of the few states that has continuously flouted nuclear norms by refusing to sign the NPT. Instead India developed its own nuclear deterrent and in 2009 signed a bilateral nuclear cooperation agreement with the United States, an agreement that provides India with many of the same benefits as being a signatory to the NPT. For Subrahmanyam, nuclear weapons functioned as a ‘coin’ of the international realm: “The debate in the U.S. strategic community on the number of warheads, throw-weights, etc. gives an impression that nuclear weaponry today is used in international politics somewhat in the

15 Campbell Craig and Jan Ruzicka, “The Nonproliferation Complex” *Ethics & International Affairs*, 27, 3 (Fall 2013).
way gold stocks have been used in international economics. Gold by itself was of limited use; its value largely depended upon its acceptance by the international trading community. Similarly today, the major nuclear weapon powers are attempting to use their nuclear weapon stockpiles as an international currency of power.” From this premise, Subrahmanyam went on to defend the nuclear ambitions of non-nuclear weapon states: “If this is so, then it is only logical to expect other nations which have a nuclear option to use it as a symbol of power and prestige.”

Subrahmanyam argued that nuclear weapons were not primarily military instruments. It was the entrance that they bought to exclusive diplomatic realms that, in his view, was the primary reason that India should develop its own nuclear deterrent.

If Subrahmanyan’s interpretation of nuclear weapons as means to securing symbolic power and prestige is correct, then theorizing prestige is the key to developing a theory of nuclear weapons as a currency of power. Prestige is often offered as the ‘third’ explanation. It is the one into which cases that do not have straightforward security logics or bureaucratic institutional stories fall. Given the prominence of prestige as an explanation for nuclear proliferation, there is a relative paucity of published work on the concept. Barry O’Neill’s 2006 discussion paper is the most thorough application of prestige to questions of nuclear weapons.

Prestige is what O’Neill calls a “second-level belief” where “[i]f the ‘zero-th level’ of belief is the objective situation and the first level is beliefs about that situation…then prestige is at the second level.” Prestige is not simply a belief shared in a dyadic sense between two individuals, rather it is the function of a belief that is believed to be commonly held within a group. There is a perception, correct or not, that a general consensus exists. O’Neill again: “A party has prestige with a group for a certain quality if (a) the members generally believe that they generally believe that the party has the quality; (b) they generally believe that they see the quality as desirable, and (c) they generally believe on account of the considerations in (a) and (b) that the party holds

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Prestige, while it attaches to an individual, is a phenomenon that belongs to a group in the sense that it is an effect that emerges from a multiplicity of interactions, with or without the presence of the individual in question (who may or may not be a member of the group). The experience of prestige, therefore, confronts individuals as an external fact of life, one that can be controlled and manipulated only indirectly. Based on this definition, O’Neill then goes on to model different mechanisms for influencing prestige through the revelation of information about capabilities.

While O’Neill does not develop the concept of prestige in relation to currency, he does in a passing comment say that it is “somewhat like money, which is largely social and reflexive in nature, and is a common metaphor for prestige.” Technically, it would have been more correct to say that prestige is like wealth, and those objects that support the group-level belief system by communicating and conferring prestige (e.g., nuclear weapons) are like money in this analogy; nonetheless, what he is correctly identifying is the structural similarity at work. There is a similar dynamic in the experience of individuals vis-à-vis the group, in that prestige (the having of it or not) confronts each individual as an objective social fact, just as the value of a dollar bill, while socially constructed, likewise confronts each individual as an objective and unalterable reality. The strength, or stickiness, of that social fact should then vary with the conditions of the group but, like economic inflation and deflation, can be controlled or influenced only indirectly (through the control of a central bank over exchange rates, for instance).

The strength of this prestige perspective lies in this similarity to the currency of power analogy. It moves beyond the simply dyadic constructions of deterrence theory, which reduce international politics to a two-player game rather than accounting for the existence of a structural level dynamic. Yet, despite the evident associations between ‘prestige’ and ‘money,’ I will argue in the following section that it is just as much of a mistake to conflate the theory of nuclear weapons as a global power currency with motives of prestige as it would be to conflate monetary theory with the pursuit of wealth. States that mistake manipulating the ‘currency of power’ for the simple pursuit of prestige will make errors in judgment with potentially disastrous

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consequences. O’Neill, rightly, distinguishes the prestige motive from a state’s ‘objective’ interests, which leads O’Neill to the conclusion that prestige is a motive that can divert a state from doing what is in its military interest. As O’Neill argues: “States often forgo their direct interests for the sake of prestige, investing in projects that display their modernity, engaging in conflicts over symbols of prestige, or building grand but impractical weapons.”

However, as I will explain, a theory of nuclear weapons as a global currency of power renders visible the processes through which states ‘trade’ on nuclear technology in order to achieve their foreign policy and military goals.

What this mistaken prestige perspective overlooks is the extent to which deterrence theory is already a theory of nuclear weapons as a currency of power. The conflation of the currency argument with prestige is due, at least in part, to the perception that deterrence theory deals with the materiality of nuclear weapons and their violence, and saying that nuclear weapons are a global power currency is an argument about their diplomatic function. However, as Thomas Schelling explains, deterrence is also a diplomatic practice. It is the “diplomacy of violence.”

This diplomatic practice is predicated on a distinction between what he calls ‘brute force’ and the ‘power to hurt,’ a distinction that shares structural similarities in common with a distinction from economic theory: products versus commodities.

**Brute Force, the Power to Hurt, and the Logic of Commodity Exchange**

In *Arms and Influence*, Thomas Schelling develops a distinction between ‘brute force’ and the ‘power to hurt.’ “Brute force,” Schelling explains, “can only accomplish what requires no collaboration,” goals such as “exclusion, expulsion and extermination.” In contrast, the ‘power to hurt’ aims at getting the adversary to ‘come along’ on some level: “‘Come-along’ holds are those that threaten pain or disablement, giving relief as long as the victim complies, giving him the option of using his own legs...” In other words, the distinction is between the different ends to which physical violence is a means. Although some forms of violence are more appropriate to brute force objectives and others more appropriate to inflicting pain in order to induce

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26 Schelling 1996, 8.
compliance, the same means can be applied (short of annihilation) to either end. While clear enough in theory, in practice the difference between brute force and the power to hurt is not so simple. Both rely on the means of physical violence. As a result they may, at times, appear identical to an outside observer. The difference lies only in the intended result. In fact, obscuring intentions may be strategic. Playing on the possibility that one intends to use brute force to exclude, expel, or exterminate an adversary (even if one does not intend to go so far) can be an advantage in leveraging one’s ‘power to hurt’ another.

Brute force is only effective against adversaries you can afford to objectify, those whose thoughts, feelings, and desires you can ignore. In contrast, the power to hurt requires that you care for the limits of what physical violence can accomplish and appropriately calibrate the level of harm you impose to activate your adversary’s desire to avoid further punishment. According to Schelling, “…it is not the pain and damage itself but its influence on somebody’s behavior that matters. It is the expectation of more violence that gets the wanted behavior, if the power to hurt can get it at all.” Physical torture to extract information is a good example of the power to hurt. The purpose of torture is not the act of creating pain in and of itself. The purpose of torture is to harness the threat of more pain to come in order to produce information that cannot be extracted through violence alone. Go too far and the desired information will be lost: “It is latent violence that can influence someone’s choice—violence that can still be withheld or inflicted.” The power to hurt opens and maintains a space for interaction ‘before’ violence by postponing the realization of that violence indefinitely into the future. This is the space in which the practices of nuclear deterrence, arms control, and nonproliferation take place. They are all mechanisms that exist to prevent a nuclear war from happening now, and hopefully make its possibility an ever more vanishing feature of the future.

A successful deterrent leverages the power to hurt. It prevents military aggression by the threat, explicit or implicit, of imposing costs in return. This is a standard definition of a punishment-based deterrent. However, Schelling’s distinction between brute force and the power to hurt suggests a further refinement. Deterrence is the act of invoking a credible threat (implicit or

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27 Schelling 1966, 3.
28 Schelling 1966, 3.
explicit) of continued or future application of physical violence in order to discourage an action *not preventable through violence alone*. Take, for instance, a splendid first strike. A splendid first strike is a brute force attempt to destroy the opponents’ nuclear capabilities and eliminate their capacity to retaliate in kind. Leveraging the power to hurt to deter a nuclear attack becomes necessary when a splendid first strike is either militarily infeasible or politically undesirable. This second definition of deterrence emphasizes that a strategy of deterrence establishes a link between violence and the realm of cooperative interaction. This is Schelling’s essential insight, that models of zero-sum games do not capture the complexities of social interactions, that effective strategies—short of extermination—always leverage a combination of conflict and cooperation.

The ‘power to hurt’ provides the conceptual foundation for the transformation of nuclear weapons from an instrument of violence into a currency of power. This is because the power to hurt is predicated on establishing a reciprocal (though not equal) relationship with your adversary. Therefore, the material characteristics that make an object a desirable weapon are of immediate significance in evaluating the effectiveness of brute force, but of secondary importance when your goal is to leverage the power to hurt. Of primary importance is what is sometimes referred to in the literature on deterrence as their ‘threat-value.’ If your goal is to leverage your power to hurt to influence the behavior of your adversary, the instruments of violence at your disposal play a foundational role in placing a demand on your adversary’s attention. This is their primary source of value to you, their ‘threat-value.’ Threat-value is only indirectly linked to the specific material properties of the weapon in question. It is not that the mechanism for the delivery of pain is irrelevant, but rather that it is of secondary importance to the behavior of one’s adversary. The success of a deterrent strategy is not measured in terms of how much pain you are able to inflict, but rather in how effectively the threat of that pain influences your adversary’s course of action.

The nuclear age ushered in a structural shift in the underlying purpose of organized military violence. As Bernard Brodie famously argued, “Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can
have almost no other useful purpose." This shift in ends, from goals that can be accomplished through physical violence alone to goals that require cooperation, opens the door to the transformation of nuclear materials from a weapon of war to a currency of power, but this transformation is far from inevitable or complete.

At present, the system of a nuclear ‘global power currency’ is far from resembling anything more than the barter of commodities. Nuclear materials do not (yet) mediate relations with the same fluidity that money does. As I will explain, money is a special type of highly saleable commodity, produced and regulated for the purpose of facilitating and mediating the exchange of commodities. Developing a system in which the fissile materials necessary to sustain a chain reaction and generate a nuclear explosion (uranium 235 and plutonium) function like a currency similar to gold, or perhaps like a purpose-specific coupon or other type of special money, would require further institutionalization of the control of fissile materials. There would need to be an institutionalization of those mechanisms, including the Fissile Material Cut-off Treaty and the further development of the system of fuel banks, designed to accentuate the qualities of fissile materials essential to their role as a currency, namely scarcity and durability.

A more accurate parallel for what Subrahmanyam referred to as ‘nuclear coins’ would be ‘nuclear commodities.’ Nuclear weapons in their role as a deterrent function much like a commodity within a barter system. Structurally, Schelling’s distinction between brute force and the power to hurt mimics the Marxian distinction between a product and a commodity. The product/commodity distinction, and more specifically its roots in the labor theory of value, is not uncontroversial. The interpretation of it here is derived from the early pages of Capital, which even Marxist scholars find challenging and contradictory. However, for the purposes of this analysis it is possible to set aside the controversial aspects of determining the basis of absolute value. What is significant for this discussion is that, like the distinction between brute force and the power to hurt, the difference between a product and a commodity exists not in the material

means available, but only in terms of the ends for which the item is intended. Products are made for personal consumption, whereas the logic of exchange governs the production of commodities. The same physical item can be either a product or a commodity depending on whether or not the owner intends to realize its value through consumption or exchange, just as a weapon can be used for brute force or the power to hurt.

Like commodities, the production of nuclear weapons is driven, not by plans for their immediate consumption, but rather by the role in a complex system of reciprocal exchange. The threat-value of nuclear weapons is always relative and reflexively determined. The (threat) value of action C is expressed through its equivalence to the value of the adversary’s reaction B, and vice versa. In other words, in order for military action C to be understood as having value as a threat, a second military action B (the value of which must be equal to or less than the value of action C) must have been threatened, and it must be possible for action C to be interpreted as a meaningful response to action B (meaning that there is a level on which the two actions can be understood as commensurable). In the language of deterrence theory, the perceived costs of a retaliatory attack must exceed the perceived benefits of aggressive military action for deterrence to be successful.\textsuperscript{32}

This logic of establishing value through relative and reflexive calculations provides a bridge to the new practices of bilateral and multilateral diplomacy in which states ‘trade’ on nuclear technology to achieve \textit{political ends not achievable through violence alone}. These diplomatic negotiations take place in the time and space opened by the mutual threat of ‘more to come.’ A theory of nuclear weapons as a currency of power complements deterrence theory by theorizing the role of materiality in constituting this new diplomatic realm. Whereas deterrence theory concentrates attention on the physical characteristics that make nuclear weapons an effective instrument of violence, a theory of nuclear weapons as a currency of power reveals the importance of scarcity, durability, and divisibility in making nuclear weapons—and increasingly the fissile materials that are necessary to sustain a nuclear chain reaction—essential to understanding the practice of ‘trading’ on access to nuclear materials within this diplomatic realm.

Arguably countries like North Korea and Iran have responded successfully to the emergent incentives of this system in which flirting with crossing a nuclear threshold, or hedging, can open negotiations with one or more of the nuclear weapons states. In this way both North Korea and Iran, by first developing and then giving up a portion of their nuclear capabilities have been able to secure other goods (ends not achievable through violence alone), including, for instance, food aid and the lifting of sanctions. Iraq, in contrast, (one of the states that O’Neill points to as evidence for his theory of prestige) failed to understand the structural incentives and was caught without any nuclear materials or illicit activities to trade away. Far from the desire for prestige, these strategies resulted in tangible costs and benefits.

Increasingly what we are seeing is a choice between thickening an international nonproliferation regime dedicated to maintaining the characteristics that may some day make fissile materials an effective currency of power and contribute to the project of disarmament through the gradual disembodiment of nuclear weapons, or a return to a world of naked deterrence and brinksmanship. Confidence in that system, even today, remains closely linked to the underlying access to brute force afforded by nuclear weapons. However, that does not mean that a transformation toward a thicker system of arms control and nonproliferation could not provide a means for reducing the dependence on an ever-present nuclear threat to maintain the system of strategic stability.  

But Nuclear Weapons Still Explode

The most common objection to this project is the fact that, unlike a currency such as gold, “nuclear weapons still explode.” There are usually one of two intuitions behind this objection. The first is a basic misunderstanding of currency and its relationship to materiality. In the United States and Western Europe it is entirely possible to take for granted the experience of money as digits on a screen, but that is a relatively new and rare phenomenon. Therefore, I open this section with a basic explanation of gold as an example of what I mean by currency. The second

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intuition behind the objection is an imagination of currency as emerging out of relationships of cooperation in which the problem of violence has been previously solved. This objection often comes from individuals with a neorealist orientation who generally view international institutions as simply epiphenomenal of great power interests. I point this out because these same individuals also tend to gravitate toward a similar understanding of money (the Mengerian theory of money). There are, in fact, many theories of money, most of which take relationships of violence and power as endemic to the emergence of money. The implicit theory of money in this paper is most closely associated with Georg Simmel.34

Currency is a special commodity, one that is particularly salable because it has been collectively deemed to be a medium of exchange. Currencies take many forms. The money that we use as currency in today’s digital age is disembodied to a historically unprecedented extent. Today our confidence in the global financial system is linked to the credibility of the United States’ government to maintain the value of its dollar. Historically, however, confidence in the value of currencies was more closely linked to their material properties. Until President Richard Nixon abandoned the gold standard in 1971, gold backed all US dollars, meaning that every US dollar could be exchanged for an equivalent amount of gold.

Gold has a number of characteristics that make it appropriate to serve as a currency. It is scarce, durable, and divisible. Unlike paper money (which is artificially scarce), gold is naturally scarce, meaning there is a limited supply of it found in nature. It cannot be manufactured, except (ironically) through bombardment in a nuclear reactor or intense neutron source. The gold manufactured through this process is, however, radioactive and therefore not appropriate to be circulated as currency. Gold is durable, meaning it does not decay over time, and by heating it, gold becomes divisible into measurable units of different quantitates.

Gold also possesses many other material properties that make it useful, not only as a medium of exchange, but also as a product of consumption. It is unusually malleable, conducts electricity, will not tarnish, is a good metal alloy, and can be worked into wires or sheets. All of these sensuous qualities mean gold has many applications in addition to its role as a medium of

exchange. Dentists use gold as a tooth filling, aerospace engineers as a lubricant and protective shield, and electrical engineers as a conductor. Small amounts of it exist in many of our appliances and computers.

The idea that gold is valuable, not only because it is a medium of exchange, but also because it valuable in an absolute sense, accords with a certain common-sense understanding of how money works. It corresponds more or less to the barter theory of money, which is associated with the Austrian school of economic thought and the work of Carl Menger. The intuition behind this approach is the idea that money exists because it solves the basic problem of barter. Namely, in order to make a successful trade you have to find someone else who both has something you want and that wants what you have to give. This may be difficult, however, depending on how salable the commodity you have is. First, you may have to make a trade for something that you do not want simply because it is more salable than what you had before. In this way you increase your probability of securing that thing you ultimately want. Over time communities converge around certain commodities that are eventually universally accepted as money. Once a commodity is universally accepted as money it is differentiated from other commodities by the fact that it becomes increasingly more salable and it is sought after purely because of its function as a medium of exchange.

The commodity theory of money accords most closely with the realist interpretation of the power of nuclear weapons. The similarities are not accidental. In fact, Waltz’s book Theory of International Politics, which continues to be a touchstone for the American field of International Relations more than four decades after its publication, draws explicit parallels between the structural realist theory he develops and the brand of neoclassical economic theory closely associated with the Austrian school. Just as the basic laws of supply and demand arise from the interaction of firms, the laws that govern state behavior are not imposed by an external political

35 Karl Marx, Capital: A Critique of Political Economy, Vol. I (New York: Vintage Books, 1977), 164. In economics it is a distinction that has been picked up and turned over by many people. I return to Karl Marx for my preferred formulation, though discussions of it can be found in any text concerned with understanding the sources of economic value; quotations could just as easily be drawn from Adam Smith or Georg Simmel.
authority, but rather arise from the interaction of states under the condition of anarchy. In order to complete the analogy, power for Waltz must then function much like money, which he achieves by assuming perfect fungibility between power and its resources.\textsuperscript{38}

Nuclear weapons, within this neorealist framework, are the ultimate form of power. Just as money emerges out of a barter system by solving the problems of inefficiency, nuclear weapons as a new commodity form emerge out of state-based interactions by solving the problem posed by the inefficiency (or more specifically, the irrationality) of nuclear war. Likewise, as for Menger, where the commodity that emerges as a universal equivalent does so not simply because of the qualities that make it an appropriate money form (scarcity, durability, divisibility), but also because it is a more saleable commodity in its own right, the emergence of nuclear weapons as a special form of weapon that achieves a suprasensible status as an object of exchange is not separable from their absolute value as an instrument of violence. Within a realist framework, the capacity for violence is ultimately the source of a nuclear weapon’s power.

However, as Nigel Dodd explains in his book, \textit{The Social Life of Money}, there are competing theories of money. There is the debt theory of money, which is most closely associated with Maynard Keynes, there is Georg Simmel’s philosophy of money, there is Marcel Maus’ description of money’s relationship to gift exchange, or an adaptation of Rene Gerard’s theory of money as the product of a system based on mimesis and violence. Unlike the Austrian school’s idea of money as emerging from barter between equals, many of these other theories emphasize money’s relationship to power, violence, sacrifice, and authority. They challenge the image of commerce as a realm of exchange free of power politics, instead emphasizing the pacifying effects of monetary exchange.

Take for instance the Keynesian model. Money grows out of the practice of paying tribute, or offering sacrifice. It is rooted in obligation and originates in a debt to the gods. There is evidence, for instance, of associations between early Greek coinage and sacrificial objects,

\textsuperscript{38} Robert O. Keohane, “Theory of World Politics: Structural Realism and Beyond,” in \textit{Neorealism and Its Critics} (see note 18), 167.
particularly iron spits (etymologically, the Greek ‘drachma’ means “a handful of spits”).\textsuperscript{39} The crucial point here is that money does not emerge out of a commercial relationship between equals, but rather is a tax paid to a political or religious authority. Money does not exist independently of the state in a purely commercial sphere, but rather is a product of state authority. This alternative Keynesian framing carries with it very different policy implications than the Austrian model described above in that it prescribes a much larger role for the state in managing the value of money.

A Keynesian model of money in application to nuclear strategy points towards the necessity of a world state. The role of the state in the debt theory of money suggests that, for nuclear weapons to continue to develop as a power commodity, a supranational authority with the ability to impose obligations on states and regulate the value of a ‘nuclear currency’ will be necessary. This interpretation of money as deriving its power from the authority of social institutions leads to the conclusion that the violence of nuclear weapons is necessary to their power unless or until a world state with a legitimate monopoly on the use of violence displaces the role of nuclear weapons in maintaining a stable deterrent.

Georg Simmel offers yet another alternative. He theorizes exchange as a process of “reciprocal surrender” or “mutual sacrifice” because to “\textit{gain} something, we must simultaneously \textit{lose}.”\textsuperscript{40} The objects that are valuable to us are the ones that resist our desires and are most difficult to acquire. In other words, they are the most valuable precisely because their gain entails the greatest loss. Value, and money as its embodiment, is the quantification of this loss; it is a measure of the distance between a subject and his or her object of desire. Simmel’s theory has many more dimensions, but what is essential to take away from it for the purpose of this discussion is that this process of quantification introduces an element of detachment from the underlying object. As Dodd explains it: “money represents the generic \textit{idea} of value. By virtue of its objective and abstract character, money is capable of standing in for any specific, concrete value in the process of exchange.”\textsuperscript{41} Money as a universal equivalent inserts a new element into

\textsuperscript{39} Dodd 2014, 23–5.
\textsuperscript{40} Dodd 2014, 27. Italics in original.
\textsuperscript{41} Dodd 2014, 29. Italics in original.
the process of exchange, one that changes the character of the relation between both the subjects engaged in a reciprocal act of exchange and their relationship to the objects of their desire. This is an evolutionary story about how money constitutes relations. The argument is that money through the act of quantification introduces a new element into social processes.

In so far as the act of quantification enables the reification of social value and enables the alienation of subjects from the fruits of their labors, this act of quantification is a frequent subject of critique. However, arguably, the processes of quantification that constitute nuclear war plans and arms control negotiations enable the transition from a world of violent conflict to *the achievement of ends that could not be achieved through the application of violence alone*. Deterrence provides the underlying logic of equivalence, but once quantification is introduced through arms control, the character of the process changes. There is a level of abstraction inserted between the military requirements of deterrence and what would become the standard practice of agreeing upon equal numbers. According to Steve Kull, the moment at which the relative value of nuclear weapons was divorced from any direct relationship to an underlying basis in material effects was during the Strategic Arms Limitation Talks (SALT). Kull argues that the substitution of a numerical balance of nuclear forces for a military strategic analysis became a matter of official US policy with the ratification of the SALT I Treaty in 1972. At the time of the negotiations, the negotiators of the treaty were primarily concerned with its strategic military implications, and thus, in the spirit of détente, were willing to accept numerical inferiority in some areas for superiority in others. However, when ratifying the treaty, the Senate added an amendment stating that the United States would negotiate a subsequent treaty with the Soviet Union that “would not limit the United States to levels of intercontinental strategic forces inferior to the limits for the Soviet Union.”

Up until this time, the nuclear arms race between the two countries had been driven by the logic of counterforce targeting, which meant that the relative value of nuclear weapons maintained a basis in military utility. The US and Soviet arsenals were tied to one another through the military practice of targeting. Although the illogic of the size of the arsenals was too apparent to ignore entirely, especially for those with top-secret knowledge of the intimate details, the legitimacy of

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the nuclear arsenal was still maintained with respect to the value of destructive effects of the weapons.

Arms control transformed the basis of the threat-value of nuclear weapons by politicizing numerical equivalence at the expense of military utility. As US Secretary of Defense under President Jimmy Carter, Harold Brown, argued in defense of START II: “The United States and its allies must be free from any coercion and intimidation that could result from perceptions of an overall imbalance or particular asymmetries in nuclear forces…. Insistence on essential equivalence guards against any danger that the Soviets might be seen as superior—even if the perception is not technically justified.” Negotiated limits on the value of the US and Soviet arsenals moved the basis upon which the relative value of nuclear weapons is calculated from material effects (as senseless as understanding those effects in relative terms may be) to a basis in the political perception of relative equality.

**Conclusion**

Contrary to the assumption that, due to the inherent violence of nuclear weapons, there is a limit to the application of the analogy between currency and the role of nuclear materials in mediating international conflict, I argue that this limitation is overcome by the same distinction that Thomas Schelling developed to cope with the irrationality of mutual assured destruction. The similarities between deterrence theory and economic theory begin with Schelling’s distinction between ‘brute force’ and the ‘power to hurt.’ This distinction is central to debates about nuclear strategy. It provides the conceptual foundation for the ‘rationality of irrationality’—Schelling’s idea that it is rational to threaten an act of brute force in order to leverage one’s power to hurt, even if it would be irrational to act on that threat in the final instance.

Yet despite—or maybe because of—its centrality, the distinction between brute force and the power to hurt remains obscure relative to its significance. Compared to first-strike versus second-strike capability, or counterforce versus countervalue targeting, the brute force/power to hurt distinction remains underdeveloped. The argument in this paper, therefore, makes a unique contribution to deterrence theory, one that improves the ability of deterrence theorists to ‘make

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43 Kull 1985, 33.
sense’ of the strategies of non-nuclear weapon states by connecting deterrence theory to the transformation of nuclear weapons from an instrument of violence to a currency of power. Whereas deterrence theory concentrates attention on the physical characteristics that make nuclear weapons an effective instrument of violence, a theory of nuclear weapons as a currency of power reveals the importance of scarcity, durability, and divisibility in making nuclear weapons—and increasingly, the fissile materials that are necessary to sustain a nuclear chain reaction—essential to understanding the practice of ‘trading’ on access to nuclear materials within this diplomatic realm.

By grounding a theory of nuclear weapons as a currency of power in the foundational categories of deterrence theory this paper brings a new perspective to contemporary debates about nuclear deterrence and nonproliferation. For instance, it brings an added level of theoretical depth to Vipin Narang’s arguments about “catalytic deterrence,” a nuclear deterrence strategy designed to draw the attention of a third party.\textsuperscript{44} It also interacts with the contemporary debates about disarmament, including Nick Ritchie’s development of the idea of ‘devaluing’ nuclear weapons as a key element of moving toward a nuclear weapon free world.\textsuperscript{45} Finally, it provides new insights into the nuclear strategy of non-nuclear weapon states, like Iran, who have already begun leveraging the production of nuclear materials by engaging in a strategy of ‘weaponless nuclear deterrence-by-denial’—simultaneously flirting with the possibility of crossing the nuclear threshold to garner international attention and maintaining a credible commitment to their ‘peaceful’ nuclear program by making it difficult to destroy. That attention became a key component of a high-stakes foreign policy and military strategy to change Iran’s standing vis-à-vis the established nuclear weapon states and become a recognized regional power.

The South Asian experience of Indian and Pakistani nuclearization and the lessons learnt thereafter is different from the Cold War experience of the United States and the Soviet Union. While there are some structural similarities that remain the same for all nuclear weapons states, there are major differences in terms of how Indian and Pakistani threat perceptions have shaped their strategic culture and outlook given their shared past, ideologies, relationships with other countries in the international system, and their geographical placement in the regional system. In my co-authored monograph with Debak Das on ‘Nuclear Learning in South Asia’, we analyzed the lessons learnt by India and Pakistan at the following three levels: the individual, the organizational or bureaucratic, and the systemic levels (see figure below).  

At the Individual level, lessons by India and Pakistan are learned differently given the unique nature of the nuclear-decision making/policy elites in each country. In Pakistan, the nuclear decision-making elite consists of both politico-military elements, while in India, it is politico-scientific, with the military playing a minimal role in the decision-making process. Even after eighteen years of nuclearization, the nuclear establishment (politico-military/politico-scientific) in each country remains unchanged. At the domestic or state level of analysis, nuclear behavior is not the result of the state behaving as a unitary actor; rather the type of regime/government, organizations, and bureaucracies in each country have influenced, shaped, and defined their learning trajectories. Take, for example, the evolution of the ‘deterrence posture’ adopted by India and Pakistan over the past eighteen years. Both countries started by adopting ‘credible minimum deterrence’ as their defining doctrine, but over a period of years both countries have made attempts to modify their deterrence postures, even though each still maintains that its posture is ‘minimal’. The level of Indian nuclear modernization in the past couple of years and its plans for future modernization reveal that deterrence will be anything but minimal, and it is quite possible that in coming years we will see a shift in the Indian strategic lexicon whereby the Indian policymakers and scholars will start using ‘credible deterrence’ sans the ‘minimal’. For Pakistan however, the shift has already taken place, whereby ‘credible minimum deterrence’ has

been replaced with ‘full spectrum deterrence’, even though the establishment believes full spectrum deterrence to still be credible deterrence at minimal levels. What ‘minimal’ entails, however, is unknown for both countries and is open to interpretation. After eighteen years of nuclearization, ‘evolution of deterrence’ is a set pattern, one that clearly defines the nuclear learning trajectories of both India and Pakistan as they continue to grow as nuclear weapons states.\(^2\) I would maintain that the path to nuclear modernization has itself been a negative outcome, for it entails a forever increasing arms race in the region, but the lessons generated for

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deterrence and steps taken by both countries for the augmentation and sustainability of deterrence credibility are positive.

**Systemic Influences on Indian and Pakistani Nuclear Choices**

The first, and perhaps the most important, lesson that the two countries learnt came from their observations at the systemic level and how the two nuclear superpowers, the U.S. and the Soviet Union, conducted their affairs. Their outlook stemmed from the international system that took shape post-WWII up until the early 1970s, which gave birth to a nuclear order that recognized only five nuclear weapons states (NWS), namely, the United States, Russia, UK, France, and China, as the only legitimate nuclear powers. The entry to the nuclear club was closed to all other countries after the Non-proliferation Treaty (NPT) came into force in 1970. In South Asia, India and Pakistan challenged this nuclear order and refused to become part of the non-nuclear club or the treaty that refused entry to any future nuclear aspirants.

In their run up to nuclearization, India and Pakistan observed that the inconsistencies of the established nuclear order were a sort of ‘organized hypocrisy’ whereby the privileged five enjoyed a status no others did in the international system. Both countries believed that nuclear weapons were a currency of power, prestige, and security—a negative lesson, perhaps, but a lesson nonetheless. The duo learned that deterrence was not just a jazzy concept, but that it actually worked and the balance of terror ensured ‘nuclear peace’. To nuclear optimists this might appear as a positive lesson, but if you were to ask someone today to make a prediction about the next 70 years of nuclear peace, then the answer might not be a resounding yes, which in itself is the single most disturbing reality of a world with nine NWS.

The organized hypocrisy of the nuclear non-proliferation regime—whereby, having monopolized the global nuclear export control arrangements (Nuclear Suppliers Group et al.), several countries controlled who benefitted from nuclear energy, trade, and commerce—was perhaps the most influential negative lesson, emboldening the desire of India and Pakistan to achieve their own nuclear weapons capability. After having used nuclear weapons in the one and only incident in history thus far, the United States led the way in promoting the idea of a ‘nuclear taboo’ or the non-use of nuclear weapons, establishing it as a tradition that conveniently reinforced the nuclear
order by invoking the ethical, moral, and humanitarian arguments against the use of nuclear weapons. These arguments did manage to discourage prospective proliferants, but not without exceptions. On the promises made, despite the ‘good faith’ approach enshrined in the NPT to work towards nuclear disarmament, the five NWS continued their respective nuclear and missile developments over the years until they reached nuclear sufficiency. The negative lesson therein echoed lack of commitment and non-seriousness about nuclear disarmament by the P-5. Even today, the U.S., Russian, and Chinese nuclear modernization attempts are indicative of a new reality in which the nuclear disarmament pillar of the NPT regime might become obsolete in coming years because the de jure NWS lack commitment to follow through on nuclear disarmament. Last but not least, Israel becoming the closet nuclear proliferant in the 1960s and managing to maintain false nuclear ambiguity even today only helps reinforce this organized hypocrisy.

These examples allow us to achieve a systemic understanding of the discriminatory nature of the nuclear order, which created the divide between the haves and have-nots and was not ideal for discouraging nuclear proliferation. And since the system has held on to this discrimination, conditions to discourage further nuclear proliferation are not conducive enough to deter future proliferants. This first set of learning took place by just observing how NWS behaved in the international system and how the system was geared to benefit the few. It shaped the psyche of the nuclear outliers that India and Pakistan became post 1970 and shaped their decision to acquire nuclear weapons.

**Pakistan’s Nuclear Learning**

Specific to Pakistan, the learning took place at several levels and was related to the Indian nuclear developments post-1970 and how the international community responded to those developments. Pakistan’s nuclear policy is driven by the security dilemma it faces vis-à-vis India. In the decade of the 1970s alone, a series of events cemented Pakistan’s thinking about the discriminatory nature of the non-proliferation regime. Pakistan proposed the creation of a nuclear-weapon-free zone (NWFZ) in South Asia in September 1972, two years before the Indian nuclear test in 1974; however, the proposal didn’t gain traction due to lack of support by the P-5, with the exception of China. After the Indian nuclear test in 1974, the UN General
Assembly approved Pakistan’s proposal to create a NWFZ in South Asia, but India and Bhutan voted against the proposal.³

Like India, which sought positive security assurances against China when the NPT was being negotiated in the late 1960s, Pakistan also attempted to get positive security assurances against India in the late 1970s, but to no avail. After the Indian nuclear test in May 1974, Pakistan’s narrative suggested that it was being persecuted for a crime that India had committed. India had conducted its first nuclear explosive test on May 18, 1974 by separating plutonium from the spent fuel from its Canadian-supplied nuclear reactor CIRUS (Canada-India-Reactor-United States), for which the United States has supplied the heavy water.⁴ The Indian nuclear test (dubbed a peaceful nuclear explosion or PNE) was criticized worldwide for violating the integrity of bilateral nuclear agreements with Canada and the United States. After the Indian nuclear test, Canada unilaterally terminated its nuclear cooperation with Pakistan on December 22, 1976. Pakistan objected that Canadian decision was unjust, since Pakistan as party to the agreement had not violated any terms of their contract and that it was being punished for ‘India’s crime’. Pakistani press reported that “Canada, betrayed by India and publically acknowledging its inability to influence her…unaccountably sought to bill all that to Pakistan with interest.”⁵

Pressure and denial of access to nuclear technology for peaceful purposes/civilian nuclear energy, e.g., the cancelled Pak-French plutonium reprocessing agreement in 1978, further added to the disappointment that was brewing, especially with respect to Pakistan-U.S. relations and the overall discriminatory nature of the non-proliferation regime. Additional pressure on Pakistan came when nuclear non-proliferation sanctions were invoked against Pakistan to restrain its nuclear ambitions. The Symington sanction, a U.S. non-proliferation amendment to the Foreign Assistance Act of 1961 passed in 1976, stated that U.S. foreign economic and military assistance would be suspended to any country found to be delivering, receiving, transferring, or acquiring

nuclear enrichment technology.\textsuperscript{6} Pakistan was placed under the Symington sanctions in April 1979 after it was discovered that Pakistan was building an enrichment facility in Kahuta. Similarly, the Pressler sanction, a Pakistan-specific, non-proliferation legislation passed in 1985, was invoked in 1990, when there was evidence that Pakistan possessed a nuclear device, and U.S. President George H.W. Bush failed to certify to Congress that Pakistan did not possess a nuclear device.\textsuperscript{7} The lessons learnt by Pakistan through the sanctioning and denial regime were negative, with the foremost being that the road to nuclearization goes through the black market. But even there, Pakistan’s access to the black market was under the watchful eyes of the United States, and Pakistan did nothing that the U.S. government was not aware of at all times with respect to ‘proliferation’ and access to nuclear technology through the black market.

Pakistan’s strategy to deal with the altered strategic dynamics in South Asia after the Indian nuclear test in 1974 consisted of the following: a) maintain nuclear ambiguity while seeking conventional military arms from the United States to modernize its military to counter the Indian conventional and nuclear threat; b) seek nuclear guarantees from major powers; c) stay out of the NPT while internationalizing the issues of both regional nuclear proliferation and disarmament by speaking out against the presence of nuclear weapons in the region; and d) acquire civilian nuclear technology from various international suppliers to firstly, meet its energy requirements and secondly, to develop its nuclear infrastructure.

\textbf{South Asian Nuclear Experience and Positive Lessons}

Since 1998, nuclear Pakistan and nuclear India have had several crises that have been managed by the active involvement of the United States and several other back channels. They are: Kargil 1999; the 2001-2002 Twin Peaks Crisis; and the 2008 Mumbai Attacks. The international community wants the two countries to learn from the U.S.-Soviet Cold War experience and understand that even when deterrence is credible, minimal or not, it is not fail-proof. Pakistani and Indian experiences during these crises and nuclear signaling thereafter suggest that there is absolutely no space for limited war under the nuclear umbrella. However, both countries believe

\textsuperscript{6} The International Security Assistance and Arms Export Control Act of 1976 (popularly referred as the Symington Amendment); see Section 669, Chapter 3, Part III of the Foreign Assistance Act of 1961; Public Law 94-329.

\textsuperscript{7} Subsec (e), Sec 902 of the International Security and Development Cooperation Act of 1985; Public Law 99-83
that their nuclear experiences and behavior towards each other is uniquely determined by their history and geography, which give rise to new sets of analytical variables that are different from those used to analyze the U.S.-Soviet dyad. And given that exceptionality, any ‘learning’ about nuclear Confidence Building Measures (CBMs), crisis management, nuclear risk reduction, arms race stability, or reducing nuclear arsenals to an appropriate size or even reaching eventual zero cannot be an ‘external’ process. It can neither be ‘outsourced’ nor ‘imported’. It needs to be an internal process.

New Learning from Indo-Pak Bilateral Crises

In our ‘Nuclear Learning in South Asia’ paper, Debak Das and I propose several lessons that both India and Pakistan still need to learn from their bilateral crises.

For lessons from the bilateral crises, we propose the following:
1. No measures should be taken by either country to destabilize mutual nuclear deterrence.
2. Nuclear signaling early on in the conflict has the potential of gearing a crisis towards a rapid nuclear escalation.
3. Limited war under the nuclear umbrella is a lethal doctrine, and thus should be abandoned.
4. Bilateral mechanisms of crisis stability should be devised to reduce the reliance on third-party crisis management.
5. There should be a continuous process of conventional and nuclear trust and CBMs between the two countries.
6. There should be no ambiguity about nuclear force postures vis-à-vis each other.
7. The deterrence value of battlefield nuclear weapons is fragile and provocative to say the least. 8

We further propose CBMs for future risk-reduction between India and Pakistan, as follows:
1. Adopt CBMs that stress early warning.
2. Establish a Bilateral Crisis Management Center.
3. Adopt CBMs on reducing the threat of cross-border nuclear sabotage.
4. Adopt a common nuclear-strategic lexicon to avoid miscommunication and misunderstanding.
5. Engage academia and experts in strategic debates for policy inputs.
6. Negotiate an agreement on Conflict Avoidance Measures (CAMs) to ensure steps to establish bilateral and multilateral preventive diplomacy.
7. Come together in a common forum like the Nuclear Security Summit to address common concerns related to but not restricted to nuclear and radioactive security.
8. Promote and establish a bilateral, if not multilateral, No First Use agreement. 9

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8 Akhtar and Das, Nuclear Learning in South Asia, pp.38 (pdf)
**Nuclear Stability at Low Numbers: The Uniqueness of the South Asian Challenge**

India and Pakistan truly de-hyphenate on what shapes their nuclear behavior and how they have internalized the lessons learned, pre- and post- nuclearization. For India, there have been systemic and sub-systemic influences that have shaped its nuclear choices and behavior and continue to do so. For Pakistan it has mainly been sub-systemic influences that have shaped its nuclear choices and behavior and continue to do so. Since the sources of the influences that shape their nuclear behavior are different, each country would require a unique approach if the goal is to integrate them into the new nuclear order. And in order for that to happen, the international community needs to understand those influences, respect their differences, and work towards mitigating the circumstances that continually reinforce their desire to expand their nuclear weapons infrastructure.

If you were to ask India and Pakistan, they would say they are already at low numbers and there is nuclear stability, with the exception of a crisis here and there. That is, the ‘South Asian Challenge’ does not really appear to be a challenge to the two South Asian countries. You add China to the mix and it also maintains that its stockpile is not increasing beyond a minimal number that it has determined to be sufficient for credible deterrence. Therefore, the challenge lies somewhere else and not in South Asia. Why do India and Pakistan believe it is not their problem? That eventual zero or disarmament is not their responsibility to share or even their burden to bear? The answer is not that difficult.

Former U.S. Secretary of Defense Robert McNamara, in his 2009 *Foreign Policy* article ‘Apocalypse Soon’, wrote the following, which is still valid and hauntingly accurate today and will remain so for future, given the pace of nuclear modernization by the United States and Russia:

“What is shocking is that today, more than a decade after the end of the Cold War, the basic US nuclear policy is unchanged. Of the 8,000 active or operational nuclear warheads, 2,000 are on hair-trigger alert, ready to be launched on 15 minutes’ warning…On any given day, as we go about our business, the president is prepared to make a decision within 20 minutes that could

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9 Ibid, pg. 40
launch one of the most devastating weapons in the world… To declare war requires an act of congress, but to launch a nuclear holocaust requires 20 minutes’ deliberation by the president and his advisors.”

According to the FAS Nuclear Notebook 2016, the U.S. maintains a stockpile estimated at 4,670 warheads, of which 1,930 warheads are deployed, 1,750 on ballistic missiles and 180 tactical bombs at European bases. The warheads that are retired but intact are around 2,340, making it a stockpile of 6,970 warheads in total. For Russia, as discussed in the FAS Nuclear Notebook 2016, the estimated stockpile is at 4,500 active nuclear warheads and 2,800 retired warheads, making an inventory total of 7,300 warheads. Therefore, to India and Pakistan, it is clear where the discussion needs to begin.

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Strategic Stability of the China-ROK-Japan Triangle
Tong ZHAO

General Security Relations among the Three
The triangular interaction among China, South Korea, and Japan has important implications for the overall stability of East Asia. Among the three countries, China and South Korea’s security relationship is most stable, despite some minor bilateral security problems. For example, the two countries’ self-proclaimed exclusive economic zones overlap in the Yellow Sea, and they have not successfully reached an agreement on a maritime boundary in their ongoing maritime demarcation negotiation. This has sometimes led to violent clashes between Chinese fishermen and the South Korean Coast Guard. The dispute over the Ieodo/Suyan Rock in the Yellow Sea has not been resolved either, but both China and South Korea agree that the submerged rock has no territorial status and therefore it does not constitute a territorial dispute. The two countries’ respective air defense identification zones also overlap over part of the Yellow Sea, but it is not regarded as a major security concern by Beijing or Seoul. In sum, there are no territorial dispute or other major bilateral security problems between the two (security problems involving the U.S.-ROK alliance is a different matter). Given the increasingly warm economic and political interaction, neither Beijing nor Seoul sees the other as a direct security threat. Their mutual threat perception is mostly nonexistent except when external players such as the United States and North Korea come into the equation.

In comparison, the Sino-Japanese security relationship is much more troublesome. This results partly from deeply-buried historical antagonism, which gets re-activated each time senior Japanese officials pay tribute to the Yasukuni Shrine or rightist Japanese officials make provocative remarks on history. Bilateral security tensions are also fueled by territorial disputes – mostly over the Senkaku/Diaoyu Islands. Extended confrontations over the disputed islands have diminished bilateral trust and reduced mutual favorable public perception to a historical low level. Rising nationalist sentiment in China adds fuel to the tension. Top leaders from the two countries find it difficult to initiate high-level visits and exchanges. On top of that, facing the increasingly intensive competition between the United States and China, Japan gives the impression to China that Japan has given up on the hope it could repair relations with China and
has decided to side completely with the United States to contain China. Beijing, therefore, is increasingly showing a cold shoulder to Tokyo. As the Sino-U.S. relationship faces constant troubles, the ever closer Japan-U.S. security alliance is seen by China as an increasing threat.

The ROK-Japan security relationship is less turbulent but not problem-free. Both being U.S. allies, the two countries have conducted important and pragmatic cooperation to address common security concerns. With that said, their security relationship has been hindered by both history problems and the territorial dispute over Dokdo/Takeshima Island. The recent Japan-South Korea agreement on comfort women was intended to remove one major barrier between the two, but it does not seem to have the potential to dramatically change mutual perceptions. Unlike China and ROK, who do not see each other as direct security threats, South Korea is concerned about Japan. Recent polls show that more than seventy percent of South Korean public have an “unfavorable” impression toward Japan.¹ High-level South Korean officials were reported to claim that a nuclear-armed Japan would be a greater threat for South Korea than nuclear-armed China, or even nuclear-armed North Korea.²

North Korea as an Additional Factor
North Korea greatly complicates South Korea and Japan’s threat perception with respect to China. Some Korean and American analysts suspect China of deliberately prolonging the Kim regime in North Korea and keeping the Korean peninsula divided to maximize China’s own geostrategic interests. Such a view, however, is a too cynical understanding of Chinese interests in the region. Despite the special historical relationship between Pyongyang and Beijing, most Chinese experts do not seem to embrace any particular concern about a reunified Korean peninsula as long as the issue of American military presence in the post-unification scenario can be addressed to Beijing’s satisfaction. Furthermore, the value of North Korea serving as a buffer zone for China also varies, depending on how much of a direct security threat China perceives from the United States. If China believes the United States is making every effort to contain China, especially militarily, China might see some value in having North Korea absorb some of

that pressure from the United States. That said, North Korea’s brinksmanship strategy and frequent provocations are driving the United States, South Korea, and Japan to greatly reinforce their military posture and deepen security cooperation. Many of these measures, although not directly aimed at China, have a serious and negative impact on China and undermine Chinese security interests. Instead of being a buffer zone for China, North Korea on the contrary is in fact introducing new military threat to China. Therefore, the value for China to keep North Korea alive as a buffer zone for China is in general declining. China, South Korea, and Japan do not have fundamentally conflicting interests on the Korean peninsula, although their orders of priorities are somewhat different.

Most analysts attribute China’s resistance toward implementing sweeping economic embargoes and sanctions against North Korea to Chinese concerns about a refugee crisis and border security in the aftermath of regime collapse in the North. This is certainly true. But there could be a more severe threat facing China, if China were to impose sweeping economic sanctions against the North and before the North Korean regime subsequently collapsed. Cutting off the lifeline for North Korea by China might be announced by the desperate North Korean leadership as China’s de facto declaration of war against them. China would therefore face the risk of having itself become a direct enemy of North Korea. According to the North Korean way of retaliation, China could very well end up being explicitly or implicitly threatened by North Korea’s military or even nuclear capability. With North Korea’s nuclear weapons in the hands of a leadership that has demonstrated provocative and unpredictable patterns of behavior, making China be seen as a direct threat to North Korea is the first thing that Chinese leaders want to avoid. In this sense, imposing sweeping economic sanctions on North Korea is not a feasible option for China.

Inadequate understanding about Chinese expectations for the endgame on the Korean peninsula has caused South Korean and Japanese concerns about China. Moreover, lack of Chinese participation in discussions about joint contingency planning or coordination among regional players in case of North Korean instability has also driven up concerns about Chinese objectives and role in scenarios of a North Korea crisis. All these contribute to security concerns about China in Seoul and Tokyo. Given the political sensitivity, China might continue to resist discussions about scenarios of North Korean collapse, but bilateral or multilateral discussions
with South Korea and Japan about each other’s assessment of North Korea’s fast growing nuclear and missile capability could help them better understand and coordinate each other’s North Korea policy. Even Track II dialogues at an unofficial level on such issues would be beneficial.

**Nuclear Hedging in the Region**

China (and South Korea, to some extent) has real concerns about Japan’s nuclear hedging capability. Regarding material capability, Japan is the only Non-Nuclear-Weapons State under the Nuclear Nonproliferation Treaty that has both commercial-scale reprocessing and enrichment capability. Japan’s large plutonium stockpile draws close Chinese attention, and many Chinese experts attribute this large plutonium stockpile to a deliberate policy choice rather than problematic planning, mismanagement, and domestic politics between Tokyo and prefectures. Furthermore, Japan’s M-V and H-II rockets have the potential to deliver a heavy nuclear payload over long distances. Japan has also demonstrated the capability to retrieve unmanned spacecraft and the upper stage of an H-IIB rocket—technology that could be useful in building nuclear warhead reentry vehicles.

Regarding Japan’s policy objectives, China believes that Japan is deliberately pursuing a nuclear hedging strategy. The secret studies conducted by Japanese governments during the Cold War recommended against a nuclear weapons program but recommended accumulating the dual-use technologies useful for obtaining a virtual military nuclear capability. Senior Japanese officials’ open remarks about nuclear hedging have reinforced Chinese concern.

With that said, most Chinese experts don’t expect Japan to go beyond its nuclear hedging strategy and to actually pursue nuclear weapons. The normative and institutional restraint of the existing international nonproliferation regime and domestic restraint in Japan are strong enough.

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to prohibit Japan from openly going nuclear. As long as Japan does not openly pursue nuclear weapons, Tokyo’s nuclear hedging capability is not a particular concern for China, even though its nuclear hedging policy could have significantly negative implications for the international nonproliferation regime.

In the same vein, China watches closely as South Korea seeks to obtain and commercialize sensitive fuel cycle capabilities and it suspects that South Korea has a similar interest in some sort of nuclear hedging capability. High level domestic public support for nuclear weapons in South Korea also unnerves China, but at the end of the day, the prospects for Seoul to ultimately decide to pursue nuclear weapons seem extremely low.

**Nuclear Stability in the Region**

What really concerns China is that Japan and South Korea may work together with the United States – deliberately or not – to undermine China’s strategic nuclear deterrent vis-à-vis the United States. Even though China has been gradually modernizing and slowly expanding its nuclear arsenal in recent decades, there is still debate among foreign analysts about whether China has achieved assured nuclear second strike capability against the United States. Some American scholars believe Chinese nuclear forces are still vulnerable to an American first strike, whereas Chinese scholars point out Chinese nuclear retaliation capability against the United States is uncertain but they are working hard to minimize the remaining uncertainty. Recent Chinese moves to field more capable road-mobile intercontinental ballistic missiles (ICBMs) and to introduce sea-based nuclear weapons are clear signals that China wants ultimately to remove this uncertainty and achieve an assured second strike capability vis-à-vis the United States. For China, Beijing’s credible second strike capability vis-à-vis Washington is the foundation for maintaining strategic stability in the region. The Chinese efforts to achieve this goal, however, can be undermined by Japanese and South Korean military cooperation with the United States.

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China’s greatest concern about its future nuclear deterrent is the U.S. missile defense system, which has received persistent investment and achieved sustained improvement. Japan has been incorporated into the American missile defense network in Asia through the joint development of the SM-3 IIA interceptor and Japan’s deployment of SM-3 IA/B interceptors on Aegis ships. Japan already hosts two AN/TPY-2 X-band radars and is further considering introducing land-based SM-3 systems and the Terminal High Altitude Area Defense (THAAD) batteries. China worries that advanced SM-3 interceptors may have the potential to engage Chinese ICBMs in the future.

South Korea is considering allowing the United States to deploy a THAAD battery on its territory, too, following the fourth North Korean nuclear test and the subsequent satellite launch. Some Chinese experts are concerned that the AN/TPY-2 X-band radar of the THAAD system is capable of closely monitoring the warheads and decoys release process of Chinese ICBMs to be launched from Northeast China. This may improve the United States’ capability to distinguish real Chinese warheads from decoys and therefore increase the chances of successful interception.8

China is putting together a fleet of nuclear strategic ballistic missile submarines (SSBN) and having them conduct patrols. Part of the Chinese motivation for building this SSBN fleet seems to be the perceived capability of SSBN and the submarine-launched ballistic missiles (SLBM) to penetrate existing U.S. missile defense systems.9 However, U.S. regional allies, especially Japan, have been working closely together with the United States to enhance anti-submarine warfare (ASW) capabilities in the Asia Pacific, which poses a major threat to China’s sea-based nuclear deterrent. Japan’s participation in the American ASW network in the region is a particular concern for China, because if Chinese SSBNs are to conduct patrols in the West Pacific, they will have to pass through water channels along the so-called First Island Chain, and some of the


most important water channels are immediately adjacent to Japanese-controlled territories. Therefore Japan is in a strategically advantageous position to help the U.S. Navy to track, trail, and even disrupt Chinese SSBNs on their patrol routes. In recent years, Japan has worked jointly with the United States to upgrade the underwater sound surveillance system that the United States first deployed during the Cold War. With the most formidable ASW capability in the region, Japan participates frequently in joint ASW training and exercises with the U.S. Navy, and is sending anti-submarine reconnaissance aircraft to fly over the South China Sea. Given that a major portion of China’s SSBN fleet is presumed to be deployed in the South China Sea, Japan’s increased ASW operations over that area constitute a significant and increasing threat to China’s nuclear deterrent.

To a lesser extent, enhanced ROK-U.S. ASW cooperation – especially after the Cheonan incident in 2010 when a South Korean corvette was reportedly sunk by North Korea – also draws Chinese concern. So far the focus of South Korean ASW investment in recent years and ROK-U.S. ASW cooperation has been to counter the North Korean submarine threat, but given that China has a nuclear submarine base next to the Yellow Sea and not far from South Korea, Chinese analysts worry that the incorporation of South Korea into the American ASW network in the region poses a new threat to China’s nuclear deterrent.

From the Chinese perspective, America’s Asian allies have an interest in undermining Sino-U.S. strategic stability. Japan, for instance, is very concerned that a mutually assured destruction (MAD) relationship between Beijing and Washington will effectively reduce the danger of conventional conflicts escalating to the nuclear level. Thus Japan worries that a stable Sino-U.S. nuclear relationship might increase Japan’s vulnerability to China’s nuclear coercion and might also embolden China’s conventional military aggression against Japan. It is partially because of

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such Japanese concern that the Obama administration has so far decided not to openly acknowledge the existence of a mutual vulnerability relationship with China.

Some American scholars hold the view that the United States needs to maintain a superior nuclear capability over China in order to bolster its own deterrence posture and to enhance the credibility of American extended nuclear deterrence for allies.\(^{13}\) At least in theory, there is no conflict between the United States maintaining a superior nuclear capability over China and China maintaining an assured second strike capability vis-à-vis the United States, as long as Washington does not seek nuclear primacy (first strike capability) against China and does not pursue unlimited nuclear superiority that comes close to nuclear primacy. In this sense, more reassurance from Beijing that it does not object to U.S. nuclear superiority and does not seek nuclear parity with Washington may help to reduce Japanese concerns about a stable Sino-U.S. nuclear relationship.

**Conventional Capabilities and Nuclear Stability**

Among the three countries, mutual threat perception between China and South Korea and between South Korea and Japan is at relatively low levels. But the same cannot be said about Japan and China. Because of China’s unconditional No First Use policy and U.S. extended nuclear deterrence, Tokyo is not so much concerned about Beijing’s nuclear weapons per se. By contrast, Tokyo is very much concerned about Beijing’s conventional military capability, which could play a direct role in a hypothetical military conflict over the Senkaku/Diaoyu Islands or in a conflict over the Taiwan Strait that might get Japan involved.

What is more troublesome for Tokyo is that Beijing is quickly catching up and may even be outrunning Japan in conventional military capability development. Even some American scholars worry that China may obtain some conventional military superiority vis-à-vis Japan and the United States in some restrained regional theatres in the near future. A 2015 RAND report on the U.S.-China military balance, for instance, points out that “PLA forces will become more

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capable of establishing temporary local air and naval superiority at the outset of a conflict,” which “might lead Chinese leaders to believe that they could deter U.S. intervention in a conflict between it and one or more of its neighbors.”\textsuperscript{14} In anticipation of possible Chinese conventional superiority in the future, some scholars in the United States have argued for re-emphasizing the role of nuclear weapons – especially the so-called “tailored” nuclear capabilities that can be employed more flexibly on the battlefield.\textsuperscript{15} Some others predict that U.S. Asian allies such as Japan should consider their own nuclear option.\textsuperscript{16} All these propositions run the risk of drawing us back into the old nuclear arms race and proliferation dynamics of the Cold War and undermine international efforts to promote nuclear arms control.

To contain the conventional arms race and to prevent it from undermining nuclear stability, it is time for the countries in the region to start having discussions about better openness and even potential restraint in conventional military development and deployment. In this regard, the European conventional arms control practices and confidence-building measures may have some lessons to offer for Northeast Asia (significant adjustment and adaptation will certainly be required). Given that unpredictability and uncertainty over each other’s future military development and deployment are major drivers for arms competition in Northeast Asia, transparency and confidence-building measures like those adopted at the 1986 Stockholm Conference on Confidence- and Security-Building Measures and Disarmament in Europe can be considered by Northeast Asian countries. On the other hand, countries in this region should also seek to reach a consensus on reducing (or at least not raising) the role of nuclear weapons in their respective national security strategies. China is a long-time supporter for mutual and multilateral No First Use agreements and for constraining the role of nuclear weapons; Japan has miserable memories of the consequences of nuclear weapons; and South Korea is also a victim of North Korea’s nuclear saber-rattling. Therefore, all three countries should have shared interests and common views about reducing the role of nuclear weapons. They could play a more important role by working together to promote the humanitarian initiative on nuclear weapons.

\textsuperscript{16} Harvey M. Sapolsky and Christine M. Leah, "Let Asia Go Nuclear," The National Interest (April 14, 2014).
Last but not least, as discussed above, nuclear stability in the region can be seriously affected by missile defense, ASW, and other conventional military development and deployment by non-nuclear states such as Japan and South Korea. To stabilize the existing nuclear relationship and to prepare the ground for cooperative nuclear reductions in the future, all countries in the region – including the United States, China, Japan, and South Korea – should have dialogues about the interactive relationship between conventional and nuclear capabilities and work toward a collective framework for containing arms race and reducing negative interactions.

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Japan, Regional Stability, and the Korean Peninsula

Deirdre Q. Martin

What accounts for Japanese ambivalence toward engagement with the Korean Peninsula? Since the end of the Cold War, Japanese security participation in East Asia has undergone a sea-change.¹ The Japanese leadership has reorganized its military, sought to acquire new technologies, reconsidered its responsibilities to contribute to regional security within the US-Japan alliance, and revised many of the legal constraints that had previously hampered its ability to participate in security cooperation. Notably, in the summer of 2014 the current Abe administration pushed forward a reinterpretation of Article Nine, the “peace clause” of the Japanese constitution, to allow for the exercise of the right to collective self-defense.² Japanese policymakers and military leaders claim that this shift has been a natural reaction to changes in the balance of power in the region, particularly the development of North Korean nuclear capabilities and the military and economic rise of China.³

In the context of these possible conflicts, Japan has important interests on the Korean Peninsula. Nuclear North Korea represents a major existential threat to the Japanese islands, and North Korea has on more than one occasion issued threats against Japan. South Korea, on the other hand, should be an ideal strategic partner for Japan; in its attempts to expand its international security cooperation Japan has in the last decade actively sought out numerous Pacific allies, and it has been successful in negotiating other cooperative security relationships, particularly with Australia and other American allies.⁴ In addition to their shared American ally, Japan and South

¹ For a discussion of the changes to Japan’s military capabilities since the end of the Cold War, see Christopher W. Hughes. Japan’s Remilitarisation. Routledge for International Institute for Strategic Studies, 2009. For the specific changes made under the second Abe administration, see Adam P. Liff. “Japan’s Defense Policy: Abe the Evolutionary.” The Washington Quarterly 38.2 (2015): 79-99.
Korea are both advanced industrialized democracies, and they face similar, although not identical, strategic threats.⁵

In practice, however, Japanese politicians, particularly in the last five years, seem to have made a concerted effort to avoid the “Korea Issue.” Why have Japanese policymakers prioritized the China threat over North Korea, and what accounts for the lack of political will on the part of leadership to mend relations with South Korea and build a stronger security relationship?

Perhaps because of the legacy of the “hub and spoke” alliance system and the continued importance of the United States as a security player in the region, much of the current literature on security in East Asia has framed discussion of strategic relationships in terms of triangles. The classic example of this is the so-called ROK-China-Japan triangle of major regional players. In this paper I argue that much of the dysfunction in the Japanese strategic relationship with the two Koreas comes down to the fact that a triangular relationship between the three powers simply does not exist. Rather, Japanese leadership essentially considers the Koreas two points of two separate triangular relationships, i.e., between Japan, North Korea, and the United States, and between Japan, the ROK, and the United States.

The nuclear North Korea issue is the major issue in both the US-ROK-North Korea and the US-Japan-North Korea relationships, and the lack of a functional ROK-Japan-North Korea triangle puts an unnecessary burden of coordination on the United States. Even so, domestic politics in Japan and South Korea make bilateral security cooperation prohibitively costly, and the bilateral relationship arguably offers few security benefits not already available through each country’s separate alliance with the United States. It would be irrational for Japan to engage bilaterally with South Korea on the North Korean issue: it would be politically costly, would run the risk of alarming the North Koreans and further destabilizing the Peninsula, and could provide very little benefit for either country beyond that already achieved through their respective alliances with the United States. If this argument is correct, I predict that normalization of relations between Japan

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and South Korea, and in particular increased security cooperation on the Korean Peninsula, is extremely unlikely in the short-term.

In this paper I outline the empirical realities of the Japanese relationship with North Korea, focusing in particular on how nuclear North Korea has shaped Japanese patterns of military acquisition. I discuss Japanese policymaker views of South Korea, focusing on how war memory has hampered security cooperation between the two countries. Finally, I discuss possibilities for cooperation between Japan and South Korea on the issue of stability in the Peninsula and outline two possible scenarios for increased security cooperation between the two states on the North Korean issue: slow but steady infrastructure-building driven by American pressure, or fast but domestically difficult rapprochement following perceived American abandonment.

**Japan and North Korea**

Nuclear North Korea is a pressing existential concern for Japan. By the end of 2014 North Korea had 30-34 kg of plutonium and 100-240 kg of weapons-grade uranium, enough to produce 10-16 nuclear weapons. These estimated numbers have only grown with the North Korean nuclear program. In terms of both fissile materials and delivery capabilities, experts agree that North Korea is currently capable of launching a nuclear attack on the Japanese islands. An American Defense Intelligence Agency (DIA) report “assesses with moderate confidence the North currently has nuclear weapons capable of delivery by ballistic missiles; however the reliability will be low.” North Korea has more than two hundred No Dong medium-range ballistic missiles with some 50 mobile launchers; these have about a 1,300 km range, and would take around ten minutes to reach Tokyo from North Korea. Japanese experts assess with moderate confidence that North Korea is capable of attacking Japan with nuclear weapons today, although the reliability of these weapons remains low.

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8 Michishita 02/08/16.
North Korea has been a driving force for Japanese security acquisition and reorganization in the last two decades. This has been particularly visible in the development and centralization of the Japanese intelligence community, especially in the Japanese expansion of spy satellites and drone programs. The introduction of the New Basic Space Law in December 1998 followed almost directly on the North Korean launch of a Taepodong missile over the Japanese islands. The previous law, the 1969 Diet Resolution on the Peaceful Development and Use of Space, declared Japan’s commitment to the use of outer space “only for peaceful purposes.”

The New Basic Space Law, submitted in June 2007, is based on “reinforcing Japan’s security through the development of space,” as well as on promoting research and development and developing the domestic Japanese space industry. It adopts a policy of “non-aggressiveness,” emphasizing “intelligence and warning” in successful defense. This revision marked a departure from the long-standing postwar Japanese policy of using space only for peaceful purposes and represents a North-Korean driven breakdown in long-held Japanese norms regarding the priority placed on intelligence and the acceptable uses of space.

Following the passage of the New Basic Space Law, Japan has aggressively pursued development and acquisition of spy satellites to gain information about their North Korean neighbors. The stated goal of the Japanese intelligence-gathering satellite (IGS) program is to ensure that that a photograph can be taken of any location on Earth once a day regardless of conditions. Japan successfully launched a radar satellite in February 2015, bringing the total number of working IGSs in orbit to five — two optical, two radar, with one radar satellite as

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9 It has been argued that this resolution was directed largely at preventing the proliferation of Japanese spy satellites, making it particularly ironic that the law that ultimately overturned it was directed primarily at promoting their legalization. Andrew Oros. “Japan’s Growing Intelligence Capability,” International Journal of Intelligence and Counterintelligence, Vol. 15, 2002. pp. 1-25. p. 17.


11 It is this clause that enables the use of satellites with military applications. Myoken p. 1.


13 Ibid.
backup, with plans to launch a sensor satellite. At least one of these satellites was described as being “designed to monitor North Korean military activities.”

In addition to these traditional satellites, new types of satellites have also been launched. The Small Advanced Satellite for Knowledge of Earth (SASKE), otherwise known as ASNARO 1, is manufactured by NEC Corporation and distributed by PASCO, a leading Japanese provider of geospatial technology and information. First conceptualized in 2008, this satellite was an improvement on Japan’s previous satellites on virtually every level. The photographic resolution of this satellite is 0.5 square meters — a fourfold improvement in picture quality and precision. Further, the satellite possesses multispectral capabilities, indicating that it will use a variety of different filters and sensors. This will make it possible for the satellites to determine differences not normally visible—a decision almost certainly aimed at monitoring underground nuclear tests. SASKE was launched in August 2014 with a series of other cutting-edge, experimental information-gathering satellites, including the QSAT-EOS (Tsukushi), Hodoyoshi 1, and Tsubame satellites. Hodoyoshi 1 is an experimental earth-observing micro-satellite built by the University of Tokyo. This satellite has a 6.8 m ground resolution and is equipped with CCD sensors with spectral bands of blue, green, red, and near-infrared. Near-infrared data will enable the satellite to track plants’ growth patterns, something undetectable with visible bands. Again, this technology is explicitly targeted at monitoring nuclear testing, particularly in underground bunkers, and development of these satellites was certainly motivated at least in part by the threat posed by a nuclear North Korea.

17 Saeki 2009.
18 For example, infrared viewers, which “see” in heat, will enable the satellite to determine if things are being hidden or otherwise obscured, or even if something unusual is taking place underground.
Aerial surveillance has also been upgraded; in 1992 the then-Japan Defense Agency (JDA) announced its purchase of four Airborne Warning and Control Systems aircraft— a purchase coincident with rising concern regarding North Korean nuclear possibilities. In 1999 Japan’s acquisition of in-flight refueling aircraft further expanded the possible reach of these missions, allowing for all-day surveillance operations. During this period Japan maintained and operated 100 P3-C maritime patrol aircraft, either purchased from the United States or produced under US license since 1978. In the early 2010s the P3-C was replaced with the Kawasaki P-1. Introduced into the Japan Marine Self Defense Force (JMSDF) arsenal in 2013, these are fully indigenously developed and are equipped with radar, sonar, and electronic countermeasures.

Finally, in 2003 the JDA began development of Japanese Unmanned Aerial Vehicles (UAVs), arguably to fill holes in Japanese space-based surveillance capabilities.

Japanese pursuit of anti-ballistic missiles (ABM) is also directly motivated by threat of a North Korean attack. The Japanese now have sea-based exoatmospheric interception capabilities, ground-based endoatmospheric interception capabilities, and plans for procurement of more Aegis destroyer-based advanced systems within the next few years. The Ministry of Defense’s official statements on ballistic missile defense (BMD) give North Korea as the driving force for development of these capabilities; “[A] BMD system,” the Ministry of Defense’s Chief Cabinet Secretary argued in 2003, “is the only purely defensive measure, without alternatives, to protect life and property of the citizens of Japan against ballistic missile attacks, and meets the principle of exclusively defense-oriented national defense policy.”

Japanese military and political leadership have also pursued civil defense and advance warning capabilities in case of an attack; these include Em-Net, a text-based messaging system, and J-ALERT, an alert sent by the US government through geostationary satellites in the event of a

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North Korean launch.\textsuperscript{23} Due to these systems the Japanese media and local governments should have notice within one minute of a North Korean missile launch.

Japanese policymakers and military leaders have sought assurance regarding retaliatory strikes from the United States in the case of a North Korean attack on the Japanese islands. The Japanese government has framed this in terms of Mutually Assured Destruction and deterrence. Some extreme voices in Japan argue that Japan should seek its own strike capabilities, but because of questionable constitutionality and the potential for regional destabilization (and the difficulty of ensuring a successful strike), leaders prefer to rely on the United States.

Japanese approaches to North Korea have not only been security-driven. Japan has attempted diplomatic engagement with North Korea, but these attempts have failed due, at least in part, to domestic issues within Japan. In 2002 the Koizumi administration offered normalization of relations and an economic support package of $5-10 billion dollars in exchange for freezing the nuclear program and return of the so-called Japanese “abductees,” several Japanese citizens who were abducted by the North Korean government in the late 1970s and early 1980s. This normalization was not successful, however, because not all abductees were returned.\textsuperscript{24} The abductee issue has become a hot point in Japanese politics, and it will be difficult for any Prime Minister to normalize with North Korea without addressing it. This issue also caused problems during Japan’s participation in the six-party talks.

Until very recently, the current Abe administration appeared willing to discuss normalization.\textsuperscript{25} Domestically, it has been argued that Abe is in a good political position to deal with the North because he is viewed as “hawkish,” so a diplomatic approach will not be perceived as weak. North Korea is still not forthcoming on the abductee issue, however, and in Japan’s most recent attempt at rapprochement, the North Koreans denied the possibility of returning the abductees and introduced a new domestic politics issue, the “Japanese wives issue.” Subsequently, the Abe

\textsuperscript{23} Michishita 02/08/16.
administration sharply admonished North Korean leadership for the most recent test launch. In the wake of that launch Japan is stepping up sanctions, and normalization seems unlikely as long as North Korean nuclear capabilities advance.

Japanese patterns of engagement with North Korea can be understood in terms of the interplay of domestic costs and security concerns. When security concerns about North Korea increase, Japan reliably rises to meet them. If North Korean disarmament is an unachievable short-term goal, an acceptable level of security vis-à-vis the North Korean threat has been achieved through a combination of military acquisition and cooperation with the United States. The consensus among military leaders and policymakers seems to be that there isn’t a day-to-day threat of spontaneous attack on Japan by North Korea. Instead, North Korean nuclear capabilities appear to be intended for deterrence against interference on the Peninsula.

When threats are not considered imminent, domestic political concerns, like those about the abductee issue, appear to come into play. Beyond occasional spikes in public interest, Japanese voters appear more concerned with the economy and with the China issue than with North Korea, and the use of the right to collective self-defense, which would necessarily have to be invoked in the case of Japanese involvement with security on the Peninsula, is extremely politically unpopular. Over eighty percent of the public, as well as an appointed panel of scholars, believe that the new 2015 reinterpretation of Article 9, the so-called “Peace Clause” of the Japanese constitution, to allow for collective self-defense is unconstitutional. Diplomatic engagement with North Korea, or any active participation on the Peninsula, may be seen as a high-domestic cost undertaking with low security benefits beyond those already provided by the current US-Japan alliance.

Japan and South Korea

Japanese leaders are open to engagement with South Korea, particularly within the context of security cooperation vis-à-vis China. China’s rise is of particular concern to Japanese leadership;

the Chinese military is becoming more active, especially in the East China Sea. There have been what Japanese officials describe as Chinese government vessel intrusions into Senkaku/Diaoyu waters; leaders are concerned with the possibility of “accidents,” as private citizens on both sides have exacerbated tensions. In order to accomplish its official policy goals of “maintenance of regional balance of power” and “creation of crisis management and prevention mechanisms,” Japan has sought not only enhanced defense capabilities and a better relationship with the United States, but also stronger defense ties with regional partners. The Abe administration has been particularly focused on cultivating a cooperative portfolio, describing diplomatic and security goals “aiming to marshal support of potential significant security partners.” While Japanese leadership has succeeded in developing strong security relations with India and in particular Australia, a similar South Korean relationship has thus far eluded them.

Japanese leaders see domestic politics, particularly in South Korea, as blocking Japan-South Korean security cooperation. The Japanese are not blameless; Japanese leaders have made several visits to Yasukuni Shrine, a Japanese war memorial that has several class-A war criminals enshrined within it, despite repeated Korean protests. Notable Japanese academics and military planners have argued that Japan was a victim in the Second World War, and that South Korean infrastructure was developed under Japanese colonial rule. Furthermore, repeated revisions of Japanese textbooks to undercut narratives of Japanese wartime aggression have been met with both Korean and Chinese outrage.

For many Japanese policymakers, however, the fundamental sticking point in any discussion of the Japan-ROK relationship is anti-Japanese sentiment in South Korea, due largely to “history issues” regarding Japanese crimes in Korea during and before the World Wars. Eighty percent of South Koreans view Japan negatively, and the ROK is tied with China for the country with the most negative feelings about Japan. The two major sticking point issues between the two states

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28 Michishita 02/08/16.
have been a standing territorial dispute about Takeshima/Dokdo and the so-called “comfort
women issue.”

There is a long-standing dispute over the ownership of Takeshima/Dokdo; the 1965 Treaty on
Basic Relations states “both countries will recognize that the other claims the islets as their own
territory, and neither side will object when the other makes a counterargument. They agree to
regard it as a problem that will be resolved in the future.” Korea occupied the islets, but with the
understanding that it would not increase police presence or build new facilities on the island.
This was the status quo until 2006, when then-President Roh Moo-Hyun of South Korea tied an
insistence on the Korean claim to Dokdo into a demand for an official Japanese government
apology for the wartime colonization of Korea. President Roh argued that “Dokdo is our land. It
is not merely a piece of our land but one that carries historic significance as a clear testament to
our forty years of affliction. Dokdo was the first territory of Korea to be seized in the course of
Japan’s usurpation of the Korean Peninsula.” The address was given a day after the Japanese
announced a maritime survey around the islands, and the disagreement quickly escalated,
culminating particularly in President Lee Myung-Bak’s visit to the islands in 2012.

Japanese leadership seems to view this issue primarily as political grandstanding on the part of
Korean leadership, an effort to leverage anti-Japanese sentiment into domestic political support.
While there is no real strategic reason for this issue on its own to remain unresolved, Japan’s
ability to discuss Takeshima/Dokdo and thereby resolve a major issue blocking productive
engagement with the ROK is constrained by the concern that doing so would set a precedent for
China’s claim to the Senkaku/Diaoyu islands. While Japan might otherwise be willing to discuss
or concede Takeshima/Dokdo, for strategic reasons it cannot or will not do the same for the
Senkaku/Diaoyus. As a result, the territorial dispute remains at a standstill.

31 Michishita 02/08/16.
32 Office of the President, Republic of Korea. “Special Message by President Roh Moo-hyun on Korea-Japan
Relations,” Presidential Archives, 28 April 2006. At
http://16cwd.pa.go.kr/cwd/kr/archive/archive_view.php?meta_id=hot_dip_etc&id=6acd4bd3647383f285862e6
[Accessed 12 April 2016].
33 Min Gyo Koo. “Economic dependence and the Dokdo/Takeshima dispute between South Korea and

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The second major issue facing Japanese leaders, now possibly concluded, is the issue of the so-called “comfort women.” Japanese leadership has vacillated in its approach to this issue; in 1993 Japan compiled an official statement by then-Chief Cabinet Secretary Kono Yohei stating that the Japanese government had concluded through an official study that the Imperial Japanese Army was involved in the establishment and management of “comfort stations” and forced women, many from the Korean Peninsula, to work in military-run brothels during the Second World War. This “Kono Statement” followed a series of Asahi News reports that documented military links to the “brothels” which kept sexual slaves.  

The Japanese stance has always been that Japan settled all claims for reparations with the San Francisco Peace Treaty and the 1965 Normalization Treaty with South Korea, and that government reparations are no longer possible. Moreover, the initial Asahi articles were retracted in 2014 after reports that some claims were unsubstantiated, anecdotal, or even fabricated. The Abe administration took a hard stance on the Asahi retraction, taking the newspaper to task for “deceiving” the public. Prime Minister Abe himself during his first administration in 2007 opined that he didn’t think that all of the comfort women were forced into sexual slavery but that some might have been willing participants or at least prostitutes.

This problem may have been resolved, at least officially, in late 2015. A new agreement, signed by the current Abe administration and the South Korean government, accepts the use of the word “responsibility” and admits to official involvement in the brothel system, but insists that the agreement is “final and irreversible” and asks the Koreans to remove a statue honoring comfort women placed across from the Japanese embassy in Seoul. There are also provisions for $8.3 million in reparations to help care for surviving victims, classified as “humanitarian aid.” This deal has been met with outrage on the part of nationalists in both countries, particularly South Korea; many object that the money offered by Japan did not take the form of official reparations, which would carry an acknowledgment of legal as well as moral responsibility, but instead were presented as a humanitarian contribution. Many also found the $8.3 million—roughly $180,000

per survivor—insulting.\textsuperscript{36} Regardless, this suggests political will to move forward on the Japan-Korea relationship, particularly, as in this case, when faced with American pressure to reach an agreement.

Japanese patterns of engagement with South Korea can, like their relationship with the North, be understood as a result of the interplay between security considerations and domestic political costs. Both countries have their security on the Korean Peninsula guaranteed for them by the United States. There has been no real need for bilateral security operations between the two countries because this relationship would not offer them any additional security beyond that already secured by the US-Japan (and US-ROK) alliance. Regardless of American pressure, however, there are high domestic costs to engagement on the Korean issue in both countries; the bad historical relationship and anti-Japanese sentiment in South Korea makes engagement unreliable and difficult to sustain, a problem amplified by the democratic process. The perception in Tokyo of anti-Japanese sentiment and policies in South Korea has resulted in a lack of Japanese political will to cooperate; in effect, Japanese-ROK coordination on the Peninsula issue is domestically a difficult sell, and it results in very few benefits beyond those already afforded to both countries by their bilateral relationships with the United States.

**The Future of Japan on the Korean Peninsula**

The historical record strongly indicates that the Japanese strategic relationship with the two Koreas is dysfunctional because there simply is not a triangular relationship between the three powers. In Japan’s engagement with both Koreas policies are attempts to balance security threats against the domestic costs of cooperation, which tends to be politically unpopular. In essence, domestic politics in Japan and South Korea make bilateral security cooperation prohibitively costly, since the bilateral relationship arguably offers few security benefits not already available through each country’s separate relationship with the United States.

Whither, then, Japan on the Korean Peninsula? If my argument is correct, there are two possible paths to greater cooperation between the ROK and Japan on the Peninsula. The first is a path

facilitated by the United States. If the United States continues to put pressure on its allies to cooperate, and continues to encourage Japan to take a more proactive role on the Peninsula, slow building of the infrastructure of cooperation over time is likely. Japan has proven itself interested in accommodating the United States (particularly if the accommodation supports Japanese interests) and being considered a more equal partner in the alliance.\textsuperscript{37} Japanese leaders are particularly concerned with American abandonment; the United States serves as a major nuclear deterrent against North Korea, as well as an important stabilizing role in Japan’s standing conflicts with China in the East China Sea. If the United States continues to encourage closer Japan-ROK relations, Japan will almost certainly pursue rapprochement—at a pace consistent with Japanese domestic pressures.

The empirical record matches with this story. Japan is positioning itself to take a more proactive role on the Peninsula, a strategy forecast in the Abe administration’s attempts to resolve the comfort women issue, as well as in recent details of new Operational Plans in which Japan provides active support in the event of American and South Korean engagement with the North. Both the Abe and Park administrations are able to take political risks at the moment, and so this may very well be a situation in which security is able to trump domestic politics. A second, less likely, possibility is that the ROK and Japan might be brought together by a mutual fear of American abandonment. This rests on the idea that domestic politics take precedence \textit{so long as the relative gain from security cooperation is no more than what is already provided by bilateral relations with the United States}. Were Japanese leadership to become concerned that American military forces might not provide them with support in the event of a destabilizing event on the Peninsula, it is possible that security concerns would trump domestic political costs. In this case, changes in the security relationship between Japan and the ROK would likely take place rapidly, but would be politically difficult domestically.

\textsuperscript{37} Pekkanen and Pekkanen 2015.
Cooperative Arms Control in Europe and the Global Nuclear Order:
Rethinking Decision-Making and Institutions in Light of the Ukraine Conflict
Ulrich Kühn*

Abstract
In this paper, I focus on the interplay between the institutionalized system of cooperative arms control in Europe and the global nuclear order. The Ukraine conflict has underscored the close connections between the two systems and the negative ramifications of the conflict on both of them. I limit my analysis mostly to the policies of the two main states shaping and influencing both systems: that is, U.S. and Russian decision-making directed at certain critical institutions of international security. Analysis shows that both states lack a healthy mix of power and morality in their dealings with crucial elements and institutions of the European and the global nuclear order. Applying network-induced regime analysis, I explain the origins and the current state of decay of European security institutions in the first part of this paper. In the second part, I link the debate to the global nuclear order and outline the most pressing challenges the Ukraine conflict has generated at the multilateral nuclear level. I conclude by arguing for a preservation of existing institutions of stability and a return to a more balanced policy mix of arms control and cooperative security measures.

For more than a decade, Europe’s security institutions have been in a state of decay. To different degrees, this development pertains to almost all institutions under the rubric of cooperative security. The realm of arms control, in particular, has been negatively affected. Significant legally and politically binding arms control agreements under the auspices of the Organization for Security and Co-operation in Europe (OSCE) are either stagnating, deadlocked, or in retreat. The most prominent example is the Conventional Armed Forces in Europe Treaty (CFE)\(^1\). OSCE

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participating States remain unable or unwilling to successfully overcome the deadlock in arms control institutions. Mirroring this development, cooperative security institutions between the North Atlantic Treaty Organization (NATO) and the Russian Federation have largely ceased to function. With the Ukraine conflict on-going, prospects for reversing this trend are rather low for the moment. What is even more worrisome is that the deadlock of European institutions and the effects of the renewed West-Russian confrontation have begun negatively affecting the global nuclear order. The consequences of this negative interplay are not yet fully assessable. If the confrontation continues over a longer period, which it certainly looks like at the moment, their impact will most likely be severe.

**The Institutions of Cooperative Arms Control in Europe**

Cooperative arms control in Europe is basically a neologism consisting of the terms ‘cooperative security’ and ‘arms control’. The concept of cooperative security is understood to include a number of central tenets. It aims at increasing mutual security and predictability through reciprocity, inclusiveness, dialogue, a defensive orientation, transparency, confidence-building, and arms limitations. These central tenets are intended to help generate interstate relations ‘in
which disputes are expected to occur, but they are expected to do so within the limits of agreed-upon norms and established procedures.\textsuperscript{4} The politics of cooperative security in Europe have often been identified with the institution of the OSCE.\textsuperscript{5}

The concept of arms control is very closely related to this. Bull sees ‘peace through the manipulation of force’\textsuperscript{6} as the grand scheme under which to place the concept theoretically. In relation to the early period of the bipolar arms race, arms control’s foremost objective was the prevention of (nuclear) war.\textsuperscript{7} In a more operational sense, arms control is ‘any agreement among states to regulate some aspect of their military capability or potential. The agreement may apply to the location, amount, readiness, or types of military forces, weapons, or facilities. Whatever their scope or terms, however, all plans for arms control have one common factor: they presuppose some form of cooperation or joint action among participants with respect to their military programs.’\textsuperscript{8} With the end of the Cold War standoff, the ‘manipulation of force’, that is power, gave way to a more normative connotation of shaping and governing peace through a whole range of institutions of which most of them – though not all – are found within the framework of the OSCE.

And this is where the two concepts meet. Combining the two is an attempt to analyze two concepts which are technically in very close proximity, but whose theoretical origins link the concept – strongly influenced by American realism – of manipulating power with the normative concept, originating in Europe, of governing peace. This effort is intended to help analyze two

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basic premises of international cooperation – that is that ‘political action must be based on a coordination of morality and power.’

The genesis of cooperative arms control in Europe can be traced back to the final days of détente. In 1973, Moscow accepted the long-standing U.S. demand to enter into talks about conventional forces in Europe to address the imbalance in the conventional realm, which was to the detriment of the United States and its NATO allies. The talks, known as Mutual and Balanced Force Reduction (MBFR) talks, continued for almost 16 years without any concrete result and were finally replaced by the CFE negotiations in 1989. For the Soviet Union, amongst the reasons for agreeing to MBFR was the start of formal negotiations on the mandate for a Conference on Security and Cooperation in Europe (CSCE) in 1972. MBFR and the CSCE can be seen as ‘two sprouts from one bulb.’ The one ‘sprout’, MBFR, dealt with manipulating power at a largely bilateral, U.S.-Soviet, level. The other was multilateral in nature and sought to create a normative framework for securing a “cold peace”. The latter achieved a voluntary and, thus, fragile balancing act between the Soviet demand to devise status quo-cementing principles such as the ‘indivisibility of security’ and the ‘non-interference in internal affairs’ and the Western demand for individual human rights.

Over the next forty years, and particularly in the first few years following the end of the Cold War, a dense network of overlapping agreements, a regime complex in the most recent understanding of complexity research, developed. Five elemental regimes form the complex of cooperative arms control in Europe.

The first regime evolved around conventional arms control and was kick-started by MBFR. It acquired its full shape with the end of the Cold War and the signing of CFE in 1990 and a

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number of accompanying agreements, such as the Treaty on Open Skies, a monitoring instrument.\textsuperscript{13} The regime was updated at the end of the 1990s, but today it is extremely outdated technically and politically deadlocked due to disputes between Washington and Moscow.

The second regime developed in the realm of confidence- and security-building measures (CSBMs) and has its roots in the 1975 Helsinki accords. It evolved through the Stockholm Conference on CSBMs and Disarmament in Europe (1984-1986) and acquired its full shape during the early 1990s with the elaboration of a whole range of politically binding agreements – most prominently the Vienna Document (VD).\textsuperscript{14} Today, the regime is still functioning, but some of the instruments, such as the VD, are in need of a timely update to better address contemporary security challenges, such as the employment of forces without national insignia as seen in the Russian annexation of Crimea.

The third regime developed in the realm of political and military cooperation under the auspices of NATO. It includes cooperation mechanisms, such as the Partnership for Peace framework, the Euro-Atlantic Partnership Council, the NATO-Russia Founding Act, and the NATO-Russia Council (NRC).\textsuperscript{15} Today, the regime is functioning where military and political cooperation mechanisms involving third states are concerned. In NATO’s political and military dealings with Russia, the regime is dysfunctional and politically deadlocked. The most obvious example is the NRC which has been suspended by NATO member states at the working level as a reaction to Russian actions in Ukraine.

The fourth regime emerged out of the need to achieve sub-regional stability for the war-torn countries of the Balkans.\textsuperscript{16} In a top-down approach led by the United States, important elements

\textsuperscript{13} Further institutions of the regime are the CFE-1A agreement, the Flank Agreement, the ACFE Treaty, and the so-called Talks “at 36” between NATO and Russia from 2010 to 2011.

\textsuperscript{14} Further institutions of the regime are the OSCE Forum for Security Cooperation, the OSCE Programme for Immediate Action Series, the OSCE Framework for Arms Control, the OSCE Document on Small Arms and Light Weapons, and the OSCE Document on Stockpiles of Conventional Ammunition.

\textsuperscript{15} Further former institutions of the regime were the North Atlantic Cooperation Council (1991-1997) and the NATO-Russian Permanent Joint Council (1997-2002).

\textsuperscript{16} The institutions of the regime are the Agreement on Confidence- and Security-Building Measures in Bosnia and Herzegovina, the Agreement on Sub-Regional Arms Control, Article IV, the Regional Arms Control Verification and Implementation Assistance Centre, and the Concluding Document of the Negotiations Under Article V of Annex 1-B of the General Framework Agreement for Peace in Bosnia and Herzegovina.
of the regime were designed along the lines of the CFE Treaty and the VD. This regime is still functioning.

As inductive research has shown\(^{17}\), all four regimes share a significant number of principles and norms.\(^{18}\) Some of them were already listed almost word for word in the 1975 CSCE Helsinki Decalogue. The conclusion is that the historical roots of the regime complex are in the Helsinki accords. This influence on the meta-level of key principles and norms did not stop with the Helsinki stipulations, but was continuously fostered through their repetition and extension in the declaratory agreements of the CSCE and later the OSCE, particularly in the Charter of Paris for a New Europe (1990) and the Charter for European Security (1999) and in the organization of the OSCE itself. Their significance for the overall regime complex points to a special position within this complex, which can be described as a ‘meta-regime’\(^{19}\). Thereby, the fifth and most important regime is a meta-regime in the sense of a constant multiplier and reinforcer of principles and norms, informing the whole complex.

Applying network analysis,\(^{20}\) the normative CSCE/OSCE stipulations and their organizational manifestation (the OSCE) form an overarching canon of values which frames the whole regime complex. Below this meta-regime, a dense regime complex of four regimes with a high degree of


\(^{18}\) According to Stephen Krasner, ‘regimes can be defined as sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors’ expectations converge in a given area of international relations.’ Krasner, Stephen D. “Structural Causes and Regime Consequences: Regimes as Intervening Variables.” *International Organization* 36, no. 2 (1982): p. 2. The key principles and norms of the regime complex of cooperative arms control in Europe are: strengthening stability; sovereign equality; promoting arms control, disarmament, and CSBMs; indivisibility of security; peaceful settlement of disputes, peaceful cooperation; further developing measures; refraining from the threat or use of force; implementation of arms control, disarmament, and CSBM obligations; strengthening confidence and security; commitment to conflict prevention; territorial integrity of States; principle of military sufficiency. Quantitative assessment of 31 agreements from the realm of cooperative arms control in Europe shows that these twelve principles and norms are most often referred to in agreements of the CSCE/OSCE, NATO, and sub-regional arms control stipulations for the Balkans. Some of the principles and norms can be found word for word in the 1975 Helsinki Final Act. Cf. Kühn, Ulrich. *Cooperative Arms Control in Europe (1973-2014): A Case of Regime Decay?* (forthcoming): pp. 220–87.


\(^{20}\) Orsini, Morin and Young offer three modes of regime interaction (links): (1) dense networks where all nodes (the elemental regimes) are connected to one another, (2) centralized networks with one node having relatively more ties with other nodes than the remaining ones, and (3) fragmented networks where both centrality and density are low. See Orsini, Amandine, Jean-Frédéric Morin, and Oran R. Young. “Regime Complexes: A Buzz, a Boom, or a Boost for Global Governance?” *Global Governance* 19, no. 1 (2013): p. 33.
interaction among the different nodes (the regimes) of the complex is present. The nodes are interconnected through links at different levels. Links refer to interactions at the level of cross-shared principles and norms, political-historical linkages, direct references of a design and/or textual nature, and partially overlapping membership\textsuperscript{21}. Latest basic research has shown that the complex displays a high degree of density and a low degree of centrality.\textsuperscript{22} On the one hand, interactions among the nodes are frequent and lively. On the other hand, no node has considerably more links than the others. The regime complex of cooperative arms control in Europe is, thus, neither centralized nor fragmented, but displays a high degree of density.

As already mentioned, the regimes on conventional arms control, CSBMs under the auspices of the OSCE, and political-military cooperation under the auspices of NATO, all show increasing signs of decay – though, to different degrees. During the last 15 years, signs of decay have rapidly increased and have reached a peak with the Ukraine conflict. In addition, the OSCE meta-regime of principles and norms is very badly affected. Every time a key principle or norm of cooperative arms control in Europe is violated, the meta-regime suffers indirectly. Almost all key principles or norms of cooperative arms control in Europe have been violated in the ongoing Ukraine conflict.\textsuperscript{23} All in all, the whole complex itself is characterized by decay.

**The Reasons for Decay**

The decay of institutionalized cooperation can be approached from different theoretical angles. In order to stick with Carr’s dictum of the importance of power and morality, let us first turn to a number of realist variables addressing questions of power.

The first variable is non-compliance. Non-compliance – or as rationalists would put it – the “incentive to cheat” – is a crucial factor furthering cooperation decay.\textsuperscript{24} When speaking of cooperative arms control in Europe, increasing acts of non-compliance almost always involve Russia. Be it the illegal annexation of Crimea and the (covert) resort to force in Eastern Ukraine,

\textsuperscript{21} The complexity requirement of partially overlapping membership has been put forward by Orsini, Morin, and Young 2013.
\textsuperscript{22} See footnote 17.
\textsuperscript{23} See footnote 18 for the key principles and norms of the regime complex.
the five-day war with Georgia in 2008, or the “suspension” of CFE in 2007 (an action not in accordance with the formal stipulations of the treaty)\(^{25}\), Russia has always been a problematic actor when it comes to compliance. However, non-compliance is usually only the final stage in a sequential process of political decisions culminating in the decision to exit from a cooperative agreement. Even more so, Russian non-compliance is neither the sole nor the most important reason behind institutional decay.

The second variable was the massive shift in U.S.-Soviet-Russian capabilities in conjunction with the end of the Cold War. This shift had a cooperation-enabling and (over the long term) a cooperation-disabling effect. On the one hand, it led the Soviet Union under Gorbachev to focus relatively more on the economic capabilities of the USSR than on the military. Against the background of rapidly declining economic capabilities, Moscow decided to prioritize the economy and seek cooperation with the West. Gorbachev’s aim was to downsize the costly Soviet military and to get economic and financial aid from the West in return.\(^{26}\) On the other hand, the loss of relative capabilities on the Soviet side left Washington with relatively more capabilities. Against the background of the relative Soviet – and later Russian – weakness, the United States could largely pursue its preferred policies in its dealings with Moscow while, at the same time, negating Russian core interests (such as not enlarging NATO further to the East). The results were Russian perceptions of inequality, dissatisfaction with the post-Cold War security design of Europe, continued calls for re-negotiation, protracted negotiations, and increasing acts of non-compliance. After another minor shift in economic capabilities with the relative recovery of the Russian economy during the 2000s, Russia started to (partially) exit from the institutions of cooperative arms control in Europe.

The third variable stems from the increasingly offensive orientation of the United States since the end of the Cold War. According to Robert Jervis, offensively-oriented states complicate cooperation.\(^{27}\) From 1994 onwards, the United States acted in accordance with this orientation, which resulted in further change to the existing relative distribution of power in Europe – with

\(^{25}\) See footnote 1.
\(^{27}\) See Jervis 1999.
the three rounds of NATO enlargement (1999, 2004, and 2009). Direct cooperation between Washington and Moscow on enlargement did not take place due to the offensive orientation of U.S. policy. However, tacitly, Washington sought to cushion Russia’s unease with enlargement through cooperative arms control in Europe. The establishment of the 1997 NATO-Russia Founding Act, the adaptation of CFE, and the adaptation of the OSCE were all measures designed to accommodate Moscow and to support the weak Yeltsin government at home. At the same time, Washington rejected Russian counterproposals (such as replacing NATO with the OSCE) and linked important strands of the defensively-oriented normative policy of cooperative security to a power policy which was offensive in nature (i.e. enlargement). These interlinked policies not only led, over time, to increased Russian frustration but deprived Russia de facto of an equal say in all European security matters.

The fourth variable responsible for decay was a loss of interest by both sides. Both states shared an overriding interest in cooperation throughout the Cold War due to – according to Realism – their mutual concern about survival in conjunction with the scenario of mutual assured destruction. The mutual interest in cooperation continued in the direct post-Cold War period – though for different reasons: Russia for economic reasons, the United States – under Bill Clinton – because it was concerned about possible backsliding of Russia into authoritarianism if the Yeltsin government would fail. With the 9/11 attacks, the survival concern of Washington finally shifted away from Russia to the War on Terror and the Islamic World and, later, towards

28 Ibid.
30 Shortly after the dissolution of the Soviet Union, Moscow started lobbying for an upgrade of the CSCE and the dissolution of NATO. Then-Foreign Minister of Russia, Kozyrev argued in an article from 1995: ‘After all, it was the democratic principles of the 56-member CSCE that won the Cold War – not the NATO military machine.’ Kozyrev, Andrei. “The Lagging Partnership.” Foreign Affairs 73, no. 3 (1994): 59–71. As previously confidential material revealed, replacing NATO with the CSCE was never an option for Washington. In 1990, then- Secretary of State James Baker advised George H.W. Bush that the ‘real risk to NATO is CSCE’. Quoted from Sarotte, Mary E. “Perpetuating U.S. Preeminence: The 1990 Deals to "Bribe the Soviets Out" and Move NATO In.” International Security 35, no. 1 (2010): p. 112.
a rising China. Russia dropped out of focus. Cooperation with Moscow was not a direct priority anymore. In turn, Moscow under Putin shifted its priority towards economic consolidation and strengthening its influence in the Near Abroad. This mutual diminished interest in cooperation led to the U.S. perception that issues of European security were basically non-problematic in nature and, later, to mutually non-compromising behavior when it came to issue-specific divergent interests, such as in the cases of CFE, the future of NATO, or the on-going conflict over Ukraine.

The fifth variable was the constant rejection of Russian core interests. Russian calls for re-negotiating elements of the post-Cold War security architecture or the system as a whole have been apparent from the mid-1990s onwards. They contributed to the adaptation of CFE, failed efforts to achieve a legal personality for the OSCE in the second half of the 1990s, and the establishment of the NRC in 2002. They increased within the OSCE during the 2000s and culminated in the two unsuccessful security treaty drafts by Dmitry Medvedev in 2008 and the ensuing so-called Corfu Process of the OSCE. Russian calls for re-negotiation were, thus, partially successful. However, Moscow never achieved its (indirect) overriding goal of either subordinating NATO to a higher security institution or codifying an end to NATO enlargement. Washington and its allies continued to resist any such attempt. This fact only deepened Russian dissatisfaction.

Beyond realist power variables, aspects of morality contributed to institutional decay as well. Particularly with respect to the normative foundations of cooperative arms control in Europe, there is a precarious mix of divergent interpretations of norms, norm-challenging speech and behavior, and notions of injustice.

The first aspect stems from the inequitable distribution of gains from cooperation. Inequity can lead to dissatisfaction with cooperation. As explained above, Moscow did not achieve its

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34 See footnote 17.
36 Cf. Hasenclever, Andreas, Peter Mayer, and Volker Rittberger. “Does Regime Robustness Require a Fair Distribution of the Gains from Cooperation?” In Regime consequences: Methodological challenges and research
preferred interest in the different processes of cooperation with the United States on the design of post-Cold War European security. Here, realism has little to offer, apart from insisting that the distribution of gains is always relative to the underlying relative distribution of power. Nonetheless, this assumption does not change the fact that Russia feels it is being treated unfairly—an assessment which has led to increasingly negative ramifications. Identifying a pivotal moment of the start of Russian perceptions of inequity is extremely hard. In hindsight, the 1999 NATO air strikes against the Federal Republic of Yugoslavia seemed to have a crucial impact on Moscow. Since then, Russian statements delivered to the OSCE have been full of complaints about double standards and the unevenly directed critique of the organization in relation to its so-called “third basket”, which addresses human rights issues. The continued calls by Russia for re-negotiation are indicative of the Russian perception of being treated unequally. The most prominent example of vocal dissatisfaction was the 2007 Munich Security Conference speech of Vladimir Putin.

The second aspect is the presence of institutional birth defects. According to institutionalists, intra-regime contradictions can significantly constrain successful institutionalized cooperation. Intra-regime contradictions are included in the 1975 Helsinki accords. The first Helsinki principle speaks of ‘sovereign equality [and the] respect for the rights inherent in sovereignty’. This principle explicitly includes the right ‘to be or not to be a party to bilateral or multilateral treaties including the right to be or not to be a party to treaties of alliance’. It follows directly after recognition in the preamble of the ‘indivisibility of security in Europe’. Over the years,

37 Cf. Grieco 1988
38 According to Freedman, ‘this was a key moment in Russia’s disenchantment with post-Cold War security arrangements, especially in the context of the wider restructuring of the European state system, which had already begun and led to many post-communist states joining NATO and then the EU. This was largely beneficial to those countries, in terms of governance and economics as well as security, but was viewed from Moscow with increasing misgivings.’ Freedman, Lawrence. “Ukraine and the Art of Crisis Management.” Survival 56, no. 3 (2014): p. 15.
both stipulations have become key principles of the regime complex of cooperative arms control in Europe. The agreements of the regime of political-military cooperation under the auspices of NATO, in particular, have made the principle of the ‘indivisibility of security’ a central declaratory element of the new post-Cold War order. These two principles are still at the declaratory heart of the regime complex of cooperative arms control in Europe. In relation to each other, they form a classic paragon of an internal contradiction as every party could basically find any sovereign decision of any other party to join any treaty or alliance to be an infringement on its security and hence as contrary to the indivisibility of security. Lawyers call such discrepancy a *contradictio in adjecto*. This example shows that the Helsinki accords were designed to allow for a declaratory understanding against the background of strongly divergent interests. Since the Helsinki accords are at the heart of the normative basis of the regime complex, they continue to have declaratory validity 40 years later. Their partially contradictory nature allows for diverse understandings and divergent interpretations of the normative base, serves as a reference frame for continued Russian calls for re-negotiation, and even allows justifying acts of non-compliance with reference to divergent interpretations of the normative basis.

The third aspect is divergence in norm interpretation. Divergent interpretations of norms can complicate institutionalized cooperation. Nevertheless, they are quite common in international cooperative efforts. They are not a problem as long as states are able to bring their divergent interpretations in line constructively. On cooperative arms control in Europe, they have led to justifications of divergent interests and acts of non-compliance, most visibly in the on-going Ukraine conflict. As an example, Russia’s occupation of parts of Ukraine has been interpreted by most Ukrainian and Western politicians as destabilizing, not just for Ukraine, but also for the

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44 See President of Russia 2014.

Russian-Ukrainian relationship as well as for NATO-Russian relations.\textsuperscript{46} From the Russian perspective, it is the possible prospect of future NATO membership of Ukraine which is perceived as de-stabilizing.\textsuperscript{47} In essence, the two do not share a common understanding of the Helsinki norm of ‘strengthening stability’ and interpret “stability” quite differently. Qualitative assessment of U. S. and Russian statements to the OSCE shows that a number of key norms have constantly been subject to divergent interpretations since the late 1990s.\textsuperscript{48} This fact leads to the assumption that Moscow and Washington (almost) never really shared a common understanding of key principles and norms of the regime complex.

The fourth aspect is what critical constructivists have identified as a cooperation-disabling interplay between norm-challenging speech and norm-challenging behavior.\textsuperscript{49} Acts of norm-challenging speech have occurred increasingly on the Russian side from the late 1990s onwards in the forum of the OSCE.\textsuperscript{50} Norm-challenging speech, as such, is already a problem because it incorporates the notion that something is fundamentally wrong with a certain norm. Norm-challenging speech in conjunction with justice claims is a particularly salient type of norm contestation.\textsuperscript{51} Russian notions of injustice and inequality are linked to NATO enlargement, the U.S. foreign and security policy which, Russia claims, employs double standards, and the role of the OSCE.\textsuperscript{52} The consequences of the Russian notions of being treated unfairly have been increasing acts of norm-challenging speech, a (partial) retreat from the institutional structures of cooperative security, and the (partial) ignoring of the normative basis of the regime complex.

The repeated and increasing use of norm-challenging speech has actively prepared the way for norm-challenging behavior. Both the United States and Russia have acted as norm challengers at different times. In conjunction with NATO enlargement (in the Russian perception a U.S.


\textsuperscript{48} See footnote 39.


\textsuperscript{50} See footnote 39.


\textsuperscript{52} See President of Russia 2007; President of Russia 2014.
violation of the principle of the ‘indivisibility of security’), the 1999 Yugoslavia bombing\textsuperscript{53}, the Russian CFE “suspension”, the Russian-Georgian war of 2008, and the annexation of Crimea, both states have challenged existing normative injunctions, which are inherent parts of the regime complex. Since these states are the two main actors in the institutionalized system of cooperative arms control in Europe and since both have repeatedly and increasingly challenged existing norms, their actions are all the more serious.

The decay of the institutions of cooperative arms control in Europe was not the reason for the current Ukraine conflict. However, it provided fertile ground for the crisis to spiral out of control. Without CFE and its successor (ACFE), no meaningful transparency mechanisms or limitations for the Russian military buildup at the Ukrainian border are available. The politically binding stipulations of the VD are not designed to address the current situation. Efforts to craft more intrusive transparency measures for the VD have failed in the past.\textsuperscript{54} Suspending the NRC at the working level has deprived NATO member states of an important forum for communication with Russia. The deadlocked OSCE still provides the only forum. However, due to its consensus design, the OSCE is dependent on the general political climate between the West and Russia. In addition, the neglect of the security dimension of that organization by the United States during the last 15 years has left the OSCE with few and mostly outdated policy instruments to address the conflict.

Taken together, unconstrained power, conflicting ambitions for power, and a long process of normative erosion has led to the decay of the regime complex of cooperative arms control in Europe. The two key players in European security affairs have contributed substantially to that process. Since the end of the 1990s, the United States and NATO have failed to achieve a coordination of power with respect to Russia. By disengaging from the power realm of arms control – most notably through non-ratification of ACFE\textsuperscript{55} – and the continued policy of


\textsuperscript{55} Here, one also has to quote U.S. withdrawal from the Anti-Ballistic Missile Treaty in 2002. Even though the agreement is not an integral part of the regime complex of cooperative arms control in Europe, U.S. withdrawal had
expanding NATO’s frontiers the West has contributed to the whole system of cooperative arms control in Europe getting out of balance. At the same time, Russian policy has increasingly lacked any co-ordination of morality, as can be seen in the manifold norm violations in conjunction with the Ukraine conflict but also in earlier instances. As long as neither is able to adjust their diverging positions on power and morality, misunderstandings and the de facto potential for hidden or open conflict will continue to thwart meaningful cooperation on European security.

**The Ramifications for the Global Nuclear Order**

The European security crisis in conjunction with the Ukraine conflict is not an isolated case. What is additionally worrisome is the fact that the conflict is about to create a negative domino effect at the level of multilateral nuclear arms control, disarmament, and non-proliferation governance. The first effects will become obvious at the 2015 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). They might increase over time and could seriously affect the global nuclear order. Four aspects of the Ukraine conflict are particularly worrisome for the international community.

The first aspect concerns international efforts to prevent additional states from acquiring a nuclear weapons capability. Since the beginning of the nuclear age, nuclear weapons have, at least to some extent, promised an enhanced survival guarantee for the possessors against conventional attack. This perception notwithstanding, there are other powerful arguments to go nuclear, such as prestige, international status, and the political leverage that comes with nuclear weapons possession. However, the survival concern will always be central to any possible international negotiations aimed at convincing states not to acquire a nuclear weapons capability. Negative security assurances by the official nuclear weapons possessors have been a meaningful political instrument in that process. In the past, this was particularly the case in conjunction with a decisively negative impact on security relations with Russia. Cf. Zadra, Roberto. “NATO, Russia and Missile Defence.” *Survival* 56, no. 4 (2014): 51–61.

56 Russian norm violations happened in conjunction with the “suspension” of CFE – an action inconsistent with the cooperative arms control in Europe norm of the ‘implementation of arms control, disarmament, and CSBM obligations’. Norm violations occurred also in the Russian-Georgian war of 2008 and in conjunction with the most recent Russian non-compliance with the INF Treaty (see below).

the breakup of the Soviet Union. The Russian annexation of Crimea and the covert incursions into Eastern Ukraine are, thus, not only violations of international and, particularly, European legal norms, they are also a breach of the negative security assurances Russia, the United States and the United Kingdom gave to the new Ukrainian state in 1994. Under the so called Budapest Memorandum\textsuperscript{58}, Kyiv gave up its approximately 1,800 nuclear warheads and joined NPT and the START I agreements in exchange for official recognition of its sovereignty and territorial integrity.\textsuperscript{59} The Machiavellian impudence with which Russia has broken these promises in March 2014 sets an extremely negative precedent for the further value of negative security assurances. States such as Iran or North Korea will have closely watched Moscow devaluing these political instruments. They might already have drawn their lessons from this.

The second aspect is the prospect of a prolonged stalemate in further nuclear reductions between the United States and Russia. Article VI of the NPT binds all officially recognized nuclear-weapon states to pursue negotiations in good faith, with the aim of the total elimination of nuclear weapons. Today, U.S.-Russian arsenals still account for over 90 percent of all nuclear weapons worldwide.\textsuperscript{60} This fact alone increases the mutual responsibility of Washington and Moscow to continue to lead global nuclear disarmament efforts. Both have done so since the end of the Cold War. The latest New START agreement sets equal ceilings of 1,550 nuclear warheads for each side.\textsuperscript{61} New START stipulates that these limits be reached by February 2018. The Ukraine crisis has not only dashed hopes that both could pursue a follow-on agreement with even lower ceilings, as put forward in a public proposal by Barack Obama in 2013\textsuperscript{62} but recent

\textsuperscript{58} Memorandum on Security Assurances in Connection with Ukraine’s Accession to the Treaty on the Non-Proliferation of Nuclear Weapons sign by Ukraine, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America.


\textsuperscript{60} According to the Center for Arms Control and Nonproliferation, the United States had 7,506 and Russia had 8,484 nuclear weapons in their inventories (April 2014). “Fact Sheet: Global Nuclear Weapons Inventories in 2014.” Accessed February 4, 2015. \url{http://armscontrolcenter.org/issues/nuclearweapons/articles/fact_sheet_global_nuclear_weapons_inventories_in_2014/}.

\textsuperscript{61} See the information provided by the U.S. Department of State. Accessed February 4, 2015. \url{http://www.state.gov/t/avc/newstart/index.htm}.

voices from Moscow seem to indicate that Russia might reconsider its stance towards the agreement if the current conflict continues. The stalemate and even possible erosion of the U.S.-Russian nuclear disarmament dialogue might well throw the precarious NPT bargain out of balance.

This bargain is of a rather inequitable nature with five states (China, France, Russia, the United Kingdom, and the United States) allowed to possess nuclear weapons, while the others are not. In order to alleviate concerns over this obvious double standard and allow for universal ratification, non-nuclear-weapon States have pressed for inclusion of the disarmament clause. In 1995, NPT Parties to the Treaty agreed to an indefinite extension of the treaty in exchange for increased commitments by the nuclear possessors to pursue nuclear disarmament and to contribute to negotiations on a Middle East zone free of nuclear weapons as well as other weapons of mass destruction (WMD). Twenty years later, neither the complete disarmament commitment nor a Middle East WMD-free zone has become reality. For obvious reasons, the Arab States, in particular, have been dissatisfied with the general state of the treaty for a long time already. If, in addition, the two largest nuclear weapons possessors freeze their disarmament commitments, the NPT bargain and the treaty as a whole might erode more quickly than anticipated. A possible U.S.-Russian stalemate in disarmament efforts would serve as a good smokescreen for Arab states to voice their continued dissatisfaction and to seek – under worst circumstances – exit to the NPT.

The third factor is closely related to the NPT disarmament clause. Without a balanced and operational NPT in place, efforts to prevent the spread of nuclear weapons and nuclear materials might seriously suffer as well. What pertains to the level of state-led efforts to acquire a nuclear weapons capability (as in the case of Iran) applies as well to criminal trans-national networks and

reduce “deployed strategic nuclear weapons by up to one-third” with Russia. The initiative did not receive a positive response from Moscow.

63 On January 14, 2015, the Head of the Foreign Ministry’s Security and Disarmament Department, Mikhail Ulyanov said in an interview with the RIA Novosti news agency that ‘so far we have not taken any particular steps in this direction, but I cannot exclude that in the future Washington would force us into taking them, into making corrections to our policies regarding this direction.’ ‘This would only be natural, considering the unfriendly character of the US actions.’

terrorist groups struggling to obtain weapons-grade nuclear material. The latest decision by Moscow in 2014, obviously influenced by the Ukraine crisis, to end the last remains of nuclear security cooperation with the United States\textsuperscript{65} is a serious setback for efforts to halt nuclear proliferation. Prior to the decision, Moscow had already refused to extend the 20-years old Cooperative Threat Reduction Program (CTR) in 2012. Under the program, initiated at the end of the Cold War, surplus Russian nuclear bombers, missiles, submarines and warheads were dismantled, fissile material safeguarded and sensitive sites upgraded with the newest security technology. In the midst of the chaotic breakup of the USSR this U.S.-sponsored initiative was key to preventing the uncontrolled spread of nuclear materials and knowledge. The end of CTR and the latest decision to cut off nuclear security cooperation with the United States signal the departure of Russia from multi-national efforts to secure nuclear materials and a return to the imperative of national safeguarding policies. Other states could follow this example, which would essentially mean that the successful U.S. policy of collecting nuclear weapon-grade materials under the framework of the Nuclear Security Summits might come to an end as well.

The fourth factor is the risk of a revival of nuclear power politics in the U.S.-Russian relationship. The on-going crisis surrounding the Intermediate-Range Nuclear Forces (INF) Treaty has the potential to lead to such a dangerous scenario. The treaty bans the United States and Russia from possessing, producing, and flight-testing intermediate- and shorter-range missile systems with maximum ranges between 500 and 5,500 kilometers.\textsuperscript{66} Recent allegations by the U.S. State Department imply that Moscow is in non-compliance with the treaty, having test-launched a “ground-launched cruise missile (GLCM).”\textsuperscript{67} Russia has countered the allegations with its own compliance concerns.\textsuperscript{68} So far, neither side has found the appropriate forum or a

\textsuperscript{65} Prior to the expiration of the Nunn-Lugar umbrella agreement in 2013, Washington and Moscow agreed to continue cooperation on nuclear security under the 2003 Framework Agreement on a Multilateral Nuclear Environmental Programme in the Russian Federation (MNEPR), and a related protocol. Russia cancelled these agreements in late 2014.


workable formula to address their mutual compliance concerns. In a recent Congressional hearing, Brian McKeon of the Department of Defense pondered the idea of “countervailing strike capabilities to enhance U.S. or allied forces.” Deploying U.S. GLCMs “would obviously be one option to explore” in response to Russia’s actions, he added. In its very essence and under the worst circumstances, such deliberations might amount to a renewed missile deployment debate in Central Europe, with all the possible historical analogies to the NATO Dual Track decision of the early 1980s. A possible renewed nuclear arms race on the European continent would undoubtedly have negative ripple effects for the global nuclear order. It is very questionable whether the official nuclear-weapon states under the NPT still have the same political power to hold the global system of nuclear non-proliferation and arms control together as they did during the time of the Cold War. Particularly China with its long border with Russia would have to find a suitable response to a possible Russian arms buildup in the realm of INF systems.

In summary, the Ukraine conflict with all its intended and unintended consequences has the negative potential to seriously weaken and undermine the global nuclear order. The conflict comes at a time when further instruments of the global nuclear order are experiencing an almost constant state of deadlock. This pertains to the question of ratification of the Comprehensive Nuclear-Test-Ban Treaty, the unsuccessful efforts to craft a Fissile Material Cut-Off Treaty, or the equally unsuccessful attempts to agree on a conference with the aim of establishing a Weapons of Mass Destruction-Free Zone in the Middle East. This state of negative inertia, coupled with tectonic shifts in the international distribution of economic, military and political power and continued additional international crises, provides fertile ground to make any future effort to re-engage on these critical issues extremely difficult and time-consuming.

Re-Gaining Order

The Ukraine conflict is a formidable example of the interdependence of regional and global decision-making and institutions. It is also an example of their inherent brittleness. In order to strengthen existing institutions and to re-gain order, decision-makers should first internalize a number of crucial lessons learnt from the current conflict and its related root causes.

At the regional level, the decay of the regime complex of cooperative arms control in Europe shows that even highly sophisticated institutional arrangements can go into reverse and disintegrate. The decay of certain nodes of such a network – take the CFE Treaty, for instance – should be a warning signal and should be treated more cautiously. The negative ripple effects of elemental regime decay can, under the worst circumstances, reverberate throughout the whole system, causing it to shatter into numerous pieces.⁷⁰

As the current example of the degeneration of the European security architecture shows, unconstrained power, divergent interpretations of norms, non-compliance and norm-challenging speech and behavior are sequential stages which can unleash powerful destructive forces. Whether the two main actors of Euro-Atlantic security, the United States and Russia, will be able to return to a stable, balanced and long-term policy mix of power and morality is not predictable. Both elemental concepts of European security – the Realist power element of arms control and the more normative element of cooperative security – have seriously suffered from short-sighted decisions in the past and tactical behavior in the present conflict.

To assume that either continued sanctions against Russia or continued Russian belligerence in Ukraine will solve the problem is a failed cost-benefit calculation. Under both assumptions it will be to the detriment of the Ukrainian people. Today, more than ever, Europe needs a real restart in the security realm. The upcoming 2016 OSCE Chairmanship of Germany – the only powerful European country with an equal interest in good relations with Washington and Moscow and, at the same time, the uncontested leader of the European Union⁷¹ – provides a possible window of opportunity to re-engage on the difficult issues of clarifying the normative European acquis, devising stabilizing measures in the realm of CSBMs and arms control, and achieving a stable, realistic and prosperous solution for the non-aligned states in the common NATO-Russia neighborhood.


At the global level, the Ukraine conflict underscores how strongly the global nuclear order is still affected and shaped by the general state of U.S.-Russian relations and therewith, how closely it is connected to critical questions of European security. Barack Obama is basically right to portray Russia as a ‘regional power’\textsuperscript{72} when it comes to cultural appeal or economic power. Nevertheless, in the nuclear realm, Moscow still has all the destructive potential of a superpower. And this assessment pertains not only to scenarios of nuclear holocaust, but also to the multilateral realm of institutionalized nuclear arms control, disarmament and non-proliferation. Without Russian acquiescence, efforts to hold the precarious global nuclear order together are extremely difficult to imagine.

The current and future U.S. administrations would, therefore, be well advised not to let go of the remaining institutions of stability. Preserving New START and the INF Treaty is in the national interest of America. It is even more so in the interest of the international community, which still depends on a functioning and reliable U.S.-Russian relationship.

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Abstract
This paper examines the principal-agent problem in the case of Russia and breakaway republics in its near abroad, with a specific focus on nuclear smuggling. These spaces have been a haven for nuclear traffickers, posing important challenges for international efforts aimed at stemming proliferation. Given that secessionist regimes in this area owe their existence to Moscow’s military presence, analysts have blamed Russia for nuclear smuggling incidents in frozen conflict areas, arguing that Moscow has never been cooperative on nuclear matters. However, the historical record reveals that Russia does not take the dangers posed by nuclear smuggling lightly, as insurgent groups in the region have repeatedly threatened to use dirty bombs against it. A closer look at both the theory and the empirical evidence around the illicit trade with nuclear materials, drawing on examples of nuclear trafficking through Transnistria, shows that it is the state of lawlessness in these breakaway republics that makes these territories a fertile ground for smuggling networks. As organized crime engulfs these quasi-states, professional traffickers take over smuggling rings from amateurs. This paper shows that the increasing frequency of nuclear smuggling incidents in breakaway republics is better explained by the growing sophistication of trafficking networks rather than by Russia’s involvement in these frozen conflict zones.

In May 2014, the Security Service of Ukraine (SBU) apprehended nine people attempting to smuggle 1.5 kg of U235 from Transnistria, a self-proclaimed republic that broke away from Moldova in 1991, to Eastern Ukraine. Eight of the traffickers were Ukrainian citizens, with ties to the separatist forces in the Luhansk and Donetsk oblasts (the Donbass region), leading the Ukrainian authorities to posit that the captured materials could have been used in a dirty bomb, meant to destabilize the social and political situation in the country.¹ One week after the arrests, Luhansk and Donetsk declared their independence. With Russia’s support, the separatists have

been fighting the Ukrainian armed forces since April 2014, leaving behind over 6,000 people dead and forcing over one million Ukrainians out of their homes. Russia apparently seeks to create a “frozen conflict” in Ukraine to maintain leverage over Kyiv and to prevent the expansion of Western influence. The May 2014 nuclear smuggling incident spiked suspicions that Moscow is turning a blind eye to nuclear trafficking to advance its revisionist geopolitical agenda. More recently, journalists reported that pro-Russian separatists in Donbass were plotting to manufacture a dirty bomb with the help of Russian scientists. These reports echo the criticism that Russia “has never been cooperative on nuclear matters.”

Undeniably, the gap between the United States and Russia on nonproliferation has increased in recent years. Despite Moscow’s efforts to bring Iran to the negotiating table, U.S.-Russian cooperation on nuclear nonproliferation has reached an all-time low. The 2008 War in Georgia, missile defense in Eastern Europe, and Russia’s involvement in the Ukraine crisis have led to greater and greater mutual suspicion and estrangement. Ratcheting up the pressure on Moscow and isolating it have been deemed necessary to reassure threatened Eastern European countries and prevent them from going nuclear, as some scholars have argued. However, marginalizing Russia is likely to backfire, especially in the field of nuclear trafficking. Some studies have shown how criminal networks might be used as deliberate tools by states pursuing nuclear proliferation. However, this is not Russia’s case. The Russian government has as much of an

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In the early 1990s, one element in the Transnistrian separatists’ strategy to destabilize the Moldovan government in Chișinău was nuclear trafficking, as detailed below. It was thanks to Moscow’s support that Tiraspol seceded from Moldova and proclaimed its independence. Despite Russia’s tough stance on non-proliferation, Transnistria remains vulnerable to nuclear smuggling rings. The international community refuses to recognize Tiraspol, for fear that a revision of the frontier lines in Russia’s near abroad would lead to further instability. Yet fixed borders can make conflict more likely. The closed circuit space that constitutes Transnistria amounts to little more than a failed state: it suffers from lawlessness, systemic corruption, and rampant poverty. Because Moscow has tapered off, delayed, and, in some cases, stopped altogether its financial assistance for Transnistria, Tiraspol is facing bankruptcy. These conditions create a fertile ground for organized crime and smuggling networks, a phenomenon that can be observed not only in Transnistria but also in other Newly Independent States (NIS).

With Moscow’s control over the separatists diminishing, the likelihood of nuclear smuggling in Russia’s near abroad increases. The recent up-tick in nuclear trafficking has caused significant unease in Washington, leading to a heavier American involvement in the post-Soviet space.

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In the next section, I will analyze U.S.-Russian cooperation on non-proliferation. This section will shed light on Moscow’s contribution to the campaign to stem nuclear smuggling. Then I will examine the theoretical debate about the impact of state support on the effectiveness of trafficking networks. Subsequently, I will look at recent incidents involving nuclear materials smuggling in Transnistria. Lastly, I will review the counter-smuggling infrastructure set in place by the United States in cooperation with these states and offer policy recommendations that address actual and potential threats posed by the situation in Eastern Ukraine. In the empirical material I analyzed, I identified the following pattern: the state of lawlessness in these territories enables amateurs to traffic materials; then, as the quasi-states fall prey to organized crime, professional traffickers take over smuggling chains. The more sophisticated smuggling networks become, the harder it is to stem the illicit trade with radiological and nuclear materials (abbreviated as RN materials). Rather than being Moscow’s proxies, smugglers exploit local conditions to carry out their operations.

Background

Fears that loose nuclear weapons and RN materials could end up in the wrong hands after collapse of the Soviet Union prompted Washington to undertake unprecedented efforts to assist the Russian Federation in the field of nuclear security. For example, the Cooperative Threat Reduction (CTR) program, founded by Senators Sam Nunn (D-GA) and Richard Lugar (R-IN), made available funding and expertise to secure and dismantle WMDs from the former Soviet

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11 According to the International Atomic Energy Agency, the term “nuclear materials” refers to uranium, plutonium, and thorium. Radiological sources can be divided into Category 1 and Category 2 sources. According to the Environmental Protection Agency, Category 1 sources can “lead to the death or permanent injury of individuals who are in close proximity to the source for a short period of time (minutes to hours).” Category 1 sources are used in radioisotope thermoelectric generators, irradiators, teletherapy machines, and fixed multi-beam teletherapy machines. Category 2 sources can “lead to the death or permanent injury of individuals who are in close proximity to the source for a longer period of time than for Category 1 sources.” Category 2 sources are used in industrial gamma radiography equipment and high/medium dose-rate brachytherapy. Environmental Protection Agency, Sealed Radioactive Sources, available at: http://www.epa.gov/radiation/source-reduction-management/sources.html. To build a nuclear bomb an organization would need as little as 21 kg Highly Enriched Uranium (HEU), and 6 kg Plutonium. Gregory S. Jones, “Fissile Material Conversion Times, Wastage and Significant Quantities: Lessons from the Manhattan Project,” December 16, 2015, available at: http://nebula.wsimg.com/d3cd819efec4dd9537d29075dfff524a?AccessKeyId=40C80D0B51471CD86975&disposition=0&alloworigin=1. For a Radiological Dispersion Device (RDD), also known as a dirty bomb, quantities are much small because the desired effect is different from a nuclear bomb. The goal of a RDD is to contaminate a vast surface and render it inhabitable, not to wipe out entire cities. Each type involves distinct technological challenges and yields a different impact.
Union. As William Tobey, Matthew Bunn, and Nickolas Roth have pointed out, cooperation with Russia on nuclear security deepened during the presidency of Bill Clinton, and doubled in magnitude during the George W. Bush years, after 9/11.\(^{12}\)

Yet, also in the aftermath of 9/11, President Bush pushed for certain measures, such as NATO’s expansion into Eastern Europe and the development and deployment of advanced conventional weapons, which irritated Russia.\(^{13}\) In parallel, Moldova, Ukraine, and Georgia strengthened their ties to the European Union by signing association agreements, a move strongly opposed by Moscow. Moreover, the United States enlarged its intelligence footprint in the region, in an effort to combat nuclear trafficking. Washington boosted the budgets of intelligence agencies and of the myriad of initiatives undertaken by the Department of Defense to curtail smuggling with nuclear and radiological materials. U.S.-Russian intelligence liaison on nuclear trafficking represents a long-held desideratum.\(^{14}\) Yet relations between American intelligence agencies and their Russian counterparts remain fraught, as Moscow feels threatened by this growing number of U.S. spies in its backyard.\(^{15}\) As John Mearsheimer writes, “great powers are always sensitive to potential threats near their home territory.”\(^ {16}\)

Russia’s annexation of Crimea and the ongoing fighting in Luhansk and Donetsk have also severely strained relations between Moscow and Washington. Policy makers and analysts talk of


a “new Cold War,” which, unlike in the 2008 crisis following the Russian-Georgian war, leaves little hope for a speedy return to “business as usual.” As a result of the deteriorating relations with the West, Moscow has found itself cut off or left out from certain frameworks and operations that have a direct impact on its security. By December 2014, Ukraine replaced Russia as the top beneficiary of NATO’s Science for Peace and Security (SPS) program, which deals with contraband with nuclear materials and ACW technologies among other issues. Cooperation with Russia under the aegis of SPS has been suspended until further notice. The Cooperative Threat Reduction program had been drawing to a close before the Ukraine crisis erupted, with both Washington and Moscow agreeing that “Russia should shoulder the main burden of financing its nuclear security itself.”

For the authorities in Moscow, securing nuclear materials and sensitive technologies by themselves represents more than a matter of pride. Russia does not take lightly the danger posed by smuggling in nuclear or advanced conventional weapons (ACW) technologies, stressing its commitment to fight against trafficking both in its national programmatic documents and in its contribution to international fora. In its most recent Military Doctrine, Russia has identified WMDs in the hands of terrorists as one of the key threats to its security. Even if Russian leaders have not been particularly effective at communicating its interest in stemming nuclear smuggling to their Western counterparts, decision-makers in Washington should remember that

nuclear weapons states in general have a strategic interest to keep other actors from joining the nuclear club.22

Moscow has good reasons to fear nuclear terrorism.23 Insurgent groups fighting around the Black Sea have repeatedly threatened to use this deadly combination against it.24 Russia’s demographics and ethnic composition, especially in the Ural region, offer a fertile ground for the Islamic State of Iraq and Syria (ISIS)-inspired attacks.25 As some experts have pointed out, isolating Moscow is likely to hurt Washington’s efforts to combat trafficking with nuclear materials and ACW technologies in Eastern Europe.26 The historic record suggests that past U.S.-Russian joint effort to fight nuclear smuggling were successful. In recent years, as Washington and Moscow have grown apart, there appears to be an up-tick in the number of nuclear trafficking incidents.


23 Russian attitudes towards nuclear smuggling in its near abroad can be analysed by extending Matthew Kroenig’s power projection theory to sub-state or quasi-state actors. Kroenig writes that states oppose the spread of nuclear weapons to actors “over which they have the ability to project military power because nuclear proliferation in those situations could constrain their military freedom of action.” Matthew Kroenig, “Force or Friendship? Explaining Great Power Nonproliferation Policy,” Security Studies, Vol. 23, No. 1, 3. When applying Kroenig’s theory to nuclear smuggling around the Black Sea, if breakaway republics in Russia’s vicinity are regarded to be under Moscow’s influence, then one should expect Moscow to try to stop the dissemination of nuclear materials.


More specifically, the Incident and Trafficking Database (ITDB) compiled by the IAEA reports a sharp decline in the number of incidents involving unauthorized possession, theft, or loss of radioactive sources and nuclear materials over the twenty-year period it has recorded so far (from 1993 until 2013). The ITDB logs two broad categories of events: the illegal possession and movement of RN materials, attempted sale, purchase or use of such materials for illegal purposes and the theft or loss of nuclear materials or radioactive sources from facilities or during transport.27 The 2477 confirmed incidents that took place between 1993 and 2013 can be classified as follows: 424 incidents of unauthorized possession and related criminal activities, 664 incidents of theft or loss of RN materials, 1337 incidents involving other unauthorized activities and events (such as the unauthorized disposal, unauthorized shipment, or the discovery of RN materials) and 69 inconclusive cases. As Figure 1 shows, incidents involving unauthorized possession and related criminal activities peaked in 1994, decreasing in frequency between 1996 and 2003, when they picked up again in the mid-2000s.

![Figure 1](http://www-ns.iaea.org/downloads/security/itdb-fact-sheet.pdf)

**Figure 1.** Incidents Reported to the Incident and Trafficking Database (ITDB) involving unauthorized possession and related criminal activities, 1993-2013. Source: International Atomic Energy Agency

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The number of incidents involving the theft or loss of radioactive sources reached an all-time high in 2006 (over 135) and then dropped dramatically to under 40 in 2013 (See Figure 2). Most of the credit for this decrease in stolen or lost radioactive sources went to the United States, since Washington bankrolled the efforts to store, protect, and detect RN materials. However, Russia also contributed to this success by sharing sensitive information, granting access to its facilities, and allowing the installation of monitoring sensors. Some U.S. officials downplayed Moscow’s responsiveness, complaining about the Cold War mentality that some Russian representatives still displayed.\textsuperscript{28} This reading of Russia’s (sometimes legitimate) distrust can hamper prospects for future cooperation in the nuclear security arena.

Compared to 2010, the number of incidents has risen again, although not dramatically. This trend could worsen given the growing divergence between the United States and Russia. The termination of funding through CTR is particularly problematic since one of its goals was to


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\textbf{Figure 2.} Incidents reported to the ITDB involving theft or loss, 1993-2013. Source: International Atomic Energy Agency
secure RN materials. Despite Russia’s pledge to continue these efforts on its own, the gap between its intentions and its abilities remains a source of concern.

In the early 1990s, the number of unauthorized possession incidents dwarfs the frequency of thefts and losses. The discrepancy between unauthorized possession and theft may seem striking, since the two categories overlap. It is impossible to log an event as unauthorized possession without also recording it as theft. This discordance may stem from the tendency of bureaucracies to downplay dangerous incidents so as to avoid penalties. Another explanation involves the timeline covered by the ITDB: the database was created only in 1995, so the data collected for 1993 and 1994 might have been amalgamated into one big category (unauthorized possession) instead of two.

The sensors deployed by the United States, primarily on the borders of the former Soviet Union, as part of its various efforts to stem nuclear trafficking, such as the Global Threat Reduction Initiative, the Proliferation Security Initiative, and the Container Security Initiative, could account for the up-tick in reported incidents in the mid-2000s. With more equipment to detect smuggling, the number of reported incidents also rises. However, the War on Terror and the resumption or dismantlement of nuclear programs in various countries, such as Iraq, Libya, North Korea, Iran, or Syria may better explain both the availability of RN materials and the interest of non-state actors in selling or buying HEU, Plutonium, or radioactive sources for a Radiological Dispersion Device or a Weapon of Mass Destruction.

Many of these incidents occurred in Eastern Europe, prompting the United States to target its assistance to vulnerable countries, such as Ukraine, the Republic of Moldova, and Romania. Nonproliferation assistance to former Soviet states, enhanced law enforcement, customs, and border controls, together with intensified intelligence liaison with various international partners seem to have worked. The decline in the number of incidents involving nuclear materials trafficking after 2006 casts U.S. countersmuggling efforts in a positive light. Yet absence of evidence does not constitute evidence of absence. The problem with smuggling networks resides in their clandestine nature and their ability to avoid detection. The sharp decline in the number of incidents may be explained by a switch from the “amateurish ‘visible’ nuclear black market to a
more sophisticated ‘invisible’ nuclear black market.”29 The intensification of U.S. presence in this part of the world irked the Russians, who found themselves without much of a say over intrusive, complex operations carried out by the FBI and the CIA. Tensions with Moscow could not have come at a worse moment: the conflict in Eastern Ukraine spawned a whole host of complications, from the proliferation of advanced conventional weapons in the hands of insurgents in Luhansk and Donetsk, to the weakening of border controls in Eastern Ukraine, and to overall instability in a country that has the largest number of nuclear facilities in Eastern Europe (other than Russia). In the absence of a constructive relationship with Russia and as smuggling networks are becoming more complex, Washington’s efforts to prevent the acquisition, proliferation and use of WMDs and ACWs by terrorist networks are likely to run aground.

**Frozen Conflicts and Nuclear Trafficking**

The evolution of nuclear smuggling networks represents the main puzzle for recent studies looking at trafficking with nuclear materials and sensitive technologies. The question this scholarship tries to answer is: Why are some trafficking networks successful in smuggling nuclear materials and sensitive technologies, while others face disruptions, malfunctions, or outright dismantlement?

Scholars have looked to two broad explanations of network effectiveness: internal configuration and external support. With respect to internal configuration or structure, Alexander H. Montgomery argues that the way in which the nodes of a network are connected determines its effectiveness. He puts forward three configurations for nuclear trafficking networks: rings (or circles); stars; and cliques, arguing that the most vulnerable structures are stars and cliques, which can be dismantled by targeting the hub.30 External support can come from two sources: governments and the private sector. Justin V. Hastings proposes that the external environment, more precisely state support, enables a nuclear smuggling network to successfully carry out its

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operations. The research done by Louise Shelley, John Picarelli, and Chris Corpora suggests that partnering up with private businesses allows nuclear smuggling networks to thrive.\textsuperscript{31} At first glance, these two schools of thought appear mutually exclusive. The empirical evidence, however, suggests the need to merge them. The literature on nuclear trafficking in breakaway republics such as Transnistria, Ossetia, Abkhazia, Nagorno-Karabakh, and Donetsk and Luhansk shows that the external support that smuggling networks receive affects their internal configuration and vice-versa.\textsuperscript{32}

How do quasi-states help smuggling networks? To answer this question, trafficking networks need first to be disaggregated. Smuggling involves three types of actors: suppliers, coordinators, and buyers. An organization that produces the nuclear material or ACW to be trafficked represents a supplier. The recipient country or non-state actor is the buyer. Coordinators are defined in the literature as “one or more people or organizations who either contract for goods from the suppliers or simply steal them, and then arrange to have [the goods] transported to the buyer.”\textsuperscript{33} The focus of this paper is primarily on coordinators. The argument I put forward is two-fold, addressing both the internal structure of smuggling networks and the external environment in which they operate. I argue that the quasi-states emerging after the dissolution of the USSR created the ideal conditions for coordinators to thrive. Functionally and structurally, these smuggling networks differ from well-known proliferation rings in that they rely primarily on conventional contraband for their profits, treating nuclear trafficking as a side-activity. The extensive drug, human, and arms trafficking they carry out provides them with the expertise and resources of professional smugglers, but they display an opportunistic approach so far as nuclear trafficking is concerned.

Two characteristics set these breakaway states in the post-Soviet space apart from other types of external supporters of smuggling networks: their legal status and their socio-economic inheritance. First, the international community does not recognize these breakaway republics, which puts them in a convenient state of limbo. The countries from which these territories have tried to secede treat them as autonomous territorial units with special legal status. Intergovernmental organizations, such as the United Nations, lack leverage vis-à-vis these separatist regions, since the quasi-states do not participate in any inter-governmental framework. The international community isolated them from the moment they declared their independence in the 1990s. They share a common supporter – the Russian Federation. As Montgomery points out, preventing actors of concern from connecting with the rest of the world will compel them to connect with each other instead.34 His argument stems from a core neo-liberal argument that assimilation into the global economy dampens proliferation.35 His hypothesis is corroborated by the situation in Eastern Europe and the Black Sea region, where secessionist republics maintain friendly relations with one another, under the aegis of the Community for Democracy and Rights of Nations.36

Second, breakaway states inherited a variety of facilities that make them particularly attractive for smuggling networks. They host industrial facilities and military bases containing RN materials; moreover, they were left with significant caches of weapons and ammunitions. Nuclear trafficking is difficult and costly. By comparison, other forms of the shadow trade, for example arms smuggling, suffer less from this shortcoming, because they leave a less detectable signature. The illicit trade with ACW technologies unfolds at a much larger scale than the contraband with nuclear materials, generating much larger profits than nuclear smuggling. Depending on how lucrative the contraband trade with ACW is, traffickers may invest in infrastructure: buying their own aircraft or boats, building their own landing strips or docks, and recruiting their own security forces. This simplified yet secured infrastructure can then be used

for nuclear trafficking. Through vertical integration with professional traffickers nuclear smugglers can withdraw from open and public commercial networks, and so they have less contact with the authorities. Reducing the number of chokepoints and a network’s footprint also decreases the chances that law enforcement agencies will detect and disrupt the operation. The infrequent involvement in nuclear trafficking means that each time the transaction will take a different form, making it difficult for law enforcement agencies to detect patterns of standard operating procedures. This polymorphism derives from the wide-ranging experience acquired in other black markets.

This section has argued that smuggling networks in Eastern Europe differ from dedicated proliferation rings because of the peculiar external environment in which they operate and their structural properties. The quasi-state entities emerging in the aftermath of the dissolution of the USSR provide a safe haven for smuggling network coordinators. They engage in a wide variety of illicit activities, primarily drug, human, and weapons trafficking, and have only a narrow interest in selling nuclear materials to terrorist groups.

**Transnistria: A Smuggler’s Paradise**

The Pridnestrovian Moldavian Republic (PMR), commonly referred to as Transnistria, is a breakaway republic wedged between the Republic of Moldova and Ukraine (see Figure 3). This sliver of land follows the course of the Nistru River, and covers 4,000 sq km. Its population – more than half a million people – speaks Russian, Moldovan, and Ukrainian. Transnistria has its own capital – Tiraspol – its own currency – the Transnistrian rouble – its own Parliament and Constitution, as well as its own flag and anthem. The Moldovan authorities do not have administrative control over the railway crossing points between Transnistria and Ukraine, such as the one between Pervomaisc and Kuchurhan (see Figure 4). A railway connection links Ungheni (passing through Chișinău) to Tiraspol and then to Odessa (in Ukraine). Railway traffic between Chișinău and Tiraspol is occasionally closed because of political tensions between Moldova and Transnistria.

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37 Interview with Moldovan think tank researcher, Chișinău, Republic of Moldova, February 28, 2013.
38 Idem.
The conflict between the Republic of Moldova and Transnistria began in 1990, when Tiraspol declared its independence from Chișinău, fearing a scenario in which Moldova and Romania reunited. During the Soviet era, Transnistria was the most economically developed part of Moldova, concentrating almost 90% of electricity production and one third of the Moldovan heavy industry. This industrial base provided Tiraspol not only with a source of income after it had declared independence but also with a fount of radioactive sources, used in metallurgical plants, agricultural complexes, and research institutes.

The secessionist forces in the self-proclaimed republic quickly became aware of the leverage they could gain vis-à-vis Chișinău from the combination of conventional weapons and radioactive sources or nuclear materials. On March 1992, in the midst of the 1992 Transnistria War, a box of radioactive material was stolen from a facility located on PMR’s territory that was under the supervision of Russian forces. The thieves threatened to blow up the materials if a

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Figure 4. Transportation routes in Transnistria. Source: www.WorldMapFinder.com
cease-fire was not reached. A few months later, in May 1992, short-range Alazan rockets tipped with radioactive materials were delivered by Transnistrian separatists to Gagauz militants in Southern Moldova. On this occasion, two Moldovan policemen were killed while trying to stop the transfer. The weapons provided by the Transnistrian secessionists were meant to destabilize the Republic of Moldova, and topple its regime.

Alazan rockets were initially designed by Soviet scientists for weather control purposes, more exactly to prevent hail. The rocket was then converted for military use, and it was deployed in conflict zones from Nagorno-Karabakh to Chechnya. According to Oazu Nantoi — a former Moldovan government official and political analyst, who acquired a batch of Transnistrian documents dated 1994 — the 14th Army had 38 radioactive warheads for Alazan rockets in storage near a military airport in Transnistria which later went missing. The Alazan rockets story subsided for a few years until May 2005, when the London Times revealed through a sting operation that three short-range Alazan rockets tipped with radioactive warheads were offered for sale at a price of $500,000 for all three by an arms dealer in Bender (Tighina) in Transnistria. The Times reporter posed as a representative of an Algerian militant group. The radioactive materials, according to the arms dealer, were Sr90 and Cs137. The actual rockets were neither seen by the journalist nor examined with a radiation detector, to certify that they were indeed tipped with radioactive materials. Soon after, the Moldovan general prosecutor opened a criminal case to investigate the claims made in the Times report. The general prosecutor’s office did not make the outcome of investigation public.

These incidents show why traffickers and international criminal organizations find Transnistria so appealing. First, the special status enjoyed by the PMR makes Tiraspol impervious to

40 Alex P. Schmidt and Charlotte Spencer-Smith, “Illicit Radiological and Nuclear Trafficking, Smuggling and Security Incidents in the Black Sea Region since the fall of the Iron Curtain – An Open Source Inventory,” Perspectives on Terrorism, Vol. 6, No. 2 (2012), 120.
international legal instruments. The authorities in Tiraspol cannot be brought before an international court because doing so would amount to the de jure recognition of the PMR. The lack of effective prosecution for the rocket dealings signaled that the Transnistrian authorities would not suffer at the hands of the international community if it functioned as a safe haven for transnational criminal organizations (TCOs). Because the international community had already isolated Tiraspol, it had few ways to bring additional pressure.

This brings us to a second feature, homophily, in other words the tendency for actors that share certain attributes to form ties. Transnistria offered assistance to Găgăuzia, an autonomous territorial unit in southern Moldova, to advance their common fight against Chișinău. Being cut off from the international arena only pushes Transnistria closer to other breakaway states, such as Nagorno-Karabakh, Abkhazia, and South Ossetia. With the exception of Russia and a handful other countries – Venezuela, Nicaragua, and Nauru – the only recognition these breakaway republics receive comes from each other. The close ties between these de facto states can also be explained through their common Soviet legacy. Moreover, because of the connection between the leaders of these breakaway republics and the underworld, they are regarded as “mafia-states.” Revenues from organized crime in Transnistria, for example, amount to $3-4 billion/year, from which the leadership in Tiraspol takes the lion’s share. These resources do not trickle down to the general population, whose monthly income averages below $100. In the absence of international legitimate partners, the secessionist republics remain caught in the vicious circle of corruption-poverty-crime.

Homophily also explains why nuclear smugglers operating from and through Transnistria show such an inclination to deal with arms traffickers, insurgent groups, and states bent on acquiring nuclear weapons. But these ties took a decade to fully develop and bear fruit. In the 1990s, amateurism characterized nuclear traffickers’ attempts to sell fissile materials or radioactive sources to terrorist groups. Identifying interested buyers represented a considerable challenge, as

smuggling groups had not yet built sufficient connections to the pool of effective or potential proliferators. Occasionally, traffickers adopted a “travelling sales representative” approach, knocking on doors in pursuit of a buyer. This strategy made them vulnerable to detection and resulted in their capture and imprisonment. For example, in May 1999 a Turkish citizen with residence in Tiraspol smuggled a vial of HEU through Transnistria, the Republic of Moldova, Romania, and Bulgaria, and back. He carried the fissile nuclear material in his car to Istanbul, where he hoped to meet with the representatives of a militant group or of a Middle Eastern government. As the potential buyers did not show up, he went back through Bulgaria, in an attempt to find a buyer in Romania. He escaped detection the first time, but on his way back from Turkey, his nervousness gave him away. Alarmed by his suspicious behavior, the Bulgarian border guards performed a routine control and discovered the HEU vial in the trunk of his car. The forensics report indicated that the HEU originated in the Mayak Production Association in Russia. The sloppiness of this attempted trafficking operation explains why the smuggler got caught and convicted.

Over the span of a decade, nuclear traffickers changed their tactics along two lines. First, they started recruiting experienced smugglers who knew the routes, chokepoints, and police standard operating procedures. Second, instead of travelling long distances in search of buyers, smugglers preferred to stay put and coordinate transactions from safe locations inside breakaway republics.

With respect to the new recruitment policy adopted by trafficking groups, the lenient penal codes and the corrupt law enforcement systems of countries in Eastern Europe foster recidivism. Convicted traffickers serve their sentences, which rarely exceed a year, and then move to another country to resume their criminal activities. Transnational criminal organizations regard them as valuable assets, thanks to the social capital they accumulate in prison (the connections to other interlopers and even to law enforcement circles) and to their technical comparative advantage (they know the strengths and weaknesses of nuclear facilities). For example, the nuclear trafficking group formed around an unidentified Transnistrian resident and six Moldovans

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(among them Ion Toporaș, Sergiu Sajin, and Constantin Savițchi) included three former convicts, who had served sentences in Romania and the Russian Federation, and two former policemen. In August 2010, through a sting operation that lasted more than a month, the Moldovan police caught the Moldovan members of the group in an attempt to sell 1.8 kg of U238 (depleted uranium) on the black market for $11 million. The culprits cut a small piece of a depleted uranium cylinder used for shielding in industrial applications, and tried to sell it to a policeman pretending to be a buyer. After interrogating the culprits, the police found the remaining piece in a garage, which was partially contaminated. The authorities relied on their international partners (mainly the FBI) to determine the origin of the material. It is believed the depleted uranium may have come from the Russian Federation, with the PMR functioning as a transit route.

Yet, Transnistria amounts to more than a corridor for moving nuclear materials; it is also a choke point for law enforcement. Its police force does not share its records with international law enforcement agencies, because the Republic of Moldova cannot allow the PMR to become a member of Europol or Interpol, lest it amount to international recognition. Being cut off from the international community basically ensures that the identity of the Transnistrian resident involved in this failed smuggling attempt remains unknown. Equipped with either a Moldovan or Russian passport (or both), the fugitive can roam free and form a new smuggling network in the future. The anonymity that separatist regions offer, knowingly or not, increases the chances that smuggling groups survive and continue their activities.

If in the 2010 example the special status of the separatist region of Transnistria allowed a member of the smuggling group to vanish into thin air, another incident one year later shows how traffickers use PMR territory to run smuggling networks under the nose of the Transnistrian authorities. Some ringleaders even coordinate transnational operations from the comfort of their homes. For example, Aleksandr Aghenchko, known as the Colonel, ran a nuclear materials trafficking group over the phone and via Skype. While he remained in Tiraspol, safe from

47 Depleted uranium has little fissile value. The exorbitant price the smugglers wanted to sell their U238 for indicates that neither the seller nor the buyer has a good understanding of how nuclear fission works.
prosecution, his associates (his wife, Galina, and the Moldovan citizens Teodor Chetruș, Ruslan Andropov, Gheorge Tăut, and Eduard Bostan) operated in Chișinău. The Moldovan security forces unsuccessfully tried to lure Agheenko out of Tiraspol by posing as the representatives of a militant group from North Africa requesting a meeting in Chișinău. Agheenko did not take the bait, and relied on his partners to carry out the operation on the ground. The group attempted to sell a vial containing 6-7 grams of U235 (HEU) to the fake North African terrorist group for $410,000. The Transnistrian ringleader claimed he could deliver 1 kg of HEU, for $41 million.49 The 6-gram HEU vial represented a sample, with the rest scheduled to be delivered if the purchaser was satisfied with the quality of the material in question. The forensic analysis carried out by the FBI indicated that the material came from the Russian Federation, through Transnistria.50 Following a sting operation in June 2011, all the members of the group, except Aleksandr Agheenko, were arrested and are currently serving time in prison.51 After raiding the house of one of Agheenko’s middlemen, the authorities discovered evidence that the group had reached out to a real buyer - a Sudanese man named Yosif Faisal Ibrahim, with the intention of selling U235 and blueprints for a dirty bomb. Agheenko’s associate told an undercover police officer that the group was seeking “an Islamic buyer because they will bomb the Americans.”52 The Moldovan police believe Agheenko is an officer of the Russian Federal Security Service (FSB), but provide no evidence to support this claim. It is doubtful that the Russian authorities sanctioned (or ordered) Agheenko’s illicit trade with nuclear material. As in most countersmuggling operations until the Ukraine crisis, Russian intelligence agencies assisted their Moldovan counterparts with the investigations.53 Since the Moldovan police does not have jurisdiction in Transnistria, Agheenko is still free. Intentionally or not, the PMR shields smuggling groups from indictment and imprisonment.

Separatist regions cannot offer the same diplomatic privileges that states enjoy. For instance, a trafficking network operating from Transnistria does not benefit from the diplomatic immunity

49 General Prosecutor’s Office of the Republic of Moldova, Agheenko Group Investigation File.
51 General Prosecutor’s Office of the Republic of Moldova, Agheenko Group Investigation File.
53 Interview with ANRANR Official, Chișinău, Republic of Moldova, February 20, 2013.
and communications security that many believe Pakistan provided to the A. Q. Khan network.\textsuperscript{54} However, the international community can put pressure on a state like Pakistan by threatening exclusion from various multilateral fora or by instituting sanctions (restricting development aid or commercial ties). Separatist regions like Transnistria remain impervious to such threats because of their limited participation in international organizations and trade. Extradition of criminals operating in these breakaway republics rarely happens, as the separatists feel they have nothing to lose if they provoke the ire of the international community.

What makes separatist regions truly irresistible for nuclear smugglers is the presence of transnational criminal organizations involved in drug, sex, and arms trafficking. Joining forces with TCOs adds another layer of sophistication to nuclear smuggling operations, making their detection, disruption, and dismantlement a difficult task. The TCOs dominating this space are run by ‘vory v zakonye’ (‘thieves in law’, that is, well-established criminals with great authority in the criminal world, who play by the criminal world’s rules) and structured on the Soviet (and post-Soviet) model of a ‘bratva’ (brotherhood). These organizations have spread to neighboring countries and regions, weakening state capacity. Criminals connected to Transnistria, for example, infiltrated Moldova and Romania. From 1993 until 2001, circa 115 criminal organizations employing 1150 people divided the territory of the Republic of Moldova among themselves, running parallel to the state authorities. Some of the most famous criminal groups in this part of the world include those centered around such individuals as Grigore Caramalac (also known as Bulgaru, who has been on Interpol’s most wanted list since 1998 for his extensive contacts with Solntsevskaya Bratva dating back to the 1980s);\textsuperscript{55} Alexandru Sinegur (also known as Sinigur; connected to the Ukrainian mafia boss Vasyl Maryanchuk);\textsuperscript{56} Movsar Ibraghimov (also known as Mavsar; the son of a Chechen leader);\textsuperscript{57} Malhaz Djaparidze (also known as


\textsuperscript{55} Biography for Grigore Caramalac, Organized Crime and Corruption Reporting Project, available at: https://reportingproject.net/PeopleOfInterest/biography.php?id=32.

\textsuperscript{56} Alexandru Sinegur Profile, Organized Crime and Corruption Reporting Project, available at: https://reportingproject.net/PeopleOfInterest/profil.php?profil=33.

Malhaz; a Georgian citizen involved in trafficking drugs and weapons;\textsuperscript{58} Vladimir Moscalciuk (also known as Makena; a Ukrainian citizen involved in thefts, robberies, cars trafficking and alcohol smuggling);\textsuperscript{59} Valeri Rotari (also known as Zelioniy, the father-in-law of Movsar Ibraghimov); and Ivan Gușan (also known as Patron, whose racket, involved in extortion, drug trafficking, and assassinations, had its headquarters in Sibiu, Romania).\textsuperscript{60} The debilitating effect these criminal organizations have on local state authority prepares the ground for larger, more powerful networks, which are attracted by the relatively easy access to weapons.

Moldova, Transnistria, and Romania are well known internationally for being both countries of origin as well as transit points for weapons smuggled into Africa and the Middle East. At the center of Moldova’s and Transnistria’s illicit arms trade sat Viktor Bout, the world’s most notorious gunrunner, also known as the “Merchant of Death.” Bout’s fortune, by some accounts in excess of $6 billion, derived primarily from the illegal trade with small arms, ammunitions, and advanced conventional weapons, although by some accounts, his operations also included shipping everything from raw minerals to gladiolas, drilling equipment to frozen fish.\textsuperscript{61} Bout smuggled weapons from Ukraine through Transnistria and Moldova into the Middle East and Africa.\textsuperscript{62} Between 2001 and 2004, Aerocom, a Chișinău-based carrier with connections to Bout, delivered weapons manufactured in the Republic of Moldova to various countries under UN embargo.\textsuperscript{63} In 2003, Aerocom supplied Charles Taylor, the then ruler of Liberia, with tons of

\textsuperscript{58} Liderul criminal Malhaz Djaparidze a fost reținut de forțele de ordine moldovene, Unimedia, March 26, 2008, available at: http://unimedia.info/stiri/-5047.html.

\textsuperscript{59} Idem.


small arms and ammunitions. The company’s air operating certificate was revoked in August 2004, but Aerocom continued to operate, delivering ammunition and military equipment to Iraq.

The United States captured Bout in a Drug Enforcement Administration sting operation, and convicted him to 25 years in prison, despite Moscow’s opposition. Since the Russian trafficker covered his tracks exceptionally well, thanks to all the front companies he established and his foreign contacts, the United States could not charge him with more than the intent to sell man-portable air-defense systems to the Colombian guerrilla group FARC and to kill American citizens. Bout himself stayed away from smuggling nuclear materials, but the bridges he built to various countries and non-state actors through illicit arms sales helped his regional and international associates expand their operations to include nuclear trafficking.

The transnational criminal group run by Shimon Naor, Ivan (Ion) Busuioc, and Ion Menciu, reportedly involved in the illicit trade with nuclear materials, offers a good example in this respect. Naor, an Israeli-Romanian citizen who had retired as lieutenant-colonel from the Israeli Navy, partnered up with Bout in the late 1990s to sell anti-aircraft weapons and ammunition manufactured in Romania to embargoed African countries. Busuioc, a Moldovan-Romanian citizen who had retired from the Russian Main Intelligence Directorate – GRU, functioned as a liaison between Bout and Naor, and facilitated their access to weapons storage sites in Russia, Ukraine, and the Republic of Moldova. Ion Menciu set up the infrastructure for the Bout-Naor joint operations from his position as the general director of Acvila Air, a registered Romanian carrier. The Romanian authorities captured Naor in 1999, but he escaped to Israel by bribing

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several magistrates ruling on his case. His network continued its illicit activities in Romania, getting involved in nuclear trafficking. Naor coordinated these operations from Israel until 2010, when Interpol seized him in Paris and brought him back to Romania. His partner, Ivan Busuioc, was arrested in 2007 on charges related to trafficking arms, explosives, and nuclear materials. Despite ultimately being captured, Bout and Naor appear to have created a sophisticated trafficking network, based on mutual advantage. On the one hand, the connection to the Romanian aircraft industry reportedly helped Viktor Bout create front companies in Romania - such as Flying Dolphin Company - and purchase Romanian planes for his weapons smuggling operations. On the other hand, Naor’s group capitalized on Bout’s connections to the weapons black market to accumulate capital which Naor then used to bribe judges and escape prison.

The complicated story involving Viktor Bout and his associates underlines the importance of separatist regions for smuggling networks. While it is true that, unlike some of the traffickers discussed above, Bout did not use Transnistria as his headquarters, he nonetheless relied on it as a stepping stone to Moldova and Romania. One of the biggest problems Chișinău confronts is the lack of administrative control over the borders of Transnistria. A person may cross the border into the PMR (legally or illegally), enter Moldova without any checks, and then leave the country through Transnistria, without ever being registered or checked by the Moldovan authorities. A 411 km-long administrative border separates the Republic of Moldova from Transnistria, leaving more than a quarter of Moldova’s borders practically open. Tiraspol runs its own customs service, which is world-famous for its venality. Generous bribes can make Transnistrian border guards and customs officials turn a blind eye to large-scale contraband of the sort Bout engaged in.

The complexity that the smuggling networks derive from the combination of quasi-state support, organized crime, gunrunning, and access to radiological and nuclear materials is evidenced in Semyon Mogilevich’s activities. Known as “the brainy don,” Mogilevich works closely with the

70 Interview with Răzvan Budeanu, Border Police Commissioner, Bucharest, Romania, February 8, 2013.
Solntsevskaya Bratva crime group, one of Russia’s most powerful mafias. An Israeli businessman of Ukrainian origin, he stands as one of FBI’s top ten most wanted men, given his involvement in arms, sex, and drug trafficking and his connections to Al-Qaeda and FARC. In 2001, Osama bin Laden reportedly asked Mogilevich for help with obtaining a nuclear weapon or enough nuclear materials to build a dirty bomb. The outcome of this request remains unclear, although some experts claim the Ukrainian mobster provided Al-Qaeda with HEU.

Seven years later, Mogilevich reportedly met with a high-ranking FARC member in Bucharest for the sale of nuclear materials, but the transaction did not materialize. Despite these failures, Mogilevich’s networks present the literature on proliferation with an interesting example of trafficking sophistication. These terrorist organizations turned to “the brainy don” for help with building a RDD because he was known to have easy access to sensitive materials. Mogilevich became involved in the privatization of various industrial complexes in Transnistria, including the Metallurgical Plant in Ribnița, which contained unsecured radioactive sources. Although Mogilevich does not specialize in transferring know-how à la A. Q. Khan, his ability to supply RN materials located on his premises via routes that he built through weapons trafficking piqued FARC’s interest. This combination of roles shortened and simplified logistics, preventing the Moldovan authorities from intercepting the RN materials and disrupting such operations. The bulk of the illicit trade carried out by Mogilevich’s network remained in the area of ‘traditional’ contraband - weapons, narcotics, and sex, with incidents of nuclear smuggling being extremely rare. This particular mix of conventional and unconventional trafficking sets Mogilevich’s group apart from other proliferation rings. His success depends in large part to Transnistria’s support. Owing to the lack of administrative control by the Chișinău authorities over the Transnistrian breakaway republic, there is no hard data on how many radioactive sources are currently located in Transnistria. It is believed that Transnistria does not have the necessary physical protection and detection equipment to secure these sources on its territory. The lack of preparedness and the

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abandonment of sensitive industrial facilities by bankrupt breakaway republics allow TCOs to
gain access to RN materials, which they then try to sell to terrorist groups.

Countersmuggling Assistance
The weight of countersmuggling efforts to address the nexus of organized crime, weapons
trafficking, and nuclear materials in Transnistria falls on the Republic of Moldova. As Chişinău’s
financial resources are already spread thin, Moldova receives all of the technology and training
for using RN detection devices from abroad. During the Cold War, Soviet experts trained the
Moldovan authorities on how to operate the detection equipment provided by the USSR. Over
the past twenty-five years, the situation has changed dramatically, with the United States
replacing Russia as Moldova’s main partner. This shift has left Moscow dissatisfied, primarily
because the assistance programs detailed in Table 1 involve a significant military and
intelligence component. From Russia’s perspective, the operations run by the U.S. military and
civilian agencies in Moldova, Romania, and, increasingly, in Ukraine as part of these assistance
programs, take place on its very doorstep. Countersmuggling efforts come primarily in bilateral
form; on the rare occasion that operations take a multilateral character, U.S. agencies rarely
invite Russia.76 To counter what it sees as American provocation, the Kremlin has intensified its
efforts to assert Russian influence in its near abroad.

A close examination of the detection infrastructure in the Republic of Moldova reveals the
presence of several vulnerabilities and gaps (see Table 2).77 One of Chişinău’s biggest problems
is the lack of a complete inventory of the radioactive sources provided by the Soviet Union
during the communist era for research, agricultural, and industrial facilities.78 There are no
nuclear power reactors in the Republic of Moldova. However, Moldova has 345 industrial,

76 Interview with Dr. Eng. Lucian Biro, former President of National Commission for Nuclear Activities Control
(CNCAN), Bucharest, Romania, February 6, 2013; Interview with CNCAN Official, Bucharest, Romania, February
77 Dmitrii Romanovskii, “Pochemu Moldova stala kanalom dlya yadernoi kontrabandy,” Moldavskye Vedomosti,
November 7, 2012, available at:
78 Interview with Artur Buzdugan, Director of the National Agency for the Regulation of Nuclear and Radiological
Activities, Chişinău, Republic of Moldova, February 19, 2013.
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Table 1. Countersmuggling Initiatives developed by the United States in Moldova and Romania

agricultural, research, or medical facilities that use radioactive sources. The most important ones, such as the Chemistry Institute, the Diagnostic Center, the Oncology Institute, the Plant Genetics and Physiology Institute, the Physics Institute, and the Agriculture Ministry Institute, are
operated by the state. The majority of privately-operated radioactive sources can be found in dental clinics. Out of the 345 radioactive sources in Moldova, two are Category 1 sources, and fifty are Category 2 sources. First and second category radioactive sources are protected by at least 3 levels of security, including CCTV and armed guards, while third category sources are protected by alarm systems connected to the police forces, which can intervene in five minutes. The DOE has contributed greatly to the security of these facilities by paying for the armed guards. In addition, the 5101 and 5102 Special Depositories store the radioactive waste produced by these industrial facilities.

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<tr>
<th>Governmental Agency</th>
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<tr>
<td>Chișinău International Airport</td>
<td>Three Radiation Pager-S portable detectors</td>
<td>Two IdentiFINDER portable detectors Two fixed RN detection portals</td>
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<td>Giurgiulesti (rail)</td>
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<td>Ungheni (rail)</td>
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Table 2. The Sensor Infrastructure in the Republic of Moldova

Idem; Interview with ANRANR Official, Chișinău, Republic of Moldova, February 20, 2013.
Interview with Artur Buzdugan, ANRANR Director, Chișinău, Republic of Moldova, February 19, 2013.
Interview with Artur Buzdugan, ANRANR Director, Chișinău, Republic of Moldova, February 19, 2013; Interview with ANRANR Official, Chișinău, Republic of Moldova, February 20, 2013.
Countersmuggling operations must monitor transportation routes as well as the facilities storing RN materials. Because the Republic of Moldova has only partial control of its own border, in November 2005, the European Commission set up the European Union Border Assistance Mission to Moldova and Ukraine (EUBAM), with a view to enhancing the border management capacities of the Moldovan and Ukrainian authorities (including the border police and customs authorities). EUBAM itself does not carry out any checks on vehicles or pedestrians, but rather supports Moldova and Ukraine with operational advice, capacity-building through training, and monitoring.\(^\text{82}\) EUBAM extends this assistance to the 454 km-long part of the Moldovan-Ukrainian border which is under the administrative control of the Transnistrian authorities.

Incidents involving RN materials (orphan or lost radioactive sources) are reported to ANRANR.\(^\text{83}\) In case of an attempt to smuggle RN materials in/from/through Moldovan territory, the Border Police officers or Customs Service officers alert by phone the ANRANR officials. ANRANR is equipped with a RN detection van, which can establish the type of RN material and the radiation dose. Removal and storage is undertaken by the Civilian Protection and Emergency Situations Service.\(^\text{84}\) The specialized laboratories of the Public Health Ministry, the Agriculture Ministry, and the Environment Ministry can carry out additional tests, but because there is no centralized database with all the radioactive sources in the Republic of Moldova, they cannot establish the origin of the source, and the enrichment percentage. The Republic of Moldova does not possess nuclear forensics and attribution facilities. In case of an attempt to smuggle RN materials in/from/through the Republic of Moldova, the Moldovan authorities can obtain such services from one of the international laboratories specialized in nuclear forensics, such as the Seibersdorf Laboratories operated by the International Atomic Energy Agency (IAEA), the Institute for Transuranium Elements in Karlsruhe, and the Kyiv Institute for Nuclear Research.\(^\text{85}\)

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\(^{82}\) Interview with EUBAM Official, Chișinău, Republic of Moldova, February 20, 2013.
\(^{83}\) Interview with ANRANR Official, Chișinău, Republic of Moldova, February 20, 2013.
\(^{84}\) Interview with Alexandru Oprea, Head of the Civilian Protection and Emergency Situations Service, Chișinău, Republic of Moldova, February 27, 2013.
\(^{85}\) Interview with Artur Buzdugan, ANRANR Director, Chișinău, Republic of Moldova, February 19, 2013.
The assistance Chișinău has received in the field of nuclear detection and counter-smuggling allows Moldova to take the initiative in its dealings with Transnistria. Among their most important recent achievements, the authorities in Chișinău note several efforts undertaken in cooperation with Tiraspol on matters related to radiological protection and border security. A major success with regards to the safety of radioactive sources in Transnistria was the adoption of a protocol decision by Tiraspol and Chișinău on the procedure for transporting and storing radioactive materials located in Transnistria. In this respect, on February 8, 2013, the Moldovan authorities carried out an inspection in Transnistria at the Metallurgical Plant in Rîbnița. On this occasion, they checked the levels of radioactivity at the Metallurgical Plant, which between 2000 and 2004 had been contaminated by RN sources. On the occasion of this inspection, the Moldovan authorities managed to collect information about the Metallurgical Plant which was previously unavailable and to register all the remaining sources at this facility into the Moldovan state database. The supervision of radioactive activities at the Metallurgical Plant in Rîbnița is now the responsibility of the Moldovan authorities.

Regarding border controls, in 2005 the Republic of Moldova reached an agreement with Ukraine allowing Transnistrian businesses to export goods through Ukraine as long as they are registered with the Moldovan authorities. However, as Transnistrian companies lack economic competitiveness, Tiraspol continues to heavily rely on contraband and has few incentives to cooperate. Registering Transnistrian firms in Moldova deprives Tiraspol of significant revenues from taxes and bribes. Moreover, as most of these Transnistrian companies are state-run, having them report to the Moldovan authorities undermines Tiraspol’s claims to independence. Protecting its own system, because of the dearth of alternative sources of income, represents Tiraspol’s ultimate goal. The Chișinău-Tiraspol dynamics exemplify the typical situation in which the principal (Moldova) plans, but the agent (Transnistria) does not perform.

**Conclusion and Policy Implications**

The state of autarky that Transnistria seems to enjoy brings to the fore the question of Russia’s influence. The PMR justified its secession on humanitarian grounds, invoking the need to protect

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86 Interview with ANRANR Official, Chișinău, Republic of Moldova, February 20, 2013.
87 Idem.
the Russian-speaking population from Moldova’s nationalist policies. Moscow has been instrumental for the survival of this quasi-state, not only by maintaining a military presence on its territory and granting the local population Russian passports, but also by trading with Transnistria. At the beginning of the crisis in Eastern Ukraine, Moscow boosted its commercial ties with Tiraspol, and carried out military exercises in the breakaway republic. In March 2014, the Kremlin conducted an anti-terrorism drill and operations meant to repel an attack on the Russian military base in the PMR. Most important, the Transnistrian authorities have requested admission into the Russian Federation, although the PMR does not share a border with it. But more recently, Moscow has tapered off its financial assistance for Transnistria, most probably because of Russia’s own economic woes.

In the context of anti-Kyiv protests erupting in the Ukrainian port of Odessa in May 2014, experts began to fear a scenario where Moscow foments unrest in Ukraine to create a pro-Russian strip of land, running from Donbass in the East, to Crimea in the South, and Transnistria in the West. Recent commentary about Transnistria being the next flashpoint seems to corroborate these concerns. The emergence of an enlarged Novorossiya would be a boon for smuggling networks. Not only would such a quasi-state be close to important nuclear facilities, but it would also grant TCOs accessible trafficking routes. The largest nuclear power plant in Europe, Zaporizhia Nuclear Power Plant, is located 200 km away from the areas where fighting is currently taking place in Eastern Ukraine. Fearing a takeover of the power plant by proponents of federalism, in May 2014, members of the Fascist group Pravy Sektor sought to gain access to

the power plant, but were repelled by the police before entering the town of Enerhodar.\textsuperscript{95} Despite being a total failure, Pravy Sektor’s attempt shows how Ukraine’s governmental institutions and agencies come under attack not only from pro-Russian forces, but also from the far right.

According to Montgomery, there are four policy options for fighting proliferation networks: global controls, regime change, isolation, and incentives. This paper argues in favor of a combination of global controls and incentives, to be applied to separatist regions, the countries they try to separate from, and their sponsors. Regarding the internal configuration of breakaway states, it is critical to bolster law enforcement capabilities. Police forces, through their oversight and knowledge about local communities, would be better able to stem nuclear trafficking and prevent its re-occurrence than the use of military force or covert operations. In a country where bribery is rife, trusting the police with such sensitive operations as counter-smuggling may seem risky. To create an organizational culture that takes security seriously and prevents corruption, as Matthew Bunn and Nickolas Roth have recommended, law enforcement officers need appropriate training and incentivization.\textsuperscript{96}

Regarding external factors, specialized agencies, such as the IAEA, could begin by sending regular fact-finding and assistance missions to separatist regions, to help locate, secure, and remove radioactive materials. Granting breakaway republics observer-status within such international organizations would introduce them to the international nuclear nonproliferation regime, and render them aware of the dangers posed by nuclear trafficking. Yet, the IAEA cannot invite separatists to take part in its activities without causing an uproar in Moldova or Ukraine. The IAEA must persuade the leadership in Chișinău and Kyiv that nuclear smuggling can harm them more than readjusting the frontier line. To drive home this idea, the IAEA might look for support in Brussels. Ukraine’s and Moldova’s sustained efforts to draw closer to the West gives the EU and NATO a certain degree of leverage vis-à-vis the resolution of frozen conflicts in the region. Both organizations need to apply a carrot-and-stick policy to help Moldova and Ukraine reach a political solution to the frozen conflicts on their Eastern borders.


\textsuperscript{96} Bunn and Roth, “Reducing the Risk”, 426.
Economic assistance could induce Chișinău and Kyiv to cooperate with the separatists. Profits from legal business might dissuade the local populations from engaging in contraband activities, but the positive effects of economic integration into global commercial exchanges will more likely trickle in rather than gush out. NATO could direct more resources towards helping these countries deal with nuclear trafficking networks through its SPS program. Stepping up assistance for Ukraine and Moldova does not have to come at Russia’s expense, however.

Moscow sees the intensification of U.S. efforts to curb nuclear trafficking through Transnistria, Moldova, Ukraine, and Romania as evidence that Washington is preparing to enforce regime change in territories it considers hostile. While this perception may be far from American intentions, the 2014 events in Ukraine, which saw Viktor Yanukovich replaced with Petro Poroshenko, did not help convince the Russians otherwise. Granting separatist republics a modest form of recognition such as observer-status at the IAEA could assuage the Kremlin, and even win its support in addressing the threat posed by nuclear trafficking. Moscow’s clout in these separatist regions makes it an indispensable partner for the West on matters related to countermuggling. The West must cooperate with Russia in areas of common interest, such as nuclear security; nuclear terrorism is not a U.S. problem, but a global threat. As other scholars have already suggested, a new U.S.-Russia dialogue should recognize Moscow as an equal interlocutor, with legitimate security, economic, and diplomatic concerns. Through the prism of the current crisis in Eastern Ukraine, a partnership with Russia may seem an elusive goal. Yet, if offered the right incentives, Russia can apply pressure on these separatist regions to crack down on organized crime, reduce their reliance on illicit trade, and enhance security at weapons storage sites and radiological and nuclear facilities. The networks operating in this region cannot be taken out in one go. Complex operations carried out with FBI and DOD support only scratch the surface. The process of dismantling illicit networks in this region must address chronic weaknesses in these societies: corruption, lack of transparency, poverty, and ethnic divisions, occasionally fueled by the state.

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97 Idem.
98 Bunn, Malin, Roth, and Tobey, *Preventing Nuclear Terrorism*, ix.