

Arms Control and National Security: New Horizons

Emily B. Landau and Anat Kurz, Editors



Memorandum **135**

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Memorandum No. 135

April 2014

בקרת נשק וביטחון לאומי: אופקים חדשים

אמילי לנדאו וענת קורץ, עורכות

This volume, published within the framework of the Arms Control and Regional Security Program at INSS, was published with the assistance of a generous grant by the Hewlett Foundation.

Graphic design: Michal Semo-Kovetz

Printing: Elinir

Cover photo: Image Bank / Getty Images

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April 2014

ISBN: 978-965-7425-61-9

Contents

Preface	7
PART I: A NEW LOOK AT OLD ARMS CONTROL DILEMMAS	
When Soft Power Meets Hard Security: Can the EU Nonproliferation Policy Contribute to Israel's National Security? Emmanuelle Blanc	11
Pakistan: Reducing the Risks of a Nuclear Disaster Azriel Bermant	31
PART II: EMERGING ARMS CONTROL CHALLENGES	
A Cyber Warfare Convention? Lessons from the Conventions on Chemical and Biological Weapons Cameron S. Brown and David Friedman	45
Controlling Robots: It's Not Science Fiction Liran Antebi	65
Nonconventional Deterrence between Three Parties: Lessons from the Gulf War Avner Golov	81
Arms Control in Civil Society: Controlling Conventional Arms Smuggling in Sinai Olivia Holt-Ivry	103
Contributors	123

Preface

This collection of articles on arms control and national security is the outgrowth of a multi-year project launched at INSS under the auspices of the Arms Control and Regional Security Program, which aims to cultivate expertise and encourage new research in the field of arms control. The project is supported by a generous grant from the Hewlett Foundation, and this is the second volume published in this framework.

The articles compiled here probe some prominent current and emerging proliferation-related challenges and dilemmas, both regional and global, and propose directions for dealing with them. The articles cover a wide range of issues, from the Pakistani nuclear situation to weapons trafficking in Sinai. Other articles focus on European efforts to confront Iran's nuclear ambitions, the threat of autonomous unmanned robots in future warfare, the phenomenon of complex deterrence equations on the basis of new research into the US-Israel-Iraq deterrence triangle in the 1991 Gulf War, and the possibility of devising an arms control treaty to curb cyber warfare.

As editors, we made a conscious attempt to identify those areas where the authors were already developing expertise, and then direct their attention to an arms control perspective that is worthy of inquiry. We felt that this type of synergy would reap the most from the research products. The authors selected for inclusion in this collection, researchers who are grappling with arms control issues in a new way, are not a homogenous group. Some are taking their first steps in the world of research, while others are mid-career researchers with a proven track record of research who are entering the field of arms control for the first time.

In addition to the work on the articles, preparation of this volume included a seminar, held after the initial drafts had been completed, where the authors presented their papers to a select audience for feedback and critical discussion.

We would like to thank a number of individuals who played an important role in bringing this project to a successful conclusion, including Shlomo Brom, Yair Evron, Ephraim Asculai, Shimon Stein, and David Friedman for their insightful comments on all of the articles, and the discussants at the workshop, in particular, Gallia Lindenstrauss, Nir Reichental, and the members of the INSS Arms Control team. Our final thanks go to the authors, who took it upon themselves to widen their perspective and enter into the intriguing world of arms control.

Emily B. Landau and Anat Kurz
Tel Aviv, March 2014

PART I

A NEW LOOK AT OLD ARMS CONTROL DILEMMAS

**When Soft Power Meets Hard Security:
Can the EU Nonproliferation Policy
Contribute to Israel's National Security?**

Emmanuelle Blanc / 11

**Pakistan: Reducing the Risks of a
Nuclear Disaster**

Azriel Bermant / 31

When Soft Power Meets Hard Security: Can the EU Nonproliferation Policy Contribute to Israel's National Security?

Emmanuelle Blanc

We are used to thinking about EU-Israel relations mainly in economic and political terms, and the European Union has traditionally been stigmatized for its perceived “softness” and inability to face up to the hard power realities of the world. Thoughts about common security concerns or strategic relations between the EU and Israel are largely sidelined because of the perception that the EU is a political and military “lightweight” and because of the traditional Israeli reliance on the US in these areas. Today, ten years after the launching of the European Security Strategy (ESS) and the EU Strategy against the Proliferation of Weapons of Mass Destruction (Non-Proliferation Strategy), both of which were meant to give the EU a more significant role in international security affairs, and in light of pressing proliferation challenges common to both the EU and Israel, it is worth questioning the widespread assumption of European irrelevance in security matters. The close observation of the evolving EU nonproliferation policy over the last decade suggests that the EU might not be as naive as previously thought. Far from being diametrically opposed, it seems rather that both the EU and Israel have taken steps to overcome their past divergences, with their positions actually becoming closer: on the one hand, EU soft power is becoming tougher, and on the other hand, Israel is more willing to explore diplomatic options. To make this argument, focus will be directed to EU nonproliferation efforts mostly in relation to Israeli security, namely the EU intensive diplomatic involvement vis-à-vis Iran and its long term policy towards the Mediterranean neighborhood.

The EU and Israel vs. WMD Proliferation

The tumultuous history of EU-Israeli relations has been characterized by both dynamic economic cooperation and bitter political relations, yet less attention has been directed to their common security concerns. In fact, cooperation in this area does not make the headlines and is rather sidelined in the public discourse. The distant Israeli attitude towards the European Union is mainly due to the widespread perception of the EU's irrelevance in the strategic realm, as well as the traditional closeness to the US as far as Israel's security is concerned. However, it is important to underline that the EU and Israel do share common goals in the strategic realm. Besides the intense cooperation that has developed in recent years in the realm of counterterrorism,¹ the fight against the proliferation of weapons of mass destruction has become a priority for both the European Union and Israel. More specifically, the advancement of the Iranian nuclear program has clearly been singled out as a growing concern that threatens regional stability. The European Security Strategy of 2003 identified the proliferation of WMD as the "potentially greatest threat to its security" and "warned that we were now entering a new and dangerous period that raised the possibility of a WMD arms race, especially in the Middle East."² In a report published five years later, the EU reiterated its concerns regarding the Iranian nuclear program, specifying that it had significantly advanced and that it represented a danger to stability in the region and to the entire nonproliferation system.³ It further stipulated that "the development of a nuclear military capability would be a threat to EU security that cannot be accepted," conveying a strong sense of the gravity of the situation and its determination to address it.⁴

Clearly, both the EU and Israel are interested in maintaining regional stability in the Middle East and in preventing the proliferation of WMD, particularly in Iran. Yet while these final goals converge, substantial divergence appears over the strategy to adopt in order to tackle these hard security challenges. While the European Union's approach to security is mainly based on its "soft power" and normative agenda, Israel's strategy tends to include reliance on coercive measures, including the threat of, and the effective use of, military force. Regarding the EU's approach to security, it is interesting to note that the ESS presented a broad definition of security. Indeed, it defined economic prosperity, respect for the rule of law, and democratic governance in neighboring countries as the best way to ensure stability at its frontiers and hence its own security in the long term.⁵ In addition, it did

not specify any enemies, but rather identified key threats – among them, the proliferation of WMD. In contrast, to make its case, Israel regularly insists on the fact that it is surrounded by actual or potential hostile entities, the most significant one currently being Iran.⁶

The EU's Nonproliferation Strategy

Several key concepts regarding the EU nonproliferation strategy help explain the evolution of EU policy vis-à-vis Iran. The main components of this strategy largely reflect the comprehensive and cooperative nature of EU foreign and security policy based on its so-called “soft power.”

First, the notion of effective multilateralism constitutes the very cornerstone of the European strategy for combating the proliferation of WMD. It corresponds to the EU's commitment to the multilateral treaty system, which provides the legal and normative basis for all nonproliferation efforts. Actually, the European Union seeks to strengthen the international nonproliferation regime by pursuing the universalization of existing multilateral agreements and by preventing cheating through effective verification mechanisms.⁷ This long term commitment to strengthen the international architecture of rules and norms of nonproliferation corresponds to the pursuit of a “milieu-goal” in foreign policy.⁸ As a normative power, the EU intends to shape the wider milieu of international relations, regulating it through international regimes, organizations, and respect for international law. It attempts to instill, diffuse, and thus normalize rules and values in international affairs through non-coercive means.

Beyond the importance attached to the respect and reinforcement of international law, the EU is also a proponent of close cooperation with key international players, particularly the United States and the Russian Federation. The underlying idea is that the more there are players involved in nonproliferation efforts, the more successful the outcome of the global fight against proliferation might be.⁹

An additional pillar of the EU strategy against WMD proliferation is the promotion of a stable regional environment. This tenet is based on the assumption that the pursuit of WMD does not occur in a vacuum, but rather stems from a state's perceived sense of insecurity. Hence according to the EU, the best solution to the problem of WMD proliferation is that countries should no longer feel that they need them. If possible, political solutions should be found to resolve the problems that led them to seek WMD. Through

its root cause approach, the EU attempts to tackle the underlying causes for proliferation. To this end, it fosters regional security arrangements, regional arms control, and disarmament processes to encourage countries to renounce the use of technology and facilities that might lead to an increased risk of proliferation.¹⁰

To achieve these objectives, the EU strategy stipulates that it should use all the relevant instruments at its disposal. Theoretically, the EU can indeed make use of all kinds of foreign policy means: from soft methods based on engagement, persuasion, and cooperation to more coercive methods such as sanctions or military action. Yet the EU has affirmed a gradual use of a mixture of these instruments. The ESS clearly stipulates that “the EU should pursue a dual track approach in dealing with countries that have placed themselves outside the bounds of international society. The EU should provide assistance to encourage them to rejoin the international community, but those countries that are not willing to do so, should understand that there is a price to be paid, including in terms of their relationship with the EU.”¹¹

Use of Force

The ESS makes it very clear that Europe continues to view the use of force as a last resort, following various gradations of coercive action. Europe believes that no problem can be solved by military force alone, and that military methods must be used only as a last resort in tandem with diplomatic, political, economic, and humanitarian resources. The EU clarifies what it considers to be the only acceptable route for such action:

Political and diplomatic preventative measures (multilateral treaties and export control regimes) and resort to the competent international organizations form the first line of defence against proliferation. When these measures (including political dialogue and diplomatic pressure) have failed, coercive measures under Chapter VII of the UN Charter and international law (sanctions, selective or global, interceptions of shipments, and as appropriate, the use of force) could be envisioned. The UN Council should play a central role.¹²

Several comments can be made regarding this specific issue. First, the EU nonproliferation strategy fails to indicate clear benchmarks as to the exhaustion of the diplomatic process. Consequently, the EU might pursue negotiations

indefinitely even if they do not yield satisfying results.¹³ Second, it hardly seems conceivable to witness European member countries intervening militarily in the framework of the EU. While Europeans are not per se unwilling to use force to achieve political goals, the EU is not their preferred framework in which to do so. The lack of resources, institutional weaknesses, and the fact that NATO is perceived as a better alternative at hand for the management of its hard power concerns make it highly unlikely that the EU, as such, would take military measures against proliferators.¹⁴

In contrast, Israel is traditionally suspicious of international law and institutions and does not hesitate to take unilateral coercive measures if necessary without waiting for the green light from the international community.¹⁵ Israel has tended to respond to threats it faces with the use of force, with the aim of deterring its enemies from carrying out massive attacks.¹⁶ In the context of WMD proliferation, the bombing of the Iraqi reactor in 1981 and the Syrian facility in 2007 are cases in point.¹⁷

Explaining Different Strategic Cultures

This basic difference of strategic culture clearly stems from the very different geopolitical realities and threat environments in which the EU and Israel respectively evolve. Even though the EU and Israel share the same final goals in terms of nonproliferation, the interests at stake and the subsequent threat perceptions that both actors hold are incomparable. While the daunting prospect of WMD proliferation in the Middle East (and particularly in Iran) poses a real threat to Israel's existence and to the physical security of its citizens,¹⁸ the interests at stake for the EU are of a different nature. For the latter, they concern mainly expatriate communities, stationed or deployed troops that might be directly attacked, or economic interests (natural resources, investments, export markets) that might be affected by growing instability in the region.¹⁹

The current proliferation challenges also constitute a real test to the soft power of the EU and to the very credibility of its approach in international politics. To paraphrase Bruno Tertrais, the Europeans are trying to demonstrate the "power of soft power."²⁰ Hence the possible failure of the EU to tackle non-compliance efficiently may damage both its reputation as an effective defender of international nonproliferation regimes, and its ambition to be a meaningful actor in the international arena when it comes to hard security matters. It is interesting to note that the threat perception linked to nuclear

proliferation is much more salient among European elites than it is in the general public. According to the 2011 EU barometer, less than one tenth of respondents mentioned nuclear disasters and wars as the most important security challenges faced by their country.²¹

Although these wide patterns of divergence between the EU and Israel in terms of threat perception, strategic culture, and approaches to security are still relevant today and will probably persist for a long time, recent developments may hint at an increasing closeness in their respective positions. Is this gap actually closing? To answer this question, the following section will take stock of the decade-long efforts of the EU to find a diplomatic solution to the dispute over Iran's nuclear program, emphasizing its gradual shift towards a tougher approach.

From the 2003 “Positive Engagement” to the 2012 Oil Embargo: The Toughening of Soft Power?

The First Stage: EU Confident in Soft Power – Positive Engagement

In August 2002, the exiled Iranian opposition group, the National Council of Resistance of Iran (NCRI), revealed at a press conference in Washington, DC that they had evidence of the existence of two undeclared nuclear facilities in Iran: at Natanz and Arak. These revelations led to an investigation by the International Atomic Energy Agency (IAEA) that confirmed the serious doubts about the character of Iran's nuclear program. The concern that Iran was perhaps pursuing a nuclear weapons option was reinforced by its reluctance to cooperate proactively with the IAEA in clarifying such allegations. An ultimatum was thus issued to Iran to cooperate fully with the IAEA, cease all activities related to uranium enrichment, and join the Additional Protocol by October 31 of that year. However, with the impending threat of referral to the UNSC that would have meant an early end to negotiations, the EU-3 (France, Britain, and Germany)²² stepped in and launched a diplomatic effort aimed at resolving the issue through negotiations.²³

This move towards diplomatic action must be understood in the context of the military action against Iraq: the Europeans feared that Iran could be the next on the US administration's list of nonproliferation issues to be dealt with by force.²⁴ Thus the EU-3 saw in the Iranian crisis an opportunity to propose their alternative approach, based on the recently launched ESS.²⁵ At that time, the Europeans were confident in the “power of their soft power” – thinking that they would be able to capitalize on the credentials

obtained from their historical dialogue with Iran.²⁶ Therefore, in line with the root cause approach, they presented far-reaching proposals to the Iranian authorities, which would help Iran develop a modern civil nuclear power program whilst meeting international concerns about its peaceful nature. The proposals offered Iran a series of attractive incentive packages in the form of broad cooperation in the technological and economic field. At first, the initiative seemed to bear fruit: the EU-3 managed to conclude a bilateral agreement with Iran whereby it would adhere to the conditions of the ultimatum. Yet over time, discontent was Iran's dominant attitude, and it finally abandoned the agreement. The EU was successful once again in securing the suspension of Iran's enrichment activities for a while through the Paris Agreement, but during the course of 2005, the negotiations completely broke down. It became evident that no economic inducement was attractive enough to persuade Iran to stop working on the nuclear fuel cycle, which enjoyed widespread domestic support.²⁷ Concluding that the "discussions with Iran had reached an impasse," the EU-3 argued that "the time has now come for the Security Council to become involved to reinforce the authority of the IAEA Resolutions."²⁸ This step is of course in line with the gradual approach favored by the EU and with the notion of effective multilateralism that pledges for a reinforcement of the international nonproliferation regime.

The Second Stage: Flexing EU Diplomatic Muscles – Sanctions within the UN Mandate

The UN Security Council referral opened a new chapter in the EU dealings with Iran. The EU-3 efforts to mediate now became part of the activities undertaken by the five permanent members of the UN Security Council (UNSC). The first UNSC Resolution 1696 (2006), adopted under Chapter VII of the UN Charter, demanded that "Iran shall suspend all enrichment-related and reprocessing activities, including research and development," but did not contain sanctions.²⁹ Nevertheless, from a European perspective, this resolution was a success. First, the UNSC provided an unambiguous legal basis for European calls on Iran to cease enrichment by endorsing the demand of suspension. Second, the resolution specifically endorsed an offer made by the E3+3 (the EU-3 and the three additional permanent members of the Security Council, the US, Russia, and China) to Iran on June 6, 2006, and stated that this proposal "would allow for the development of relations and cooperation with Iran based on mutual respect and the establishment

of international confidence in the exclusively peaceful nature of Iran's nuclear program,"³⁰ proposing attractive incentives to Iran. The explicit endorsement of the June 2006 offer by China, Russia, and the US can be seen as a diplomatic victory for the EU as it managed to impose its dual-track approach and advance cooperation with international key players. Third, European negotiators believed that the UNSC referral was a necessary and useful step forward because it enhanced their position in relation to Iran. It provided the EU with more leverage because the Security Council could impose sanctions – and theoretically authorize the use of force – under Chapter VII of the UN Charter.³¹ Indeed, the resolution established a de facto deadline by requesting the IAEA Director General to report by the end of August 2006 on “whether Iran has established full and sustained suspension of all activities mentioned in the resolution.”³² The implication was that without progress, sanctions would be imposed.

Iran blatantly disregarded this resolution, paving the way for the first rounds of targeted sanctions. The UNSC Resolution 1737 (2006) primarily restricted trade on goods that could potentially aid Iran's nuclear or missile programs.³³ A few months later, it was followed by resolution 1747 (2007) that additionally banned Iranian weapons exports but simultaneously repeated the UNSC's support for the previous June 2006 E3+3 proposal³⁴ – showing again a clear willingness to offer Iran further incentives and leave the door open for a possible return to the negotiations, while at the same time increasingly applying pressure. A third round of sanctions was applied in March 2008 through resolution 1803 with very little impact on Iran.

The Third Stage: “Enough is Enough” – Sanctions beyond the UN Mandate

The third phase of the EU's involvement in the nuclear conflict with Iran began with the election of Barack Obama as US president. Breaking with the previous administration's approach, Obama promised to revive diplomacy and to engage seriously with Iran. Yet ironically, as the US was ready to adopt a more conciliatory approach to Iran, the enthusiasm for engagement in parts of Europe was waning.³⁵ The E3+3 put on the table a new substantive proposal, taking into account the advancement of Iran's nuclear activities: the so-called fuel deal (October 2009),³⁶ but no progress was made. The breakdown of the deal over disagreements on procedure and legal guarantees was particularly disappointing for those EU members who had argued that

the refusal of the Bush administration to engage with Iran had been the main factor behind the lack of progress of diplomatic efforts. The fuel deal was indeed an example of a substantive proposal that had the full support of the US – and yet it yielded no results.³⁷ Subsequently, the EU supported the fourth round of UN sanctions in July 2010.

The shift of the EU from a dual track approach toward more punitive measures was strengthened following the November 2011 IAEA report on Iran that further corroborated suspicions regarding Iran's efforts to weaponize nuclear technology. This time, the EU took an unprecedented step and decided to break with its policy of keeping its own sanctions generally within the scope of trade restrictions imposed by the UN Security Council. On January 23, 2012, the EU Foreign Affairs Council imposed an import ban on Iranian crude oil and froze the assets of the Iranian Central Bank within the EU. These trade restrictions were the most far-reaching against an individual country adopted by the EU since the sanctions on Iraq in the 1990s and the broadest unilateral sanctions regime ever adopted by the EU.³⁸

The rationale for EU sanctions has clearly evolved and assumed a wider perspective. While targeted sanctions were previously mainly justified by their effect on Iran's nuclear and missile activities, the EU's current, more general argument is that comprehensive economic sanctions are aimed at affecting the cost-benefit calculation of the Iranian leadership.³⁹ Given the potential drawbacks of the European move for European economies, the EU deserves credit for imposing such sweeping sanctions, even more so at the height of the financial crisis. For example, France was the fourth commercial partner of the Islamic Republic in 2000, and has fallen to fifteenth since the imposition of the European, American, and UN-enacted sanctions. From 2005 until today, French exports to Iran have plummeted, falling from 2 billion euros to 800 million euros (-70 percent).⁴⁰ But the most affected European countries are those that were already suffering from the severe economic recession: Spain, Greece, and Italy.

In retrospect, the Iranian crisis has provided the first opportunity for the EU to demonstrate that it can live up to its self-articulated ambitions. From the beginning, the EU has consistently applied its step-by-step approach: through its positive engagement and economic inducements, it gave Iran a real opportunity to negotiate. But frustration grew in the face of Iran's perceived unwillingness to pursue constructive and coherent negotiations. Consequently, the EU hardened its tone through the imposition of economic

sanctions, while constantly leaving the door officially open to dialogue and rallying key international players in line with its normative ambition. Finally, the 2012 oil embargo indicates that the EU's soft power is actually becoming tougher as it proves that the EU is ready to resort to coercive economic measures even if it has to pay a high price.

The Heightened “European Aggressiveness”

What underlay this new “European aggressiveness”? First, the EU is primarily driven by its deep commitment to fight nuclear proliferation and prevent Iran from becoming a nuclear state. In pursuit of this goal, the European Union has undergone a learning process in its dealing with this proliferator. Indeed, Iran's repeated displays of reluctance to seriously engage in negotiations undoubtedly led the EU to realize that more forceful measures were needed. Thus the hardening of the EU's soft power is the logical result of a policy that failed to yield satisfactory results.

Second, as stipulated in the European Security Strategy, the EU attributes much importance to the transatlantic relationship described as “irreplaceable,” and therefore aims for an “effective and balanced partnership with the USA” on common security matters.⁴¹ In the conflict over Iran's nuclear program, the story of transatlantic relations has been one of convergence, culminating today with a unity of approach.⁴² Thus, it was quite obvious that efforts to pressure Iran had to be jointly intensified.

Other sources indicate that the blunt violation of human rights, the virulent Iranian anti-European rhetoric, and the multiplication of attacks both against European expatriates and representatives of European embassies have also played a role in the hardening tone of the EU vis-à-vis Iran.⁴³ However, in the framework of this paper on the respective positions of the EU and Israel, the Israeli threat to resort to the use of force in a preventive strike against Iran must be examined as well.

Unraveling Hidden Dynamics: The EU, Israel, and Iran

The European reluctance to witness a military escalation in the Middle East has certainly been a factor pushing the EU to take more forceful steps to stem Iran's nuclear ambitions. Indeed, many EU policymakers dread the scenario of a military attack against Iran triggering a full scale regional war on Europe's borders that would play havoc with world oil supplies, and might even result in an Iranian-sponsored terror campaign on European

territory.⁴⁴ European politicians have also expressed their doubts as to the benefits of such a strike that would unite the Iranian people around the regime.⁴⁵ Moreover, this aversion to military means to deal with Iran makes the EU particularly sensitive to other countries' threats to use force. In this regard, Israel has played a central role in fueling such fear: it has repeatedly threatened to bomb Iran's nuclear installations if international diplomatic efforts fail to persuade it to curb its nuclear activities.

Against this backdrop, an interesting dynamic has developed between the EU and Israel. When Israel has been particularly vocal in its threat to attack Iran in a preventive strike, the EU has subsequently reacted in imposing tougher sanctions against Iran, in what certainly appears to be a move to restrain Israel. It might also be interpreted as evidence of the EU's recognition and sensitivity to Israel's security concerns. In any case, this pattern of behavior has already occurred twice: once with the imposition of the oil embargo in January 2012 and again following the 2012 September UN General Assembly a few months later.

In the first case, following the release of the November 2011 IAEA report, Avigdor Lieberman, like many other Israeli officials, repeatedly called for "crippling sanctions" that would target Iran's purported Achilles' heel.⁴⁶ The implicit message was that it might forestall the Israeli use of military force against Iran's nuclear facilities. This kind of pressure works very well on the EU because it is convinced that an Israeli military strike on Iran's nuclear sites is a real possibility in the near future. According to a French researcher who is also an advisor to the government of France, "the French administration was particularly worried about Israel attacking Iran this year [2012]."⁴⁷ In the same vein, British Foreign Secretary William Hague argued that the newly imposed sanctions were designed to "lead us away from any conflict by increasing the pressure for a peaceful settlement of these disputes."⁴⁸

In the summer of 2012, Israeli politicians significantly increased their talk of carrying out an air strike on Iran's nuclear sites, conveying the impression of a real possibility that Israel would indeed attack within weeks. In a highly unusual move, German Chancellor Angela Merkel initiated a call and asked Prime Minister Netanyahu not to order a unilateral Israeli attack against Iranian nuclear facilities at the present time.⁴⁹ In the same period, in late September 2012, Prime Minister Netanyahu called for a "clear red line" against the Islamic state's nuclear drive. On this occasion, a top Western

official involved in talks on the crisis immediately said on the sidelines of the UN General Assembly, “what we will do next is intensify sanctions.”⁵⁰ And in fact, on October 15, 2012, the EU foreign ministers voted to substantially increase sanctions against Iran, including banning imports of Iranian natural gas and other restrictions on the country’s infrastructure development.⁵¹

Each time that such steps are taken, Israel does not miss an opportunity to praise the EU for tightening the sanctions against Iran, but simultaneously insists that it might not be enough. For Israel, the real success of these sanctions is not merely their enactment (as it may be for the EU) but rather their actual effectiveness: “These sanctions are hitting the economy hard, but they haven’t yet rolled back the Iranian program,” insisted Netanyahu in a speech to the EU ambassadors to Israel in October 2012. “We will know that they are achieving their goal when the centrifuges stop spinning and when the Iranian program is rolled back.”⁵² For the time being, it seems that Israel has taken a pragmatic decision, and is respecting the wish of the Western nations to make another effort to secure a diplomatic and peaceful outcome with Iran. However, the Israeli patience with the sanctions path will not last forever, and Israel might arrive sooner than the US at the conclusion that more forceful means are needed.⁵³

From the Barcelona Process to the Union for the Mediterranean: Soft Power in a Supportive Role

Besides its high-profile involvement vis-à-vis Iran, the EU is also active in another geographical area of relevance to Israel: the Mediterranean basin in the framework of Euro-Mediterranean relations. Indeed, in the various frameworks of Euro-Mediterranean cooperation put forward by the EU since 1995, the issue of WMD proliferation has been mentioned repeatedly. The 1995 Barcelona Declaration established within its so-called political and security partnership two overarching objectives of the EU’s nonproliferation policy in the Mediterranean area: the adherence of all Mediterranean partner countries to the existing nonproliferation instruments/regimes and the establishment of a WMD-free zone in the Middle East.⁵⁴

Regarding the first aspect, which is very reminiscent of the concept of effective multilateralism, the EU has attempted to mainstream nonproliferation and disarmament activities in its external relations with third countries. The inclusion of a nonproliferation clause in agreements with third countries was at first considered groundbreaking, as it introduced political conditionality

in the field of nonproliferation. This concept, originally related to human rights and democracy issues, foresaw that in case a third country does not fulfill its obligations to nonproliferation provisions, the EU can, as a last resort, suspend the agreement. The EU's nonproliferation clause was subsequently included in the Association Agreement with Syria, and in the Action Plans of Morocco, Tunisia, Israel, Lebanon, and Jordan.⁵⁵ Yet, even in a blatant case of violation, conditionality has never been applied, putting into question the efficiency of such a provision. Syria is a case in point.⁵⁶

Interestingly, the formulation of the nonproliferation clause was more conciliatory for Israel than for the other Mediterranean countries: according to the Action Plan signed with the EU, Israel will only “*consider the promotion*” and not directly *promote* the accession to nonproliferation agreements and treaties to which it is not party.⁵⁷ Obviously, the EU has in this case made a concession to Israeli interests and sensibilities. Another Israeli interest in the nuclear realm that does not match the EU approach is Israel's need to preserve its nuclear deterrent and avoid international pressure on this front.

As to the long term objective of establishing a WMD-free zone in the Middle East, it might well reflect a positive approach to regional arms control that fits the Israeli interest. Indeed, there is a tremendous need to develop some kind of cooperative security framework in the Middle East, particularly in light of recent events shaking the region and creating common security interests. A cooperative security regime would allow Israel to be better integrated in the region, and that is why it favors the idea of a WMD-free zone provided that it is elaborated in the appropriate context, in the relevant zone (Middle East threat environment), and in the relevant political climate (of peace).⁵⁸ To support this process, the EU has made efforts to organize and fund multilateral dialogues, regular meetings, and seminars specifically on disarmament and nonproliferation of WMD in the Middle East and in the Mediterranean as confidence building measures.⁵⁹ The goal of such discussions (or “seminar diplomacy”) is the creation of rules of engagement and more peaceful existence among the relevant actors. This process of confidence building and the promotion of a culture of security cooperation are widely acknowledged as an essential prerequisite of more far-reaching structural arms control agreements in the future. As such, these initiatives are beneficial to Israel, a state that should not miss any opportunity to resume dialogue with its neighbors on common security matters.⁶⁰

Conclusion: Expectations for the Foreseeable Future

The EU acts in two different areas relevant to Israel's security as far as nonproliferation matters are concerned. While the EU plays a leading role in the negotiations with Iran and has the responsibility to "deliver," its long term action in the Euro-Mediterranean framework is of a different nature, characterized rather by a supportive role for confidence building measures and for the creation of regional security forums. Yet while the EU should be praised for its efforts to bring the countries of the Mediterranean area to cooperate on security issues, its supportive role might truly make a difference only once the concerned states themselves have decided to faithfully engage on this path. In this regard, if a new regional security forum dialogue were to be established shortly, the support of the EU in this endeavor would be most welcome. Imagining a more pessimistic scenario, in which Egypt or Turkey would regain interest in the development of nuclear weapons, the EU would find itself in a real conundrum – torn between its willingness to deter the states of concern from pursuing this path and the impossibility of being too tough with these important partners of the Mediterranean region.

Vis-à-vis Iran, the analysis has shown that during its 10-year standoff, the EU has consistently applied the key tenets of its nonproliferation strategy, privileging a negotiated outcome but also proving that it can resort to more coercive measures and take steps costly for some or all member states. There is no doubt that the economic pressure resulting from the severe sanctions regime imposed on Iran has been a key factor informing the round of diplomacy following the election of Hassan Rouhani. Indeed, in late November 2013, the P5+1, led by the EU High Representative Catherine Ashton, managed to reach an interim accord with Iran: the so-called Joint Plan of Action (JPA), which "sets out an approach towards reaching a long-term comprehensive solution that would ensure Iran's nuclear program remains exclusively peaceful."⁶¹ Under the terms of the Geneva Agreement, Iran agreed to freeze the most important parts of its nuclear program in return for a limited easing of sanctions. The six months stop is meant to make it more difficult for Iran to develop a nuclear weapon and to build much-needed confidence while the two sides negotiate a final settlement of the nuclear dispute. In this sense, one can argue that the EU's efforts have served the Israeli interest in mobilizing a global diplomatic coalition against Iran's enrichment program and in delaying the advancement of the Iranian nuclear program. The difficult negotiation process, the intransigence of some

European Ministers, notably of the French Foreign Minister Laurent Fabius, and the attention given to Israel's concerns, are testimony to the fact that the Europeans are well aware of the "sophistication"/deceiving strategies used previously by the Iranian leadership and understand the extent of the challenge at stake. These negotiations should be considered as the last chance: as a European diplomat put it, "this time, we have to get it right."⁶²

While the interim accord on confidence building steps was first hailed by the Europeans as an "historic breakthrough,"⁶³ it should be kept in mind that the negotiations are not an end in themselves. From the outset the set-up for the implementation of the JPA was fraught with difficulties: many technical questions remained and disagreements over the interpretation of the document arose early – as usual, the devil is in the technical details.⁶⁴ It is now up to the EU to maintain its toughness and use smartly the leverage it has acquired over the years in order to obtain concrete results and not merely empty promises from the Iranian side. Now that the international community has entered into a new dynamic with Iran with a heavily-loaded historical antecedent, it must exploit the momentum – namely, make sure that Iran respects its commitments, insist that sanctions be ratcheted up in case of cheating, and react in a timely manner.

As far as Israel is concerned, this latest diplomatic initiative might not be as bad as depicted by Netanyahu, who referred to the deal as an "historic mistake."⁶⁵ It decreases the likelihood of military action against Iran without completely discarding it, while at the same time it puts the Iranian leadership in an uncomfortable situation, which will inevitably (hopefully) shed light on its real intentions. If it works, the diplomatic process will stop (or at least further delay) the development of an Iranian nuclear military capability. If not, it will provide further proof that Iran is indeed a determined (and very sophisticated) proliferator against which soft power definitely has its limits.

Notes

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 - 23 Emily B. Landau, *Decade of Diplomacy: Negotiations with Iran and North Korea and the Future of Nuclear Nonproliferation*, Memorandum No. 115 (Tel Aviv: Institute for National Security Studies, 2012), p. 39.

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- 32 UN Security Council Resolution 1696, note 50.
- 33 UN Security Council Resolution 1737, December 27, 2006.
- 34 UN Security Resolution 1747, March 24, 2007.
- 35 Trita Parsi, *A Single Roll of the Dice: Obama's Diplomacy with Iran* (New Haven, Connecticut: Yale University Press, 2012), p 12.
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- 55 Benjamin Kienzle, "The EU as a Security Provider in its Neighborhood: The Case of Non-proliferation of WMD in the Mediterranean Area," Working Paper of the Observatory of European Foreign Policy, No. 71 (Bellatera: Institut Universitari d'Estudis Europeus, September 2006), p. 13.
- 56 For more details about the EU and the al-Kibar controversy at the IAEA, see Michael Eleman, Dina Esfandiary, and Emile Hokayem, "Syria's Proliferation Challenge and the European Union's Response," *Non-Proliferation Papers* No. 20, July 2012. Syria had been engaged in nuclear proliferation while negotiating with the Trade and Cooperation Agreement with the European Union that did not discern anything (p. 14). Furthermore, even after Syria's nuclear venture was exposed and the IAEA was tasked with looking into it, several member states, as well as EU institutions, continued to prefer the improvement of political ties rather than punitive measures for blatant violation of nuclear commitments (p. 16).

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Pakistan: Reducing the Risks of a Nuclear Disaster

Azriel Bermant

Introduction

Since Pakistan conducted a nuclear test in 1998, there has been mounting international concern over Islamabad's nuclear program. Leading experts claim that Pakistan now possesses more than 100 nuclear warheads.¹ During his first term in office, President Obama reportedly told his staff that the possible disintegration of Pakistan and the subsequent danger of a scramble for nuclear weapons was his greatest national security concern.² The following essay points to three major concerns relating to the security of Pakistan's nuclear installations and outlines various courses of action in the political and arms control spheres that are critical for addressing the nuclear security challenge in Pakistan.

Three Major Areas of Concern

The Nuclear Network

The dissemination of nuclear know-how to rogue states and terrorist groups remains a significant concern for the international community. During the 1980s and 1990s, Dr. Abdul Qadeer (A. Q.) Khan, one of the most senior figures in Islamabad's nuclear program, developed a multinational network for the packaging and sale of nuclear technology and know-how to companies and rogue states such as North Korea and Iran. Khan sold Iran uranium enrichment equipment and designs that were a key element in its efforts to develop a military nuclear capability, and also sold centrifuges to North Korea and Libya. Khan has claimed that his proliferation activities were carried out with the knowledge of Pakistan's military authorities.³ Although Khan was eventually put under house arrest, elements of the proliferation

network may still be active. In 1997, Pakistani nuclear scientists traveled secretly to North Korea in order to provide it with technical assistance for its nuclear program.⁴

There are also concerns regarding possible nuclear cooperation between Pakistan and Saudi Arabia. The two countries enjoy a longstanding close relationship, with strong strategic and military cooperation. Not long after Pakistan conducted its nuclear test in 1998, Saudi Arabia Defense Minister Prince Sultan bin Abdelaziz al-Saud visited Pakistan's nuclear and missile installations; A. Q. Khan was reportedly present during the visit. In late 2003, several experts reported on a secret agreement between Pakistan and Saudi Arabia in which Islamabad would provide Riyadh with nuclear technology and a bomb in the event that Iran were to acquire a nuclear capability. There is strong evidence to suggest that the two countries have at least discussed such an understanding.⁵

There is a widespread belief among Islamabad's scientific and military elites that Pakistan, as the home of the first Islamic bomb, has the duty to share its knowledge with other Muslim countries. For example, Hamid Gul, the former head of Inter-Services Intelligence (ISI), has stated that it is Pakistan's duty to develop an Islamic nuclear infrastructure to protect Muslims. There are officials who have sought to transfer know-how to jihadist groups, including al-Qaeda. Indeed, following revelations of a meeting with Osama Bin Laden at his secret headquarters, suspicions emerged that Sultan Bashiruddin Mahmood and Abdul Majeed, two high ranking former officials from Pakistan's nuclear program, shared their expertise on nuclear, biological, and chemical weapons with al-Qaeda.⁶ Although the two former officials were later arrested by the Pakistani authorities, the concern is that there may be other experts who have shared or are seeking to share sensitive information with Islamist extremists.

Fragile Internal Situation

A related concern is that elements within Pakistan's military and intelligence authorities harbor sympathies towards Islamist extremists. US intelligence officials have warned of the danger of the infiltration of Pakistan's laboratories by extremists, and similar concerns have been voiced regarding efforts by terrorist organizations to recruit jihadists to work in Pakistan's nuclear facilities.⁷ This is particularly pertinent at a time when Pakistan appears to be preparing a submarine-based nuclear system to supplement its land and

air options. Pakistan's military officials have made it clear that their nuclear weapons are a deterrent against Indian ambitions. The development of a seaborne nuclear option may be linked to Pakistan's need for strategic depth in its confrontation with India.⁸ As a result, there is now a new danger: the navy, which would be in charge of seaborne nuclear weapons, is thought to be a branch of the military with a strong level of sympathy for jihadists.⁹

Compounding this concern is that Pakistan's nuclear weapons are also vulnerable because of the country's highly fragile economic and political situation. Pakistan's economic growth is low, foreign reserves are dwindling, and poverty is rampant. The difficult economic and political situation is an invitation for greater instability within the country. The retirement of Pakistan's Chief of Staff Ashfaq Kayani in November 2013 will also present a challenge in regard to the question of foreign and security policy in Pakistan.¹⁰ The collapse of the Pakistani government is regarded by some analysts as the most likely scenario in which terrorists could acquire nuclear weapons.¹¹ Terrorists tried on several occasions to assassinate the former president of Pakistan, Pervez Musharraf.

There is a danger that Pakistan's nuclear weapons could be stolen or smuggled out of the country during periods of great instability, and Washington has spent up to \$100 million to assist Pakistan in securing its nuclear weapons. However, Pakistan has shown reluctance in allowing the United States to conduct an audit to explore how this money is being spent.¹² It is unclear that the Pakistani authorities would notify the United States, or for that matter any other country, in the event of a lost nuclear weapon. It is clear that terrorist groups are determined to breach Pakistan's nuclear defenses, and they have launched numerous attacks on sensitive facilities.

Nevertheless, terrorists planning a nuclear attack would face considerable difficulties in acquiring a nuclear weapon or stealing fissile material for the production of a weapon. Even if non-state actors were to acquire an intact weapon, Islamabad has a number of security and safety procedures in place to protect nuclear weapons against unauthorized use. Terrorists would also have to overcome great obstacles in order to acquire the required quantity of highly enriched uranium or plutonium for an improvised nuclear device. However, in view of the possibility of lax security at some commercial and research reactors, there is a heightened risk that terrorists may be more successful in sabotaging nuclear facilities or obtaining the materials for the detonation of a radiological dispersal device (RDD), also known as a

“dirty bomb,” which utilizes conventional explosives to spread radiological material over a large area.¹³

Regional Situation

The decades-old bitter rivalry between India and Pakistan is the third important factor that must be taken into account when considering the question of nuclear security. There has been a longstanding debate on the impact of nuclear weapons proliferation in South Asia. Sumit Ganguly argues that rational deterrence theory applies in the case of India and Pakistan, and that the possession of nuclear weapons by both countries has forced them to exercise caution and has prevented serious conflict between the two sides. Even during the war in Kargil in 1999, nuclear weapons played “a critical role” in preventing an escalation of the conflict. Ganguly concludes that nuclear deterrence should remain strong in the India-Pakistan relationship, and help prevent a full scale war.¹⁴

In contrast, Paul Kapur argues that nuclear weapons can provide powerful incentives for the pursuit of policies that are risky and confrontational.¹⁵ The nuclear posture that Pakistan has adopted vis-à-vis India could create grave dangers in the event of a sudden escalation in tensions. Following its nuclear test of 1998, Pakistan fully integrated its nuclear assets into its military forces. As part of its nuclear posture, described by one scholar as an “asymmetric escalation posture,” Pakistan threatens a first use of nuclear weapons against Indian conventional forces in the event that its territorial integrity is violated.¹⁶ Kapur maintains that nuclear weapons have encouraged Pakistan to behave in a provocative manner towards India, triggering Indo-Pakistani crises such as the Kargil war of 1999.¹⁷

In adopting an offensive posture, Pakistan is heightening the risks of nuclear instability. There is an element of uncertainty about how use of the weapons is delegated. Although it appears that warheads and delivery systems are stored separately, the US Department of Defense asserted in 2001 that Pakistan could probably assemble its weapons fairly quickly if it chose to do so.¹⁸ Indeed, the ability to quickly assemble and deploy nuclear weapons would help bolster the credibility of Pakistan’s nuclear posture. In certain situations, lower level commanders in the field could be assigned responsibility to assemble weapons. In the event of conflict with India, the breakdown in command and control presents grave dangers of unauthorized or accidental use of nuclear assets. In view of the military’s stewardship of

nuclear weapons, there is an increased risk that it will use them in the event of a serious crisis: a scenario described by one analyst as a “use them or lose them scenario.” There is a danger that Pakistan will pre-delegate and pre-deploy nuclear assets in order to maintain the deterrent credibility of its nuclear posture in the face of an Indian offensive.¹⁹ There has been no serious or sustained engagement with India to reduce these nuclear risks.²⁰

Furthermore, as a result of Pakistan’s anxieties over Indian ambitions, it maintains an inflexible position on its nuclear weapons program. Thus, Pakistan has blocked the start of negotiations over the Fissile Material Cutoff Treaty (FMCT), which is designed to obstruct the global production of highly enriched uranium and plutonium for nuclear weapons. Islamabad is concerned that the treaty will benefit India to the detriment of Pakistan.²¹

Pakistan’s Actions to Address the Nuclear Security Challenge

Along with the aforementioned causes for concern, there have also been a number of recent positive developments that help to allay the alarm over Pakistan’s nuclear program. One development of interest has been the general election of May 2013, in which Nawaz Sharif was elected the prime minister of Pakistan. For the first time in the history of Pakistan, an elected government succeeded an elected government that completed a full term in office. While it is too soon to say whether this democratic transition will usher in a new period of greater domestic stability, it is a welcome development.

A second positive development is the effort made by Pakistan’s military authorities to strengthen control over its nuclear facilities. Over recent years, Pakistan has invested efforts in developing its command and control systems, and has strengthened the security of its civilian and military nuclear facilities. Musharraf in particular instituted various measures to strengthen oversight and control over Pakistan’s nuclear assets. In 2007, Musharraf formalized the authorities and structure of the National Command Authority (NCA), which oversees all of Pakistan’s organizations involved in nuclear weapons research, development, and employment, under the National Command Authority Ordinance, 2007. This was designed to support the command and control structure in the face of political transitions and outline penalties for the proliferation of nuclear know-how.²²

General Khalid Kidwai, responsible for securing Pakistan’s nuclear weapons, is well regarded by Western nuclear security experts. Under his supervision, the Strategic Plans Division (SPD) formulates nuclear policy,

strategy, and doctrine. It carefully scrutinizes scientists employed in nuclear facilities, and is considered to be a highly professional organization.²³ Pakistan implements a system requiring at least two people to authenticate launch codes for nuclear weapons. Former Pakistani officials have claimed that such codes, known as Permissive Action Links (PALs), were developed without American assistance. However, former US Deputy Secretary of State Richard Armitage has confirmed that US officials had spent a considerable amount of time working with Pakistani military representatives on the security of their weapons, and that sophisticated systems were in place to safeguard them. Numerous leading US intelligence and defense officials believe that the strict control of the military over Pakistan's nuclear assets is effective, since it is an institution that has withstood all the turbulence afflicting the country. These officials have widely expressed their confidence in the measures taken by Pakistan over recent years.²⁴

A further encouraging development is that Pakistan has strengthened export controls and taken measures over recent years to dismantle proliferation networks. In December 2003, the Nuclear Command Authority was established under Musharraf's leadership in order to establish greater control over the research laboratories and the Pakistani Atomic Energy Commission. One expert on Pakistan's nuclear program has claimed that the establishment of the NCA has resulted in "an unprecedented degree of transparency and accountability" for Pakistan's nuclear infrastructure.²⁵ In 2007, US intelligence officials claimed that the proliferation networks had been largely dismantled. A March 2012 State Department report described the A. Q. Khan network as "defunct." However, one cannot rule out the possibility of renewed black market activities since a number of A. Q. Khan's associates have escaped justice, and may be seeking to resume proliferation operations.²⁶

Despite the measures taken to secure Islamabad's nuclear weapons, the dangers of terrorists acquiring a nuclear device remain. While there is some monitoring of staff employed in sensitive facilities, this is no guarantee against infiltration by extremists. For example, in a scenario where weapons are moved clandestinely, an insider with knowledge of the procedures governing the transportation of nuclear assets could link up with terrorists to carry out an attack.²⁷ Furthermore, the attack of December 15, 2012 by Islamist militants on the Peshawar Air Force Base and other similar incidents demonstrate that terrorists remain determined in their efforts to attack sensitive military installations. Although the Peshawar attack was

ultimately unsuccessful, it did raise questions over the security of Pakistan's military facilities, including its nuclear infrastructure.²⁸

The concerns outlined above are serious enough to warrant American contingency planning for a worst case scenario. It is an issue of the highest priority for the US intelligence community and the White House.²⁹ Although there is no definitive solution to the dangers presented, there are various courses of action that the international community should pursue to minimize the dangers discussed above. Actions should be taken in the political realm and also in the sphere of arms control in order to strengthen nuclear security in South Asia.

The Way Forward

A major difficulty complicating US efforts to persuade Pakistan to secure its nuclear arsenal is the tense relationship between the two countries in the wake of the May 2011 US raid on Abbottabad that killed Osama bin Laden. Even before the US operation, relations were deteriorating, against the backdrop of Islamabad's suspicions over America's close ties with India and Washington's irritation over the collaboration between ISI elements and Islamist extremists. There is also widespread anger in Pakistan over US drone strikes in the tribal areas. The fallout from the Abbottabad raid has resulted in a strong sense of Pakistani anger, suspicion, and wounded pride, which has damaged the prospects for cooperation between Washington and Islamabad on the issue of nuclear security. It is therefore essential that the United States utilize the election victory of Nawaz Sharif as an opportunity to rebuild trust with Pakistan. Although Sharif's ambivalent attitude towards extremists is problematic, his senior advisors have spoken of his readiness to work closely with the United States on security issues,³⁰ and the new Prime Minister of Pakistan has already held productive meetings in Washington with President Obama, Vice President Biden, and other senior administration officials.³¹ There is therefore an opportunity to rebuild the trust between the United States and Pakistan, and to strengthen cooperation on the issue of nuclear security.

Some have argued that the United States should put the nuclear security issue aside temporarily, and place an emphasis instead on those areas where the interests of the two countries converge. According to this position, work should be carried out to build Pakistan's economy, upgrade its energy system, and strengthen regional trade. Any accomplishments in these areas would

help Pakistan and also provide greater stability in the region.³² This in turn would establish more favourable regional conditions for the enhancement of nuclear security.

As this article has pointed out, a renewed outbreak of hostilities between India and Pakistan could have a seriously detrimental impact on nuclear security in the region. In 2004, five years after the Kargil conflict, India and Pakistan held talks on nuclear confidence building measures, and issued a joint statement that included a call for the upgrading of the nuclear hotline between the two countries. However, the measures taken were modest in nature.³³ The experience of the United States and the Soviet Union following the Cuban missile crisis can provide a strong example for India and Pakistan. It was only after both superpowers had stared into the abyss that they agreed to strengthen communication and negotiate arms control agreements.³⁴ The United States should use its influence with both India and Pakistan to encourage them to strengthen lines of communication and adopt fresh confidence building measures, in order to reduce the risks of a conflagration.

There are already a number of established forums for international cooperation in the sphere of nuclear security. In April 2010 the Obama administration convened an international summit in Washington attended by over forty heads of state with a view to securing all nuclear materials around the world within four years. While there was widespread agreement at the summit on the need to improve the security of locations where nuclear materials were stored, little was achieved beyond symbolic gestures.³⁵ A follow-up summit was held in Seoul in March 2012. Here too achievements were modest, since countries were reluctant to make binding commitments to bolster nuclear security.³⁶

Kissinger, Nunn, Perry, and Shultz argue that it is imperative that a global system is established to track, manage, and secure all weapons-usable nuclear materials. The Nuclear Security Summit scheduled for March 2014 constitutes an opportunity to establish a comprehensive security system that can help ensure that all weapons-usable nuclear materials are safe from illegal access and theft,³⁷ although concerns remain that countries will avoid binding commitments to improve nuclear security.³⁸ Allison maintains that a global campaign is required to prevent the emergence of new proliferation networks. The lesson from the A. Q. Khan imbroglio is that there is a need for a framework of restrictions on both a local and global level in order to shut down black market operations. All countries must improve their

police work, consolidate export controls, and criminalize acts of nuclear proliferation. Allison also argues that the United States should encourage China to play a supporting role in persuading Pakistan to consolidate the security of its nuclear assets. China has been a close ally of Pakistan, and has supplied arms to the country. Indeed, the United States and China have already been sharing technologies for securing nuclear materials, and this cooperation can be extended to include the challenge from Pakistan.³⁹

On June 27, 2002, the G8 established the Global Partnership against the Spread of Weapons and Materials of Mass Destruction. Although the initiative has focused mainly on nuclear security in Russia, there are various projects that could also be implemented in Pakistan if the political will is there. For example, progress has been made in the Global Partnership in funding projects to employ former weapons scientists in the development of sustainable civilian research.⁴⁰ On June 14, 2013, the United States and Russia signed an agreement on a bilateral framework to expand cooperation in the sphere of nuclear nonproliferation and security.⁴¹ In time, this cooperation could, in theory, be extended to Pakistan, as the two powers can utilize their expertise to assist Islamabad in taking significant measures to enhance nuclear safety.

Conclusion

In 2010 President Obama declared: “The single biggest threat to U.S. security, both short term, medium term, and long term, would be the possibility of a terrorist organization obtaining a nuclear weapon.”⁴² For a number of reasons, Pakistan is a potential hot spot for terrorists attempting to acquire a nuclear weapon. In the past, high ranking scientists within Pakistan’s nuclear program played a key role in exporting nuclear materials to rogue regimes and even shared expertise with terrorist organizations such as al-Qaeda. Elements within Pakistan’s military and intelligence institutions are sympathetic toward jihadist organizations. The precarious domestic and economic situation in Pakistan could be exploited by radical groups to foment unrest and subversion. Political assassinations are a frequent occurrence in Pakistan, and senior politicians are easily intimidated by Islamist extremists. Indeed, Prime Minister Nawaz Sharif has been accused of kowtowing to extremists. In such an atmosphere, it is understandable that there are acute concerns regarding the danger of nuclear weapons falling into the hands of terrorists. Furthermore, the absence of a meaningful engagement between India and Pakistan could play into the hands of extremists or rogue elements

seeking to gain control of nuclear assets during periods of high tension between the two countries.

However, it is possible that Pakistan may now be stepping back from the brink. Islamabad has taken measures over recent years to strengthen oversight over its nuclear assets and dismantle proliferation networks. It is too early to say whether the recent democratic transition in Pakistan will bring with it a new period of domestic stability. Sharif has expressed his interest in bringing about an improvement in ties between India and Pakistan, and had previously worked for closer relations with New Delhi in 1999,⁴³ before he was ousted in a coup. Certainly, a reduction in tensions between the two countries will be an important component in efforts to strengthen nuclear security in South Asia. The United States should seize the opportunity of the change in leadership in Pakistan, in order to rebuild ties with Islamabad. Washington will find it easier to win the trust of Pakistan on the issue of nuclear security if a bilateral dialogue can take place in an atmosphere free of recrimination, bitterness, and anger. The resumption of the US-Pakistan strategic dialogue during US Secretary of State Kerry's visit to Islamabad in August 2013 and Nawaz Sharif's visit to Washington in October 2013 provide reasons for encouragement. The dialogue is addressing issues such as border management, counterterrorism, and increasing private US investment in Pakistan.⁴⁴

The challenges of securing weapons-usable nuclear materials in Pakistan also demands closer cooperation between the United States and other leading powers, including Russia and China. The 2014 Nuclear Security Summit may provide some important clues as to whether the international community is up to this challenge.

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PART II

EMERGING ARMS CONTROL CHALLENGES

A Cyber Warfare Convention? Lessons from the Conventions on Chemical and Biological Weapons

Cameron S. Brown and David Friedman / 45

Controlling Robots: It's Not Science Fiction

Liran Antebi / 65

Nonconventional Deterrence between Three Parties: Lessons from the Gulf War

Avner Golov / 81

Arms Control in Civil Society: Controlling Conventional Arms Smuggling in Sinai

Olivia Holt-Ivry / 103

A Cyber Warfare Convention? Lessons from the Conventions on Chemical and Biological Weapons

Cameron S. Brown and David Friedman

Dozens of states are currently locked in a cyber arms race. Few countries divulge their total annual investment in either offensive or defensive cyber warfare capacities, but there is little doubt that for most governments the overall growth in both financial and personnel investment has been exponential.¹ This increased cyber investment is underway for several reasons, but most importantly because cyber warfare capacities have matured into terribly potent weapons. Far beyond low level disruption of websites (e.g., distributed denial-of-service, or DDoS, attacks) or viruses that turn one's computer into a spam-generating satellite office for some "Nigerian prince" desperately seeking to recover his inheritance or other such scam, complex cyber weapons such as the infamous Stuxnet and Flame have allowed states to conduct pinpoint strikes and wide scale espionage on an impressive range of military, diplomatic, and industrial targets.² These attacks are now conducted with great effectiveness and substantial deniability, and for several years have even been able to penetrate systems that are "air-gapped" – i.e., totally disconnected from the internet.³

This newest revolution in military affairs has led dozens of military powers to incorporate cyber weapons into their order of battle at both the strategic and tactical levels. On the strategic level, Russia's cyber attacks (routed via a Brooklyn-based server) disabled Georgian infrastructure at the outset of their 2008 war, and the United States reportedly possesses the cyber capacities to shut down the entire air defense systems of some adversaries even before the first American plane ever leaves the runway.⁴ On the tactical level, American cyber weapons specialists are now integrated

into regular combat units, even against relatively low-tech opponents such as the Taliban in Afghanistan.⁵

During peacetime as well, intelligence organizations employ cyber weapons at a dizzying pace. The Chinese are presumed to have hacked into almost every major institution in Washington and have collected so much information that their biggest intelligence hurdle these days is just sifting through and analyzing the billions of documents they have collected.⁶ Indeed, one recent estimate (of admittedly questionable methodology) put the damage of cyber espionage to American businesses alone at over \$300 billion per year, roughly equivalent to all annual US exports to Asia. The Commander of the United States Cyber Command and Director of the National Security Agency, General Keith Alexander, deemed this theft of intellectual property (IP) as “the greatest transfer of wealth in history.”⁷

With industry and military secrets being stolen wholesale, and with vast amounts of critical military and civilian infrastructure so vulnerable to attack, many public figures have called for a convention on cyber warfare (separate from the one on cyber crime).⁸ In September 2011, the Russian Ministry of Foreign Affairs, along with China, Tajikistan, and Uzbekistan, went so far as to submit a draft convention to the United Nations General Assembly for consideration as a resolution.⁹ At a conference in May 2012, Eugene Kaspersky, founder of the anti-virus software company Kaspersky Labs, argued that hacker groups (like Anonymous) could use cyber weapons like Stuxnet against other countries by copying code and utilizing it in their own future attacks on a country’s electrical grids, telecommunications networks, and financial or governmental institutions. Therefore, he concluded, “I’m afraid that there’s only one way that they can be protected and that’s international agreements against cyber weapons, same as was done with nuclear weapons, chemical weapons and biological weapons.”¹⁰

Although many American officials have expressed skepticism about prospects for such a convention, several have been in favor, including Senator Dianne Feinstein (D-Calif.), Chairman of the Senate Intelligence Committee. In a short statement on the subject, she said that “robust diplomatic efforts should be made with the goal of effecting international agreements among key actors regarding cyber behavior. The time has come to look at the value of a cyber treaty with built-in mutual assurances of behavior.”¹¹ Among the most important American proponents of a cyber convention is Richard Clarke, who authored the book *Cyber War* and who served three presidents

as National Coordinator and Special Assistant for Counterterrorism, Security, Global Affairs and Cyber Warfare. During a speech at the Naval Postgraduate School on August 17, 2010, Clarke summarized an argument from his book:

We also need to think seriously about an arms control treaty for cyberspace...because two, and more, can play this game. Between 20 and 30 countries now have cyber warfare commands.... It [an arms control agreement] won't be easy – attribution [determining who is behind an attack] is immensely difficult, so the cyber world doesn't lend itself to deterrence strategies like mutually assured destruction with nuclear weapons – but we have to try, just as we did with conventional weapons and bio weapons. We succeeded with those, and the only way to get there is by starting.... Most countries would agree to sign a treaty not to attack each other's international financial and banking system networks. They don't want to cross that Rubicon, or the entire international banking system could go down. We have an international regime for cyber crime, and we need one for cyber war – to rule out some things globally. But we have to take this seriously and move quickly. If we're not careful – if we don't take cyber defense and cyber arms control seriously – we may find ourselves in a shooting war and wake up to find that the enemy has pulled the plug on all our shiny, trillion dollar weapons, that our chips and supply chains have already been compromised, that our pipelines have been shut down and our trains derailed, all while our computer screens are telling us that nothing is happening.¹²

Calling for a convention on cyber warfare may be popular, but could such a convention ever actually be enacted? Moreover, even if such a treaty comes into force one day, would signatories abide by it? (The two questions are analytically distinct, as politicians could have incentives to sign an agreement to which they do not intend to adhere.) In this realm, there is healthy reason for skepticism. For instance, if a dependable verification mechanism is at the heart of any arms control convention, then cyber warfare is a terrible candidate. Arms control regarding nuclear weapons, for instance, has generally been quite successful, in large part because developing these weapons requires a number of large warehouse-sized facilities filled with

radioactive material, thousands of white lab coat-wearing scientists and engineers, and usually the import of special machinery and materiel. An advanced cyber warfare base, on the other hand, could in many ways be observationally equivalent to a college dormitory.¹³

Precisely for these reasons, proponents of a cyber convention like to point to the biological and chemical weapons conventions (BTWC and CWC, respectively), both of which were meant to restrict the development and use of weapons whose verification challenges are almost as difficult as their cyber counterparts. This paper considers that analogy seriously. First, it considers what lessons a cyber convention could gain from the experiences of the four main treaties that have forbidden chemical and biological weapons: Hague, Geneva, BTWC, and CWC. It then addresses the question of whether there are critical differences between chemical or biological weapons and their cyber counterparts that might undermine the analogy altogether.

The Origins of Chemical and Biological Arms Control

Although typically classified as weapons of mass destruction, biological and chemical weapons (BW and CW, respectively) considerably predated nuclear and radiological weapons, and their initial use dates back to antiquity. In India, toxic fumes were used as weapons as far back as 2000 BCE, and in 400 BCE, the Spartans are said to have used wood saturated with pitch and sulfur during sieges to choke city defenders. In 1346, in what is now Fedossia, Ukraine, bodies of Tartar soldiers who had died of the plague were catapulted over the walls and into the besieged city.¹⁴

When countries first sought to alleviate the “the calamities of war,”¹⁵ among the first restrictions countries accepted were prohibitions against the use of poison munitions. In preparing the field manual for the Union Army in 1863 at the behest of President Lincoln, Francis Lieber wrote, “Military necessity does not admit of cruelty... It does not admit of the use of poison in any way.” A decade later, Czar Alexander II convened a convention in Brussels where delegates from 15 countries considered a draft agreement that would set out “laws and customs of war.” Among the very specific prohibitions was the rule forbidding the “employment of poison or poisoned weapons” (Article 13). Though not ratified at the time, this document served as the basis of the Hague Conventions of 1899 and 1907, which went even further and prohibited the “diffusion of asphyxiating or deleterious gases” (Declarations IV, 2).¹⁶

These agreements proved worthless during World War I, as Germany, France, and England made wide use of CW, killing over 100,000 and injuring over a million soldiers.¹⁷ In light of both the wide scale use of chemical weapons and the massive bloodshed overall, post-World War I leading countries signed a number of international agreements, such as the Covenant of the League of Nations and the Kellogg-Briand Pact of 1928. These agreements ultimately aimed at ending war, but in the event that war proved unavoidable, the goal was to attenuate its worst excesses. The Geneva Convention of 1925 specifically prohibited the use of chemical and bacteriological weapons in war.

Given CW's widespread use in World War I, it is curious that they were barely used on the battlefield during World War II. To be sure, commitments to the Geneva Convention did not prevent the Axis powers from using CW.¹⁸ The Germans killed millions in their gas chambers, Mussolini's forces had used CW in Ethiopia only a few years before, and the Japanese actually began using CW and BW in China in the early 1940s.¹⁹ Instead, what deterred the Axis powers from using CW were several unambiguous Allied threats – red lines, as it were – that employing CW anywhere would be met, as President Roosevelt put it, with “retaliation in kind and in full measure...We shall be prepared to enforce complete retribution.”²⁰ Incorrectly believing the Allies possessed superior CW armaments, the Axis powers were deterred for the rest of the war.²¹

Chemical and Biological Weapons Proliferation after World War II

Although not widely utilized on the battlefield during any Cold War proxy war,²² BW and CW were incorporated into the American and Soviet strategic arsenals. The United States and the Soviet Union, and later France and England, developed and maintained large quantities of different varieties of chemical and biological weapons. By 1960, over a dozen countries pursued or possessed CBW, including Western democracies like Australia, West Germany, and Sweden; the Eastern bloc countries of Czechoslovakia and Yugoslavia; and others, including Egypt and China.²³

In the 1960s, several additional Soviet client states, including Cuba, East Germany, and North Korea, began CW arsenals. During the 1970s and 1980s, dozens of additional countries, mostly developing or poor countries, made efforts to attain CW or BW – either indigenously or via foreign suppliers.²⁴

These countries saw CW and BW as a substitute for nuclear weapons (“a poor man’s bomb”), as they required far less investment and technological sophistication. BW and CW were also thought to increase a country’s deterrence and mitigate an opponent’s conventional advantage.²⁵

Nowhere was CW and BW proliferation more rampant than in the Middle East. Numerous states, including Egypt, Iraq, Syria, Iran, and Libya, made great efforts to acquire BW and CW, as well as advanced delivery systems like long range ballistic missiles, in order to maintain some measure of strategic deterrence against each other and an allegedly nuclear Israel. Most importantly, all five occasions where states used nonconventional weapons since World War II occurred in the region: Egypt employed CW during the civil war in Yemen in the early 1960s; Libya used CW in Chad in 1987; and Saddam Hussein used it in the 1980s, first against Iran and then to suppress the Kurdish rebellion in Iraq. Finally, the Assad regime used CW approximately a dozen times against rebel-held areas during the Syrian civil war.

Recently, several terrorist organizations have attempted to develop or acquire CW or BW, precisely because chemical and biological weapons suit the modus operandi of terror organizations: they instill fear, panic, and demoralize their adversary, even if (like terrorism in general) they kill few people in absolute terms. Indeed, although several terror organizations (e.g., al-Qaeda) declared their willingness to use CW and BW, few groups have been able to develop either indigenously, and only in three instances has either weapon actually been employed.²⁶ Indeed, if anything, those incidents mostly demonstrated the terribly limited effectiveness of CW and BW at killing people when wielded by amateurs. In fact, even the Japanese cult Aum Shinrikyo, which used sarin gas in the Tokyo subway system in 1995 (the only time terrorists have used CW), decided to abandon its plans to use biological agents because they are so difficult to disperse effectively, not to mention to develop and deploy without infecting oneself.²⁷

Post World-War II Arms Control Efforts

Over the past 40 years, states have sought to strengthen the Geneva Convention of 1925 by forging more binding and detailed arms control and nonproliferation regimes (both at the regional and global levels). Interestingly, many countries gave up their BW and CW programs unilaterally.

Unilateral Actions

During the 1960s and 1970s, several countries took unilateral steps to eliminate their stockpile of biological weapons. In 1969, President Nixon ordered the elimination of all biological weapons stockpiles, and halted all research, development, and production of BW. Once they became nuclear states, Britain and France also abandoned their programs.²⁸ In 1974, roughly half a dozen countries, including Australia, Sweden, Austria, Cuba, and East and West Germany, also unilaterally ended their CW programs. Countries undertook these unilateral decisions for different reasons, including the ethical belief that because these weapons are indiscriminate and potentially catastrophic, their use is immoral.

Generally, however, there were also several critical strategic motivations. First, BW and CW require an intensive investment, especially to store safely and in a manner that ensures battle-readiness. Second, although even very small amounts of BW can achieve the high level of toxicity required, effectively employing BW or CW on the battlefield is always fraught with great uncertainty, as variations in weather, wind, and sun radiation will have a dramatic effect on agent survival and contagion rates. Third, once used, many agents cannot be limited to a small, controlled target area, and under certain conditions, could come back to haunt the user as well (especially regarding certain BW agents). Finally, the deterrence value of these weapons is questionable as well. On the one hand, neither is likely to deter against nuclear weapons, since their raw destruction can in no way compare to the potential of nuclear weapons. Furthermore, the effect of BW is not immediate, with casualties only appearing a day or two after contamination, and with both BW and CW, victims can often be treated. On the other hand, capacity to respond “in-kind” to a CW or BW attack is not optimal for a nuclear weapons state, which could otherwise credibly threaten to retaliate against a CW or BW attack with a nuclear strike. In other words, for some countries, a CW or BW arsenal may even undermine its deterrence.²⁹

Finally, it is significant that while some countries decided unilaterally to forego biological and chemical weapons, these countries maintained and even strengthened their defense capabilities. Disarming countries understood that some countries will continue to arm themselves with chemical and biological weapons clandestinely, and that defense capabilities increase deterrence against a potential attacker.

The Biological and Toxin Weapon Convention (BTWC)

The BTWC was opened for signature in April 1972 and came into force in 1975. In several ways, the BTWC was a turning point in the field of arms control and nonproliferation as the first treaty to ban the development, production, and storage of an entire category of weapons of mass destruction (WMD); the aforementioned Geneva Convention only outlawed WMD use. As opposed to the NPT, the BTWC was an egalitarian treaty, binding every signatory to the same standards. The treaty is also noteworthy for having been signed during the height of Cold War suspicion between the USSR and the US. Yet as a consequence of this mistrust, the signatories could not agree to verification mechanisms for the BTWC, meaning that the treaty's main value is declarative.

The BTWC has an inherent and unresolvable tension, in that the research and development of biological agents for the purpose of improving defense capabilities and public health is not forbidden. On the contrary, the treaty encourages cooperation and the transfer of technological know-how from developed to developing countries. However, it is difficult to distinguish between offensive and defensive research and development, which makes it difficult to develop a tight safeguard and verification regime. This comes on top of the usual verification challenge that any inspection regime runs the risk of exposing a state's secrets in other areas as well. Given these difficulties, efforts to create a verification and safeguard regime have so far failed.³⁰

At present, 163 countries are members (i.e., signed and ratified) of the BTWC, 13 countries have signed the treaty but never ratified it, and roughly 20 states have not signed. Great efforts, both bilateral and multilateral, have been made to convince non-member states to join. Further efforts have been made to improve the treaty by including confidence building measures such as notification of plague outbreaks, notification of bio-terror exercises, and establishment of security labs. These confidence building measures could help compensate for the lack of a verification regime; however, an insufficient number of states actually comply even with these, largely out of fear of exposing valuable information. Beginning in 1994, an ad hoc group was established with the goal of creating a new, far-reaching convention based on the CWC for biological weapons, which would in effect supersede the relatively toothless BTWC. However, facing stiff opposition from the United States in particular, this attempt died in 2001 at the Fifth Review Conference when the draft text failed to achieve a consensus.³¹

The Chemical Weapon Convention

The CWC came into force in 1997, following 24 years of difficult negotiations. When drafting the CWC, negotiators attempted to incorporate lessons learned from previous experience with the NPT and the BTWC, especially regarding implementation. Much like the BTWC, the CWC is an egalitarian treaty. However, unlike the original NPT agreement and the BTWC, it has a robust and invasive verification and safeguard regime, and a clearly defined list of banned substances. The treaty bans the development, manufacturing, stockpiling, and use of chemical weapons and obligates members to eliminate all their stockpiles over a defined period of time. Members must report all stockpiling, development, and manufacturing facilities, including civilian facilities that manufacture materials listed by the treaty. Experts hold regular inspections of the declared facilities, and the treaty itself is managed by the Organisation for the Prohibition of Chemical Weapons (OPCW) in The Hague, employing several hundred staff members.

The invasive verification mechanism includes a “surprise inspection” option on short notice, executed by the OPCW following a substantiated complaint by another member state. This mechanism was a source of debate during the treaty negotiation due to the sensitivity inherent in the measure. Ironically, however, to this day not a single complaint has been filed, and thus not a single “surprise inspection” has been executed. This is due to two main reasons. First, it is no simple matter to collect sufficient evidence against a suspected state to merit a “surprise inspection” by the OPCW. Second, states are concerned that once the “surprise inspection” option is used, it will open a Pandora’s Box, potentially hurting them as well.

As of today, the treaty has 190 member states; two countries have signed but did not ratify (Israel and Myanmar), and four countries have not signed the treaty (Angola, Egypt, North Korea, and South Sudan).³² There is a prevailing belief that the CWC, at least on the surface, is an arms control success story. Countries have and continue to declare facilities, as required of them. Countries eliminate large quantities of chemical weapons and substances, and regular inspections give the impression that the treaty has been successful in promoting the norms prohibiting use and proliferation of CW.

BTWC and CWC: Lessons

Thus far there is no definitive version as to what impact either the BTWC or CWC has had, as no one has yet given a reliable estimation of the counterfactual: how many states would have given up CW or BW (or never pursued them in the first place) if neither treaty was ever signed.³³ With this caveat in mind, several conclusions can be drawn from figure 1, which shows how many states possessed either weapon from 1945 until 2000.

First, neither treaty has by any means entirely eliminated the possession of CW or BW, and there are countries that have signed both treaties that are suspected of violating their obligations. Second, some countries clearly abandoned these weapons irrespective of treaty obligations, as evidenced by the fascinating trends whereby some countries gave up CW after the BTWC was opened for signing; the same is true for BW relinquishment after the CWC came into force. Such unilateral abandonment suggests that these weapons were not perceived as unequivocally useful. Finally, it is interesting that the most significant drops in global possession rates for both CW and BW occurred immediately after these treaties were first opened for signature (the NPT, on the other hand, apparently had no such effect). This trend suggests that the treaties themselves played some role, though what that role is awaits further research.

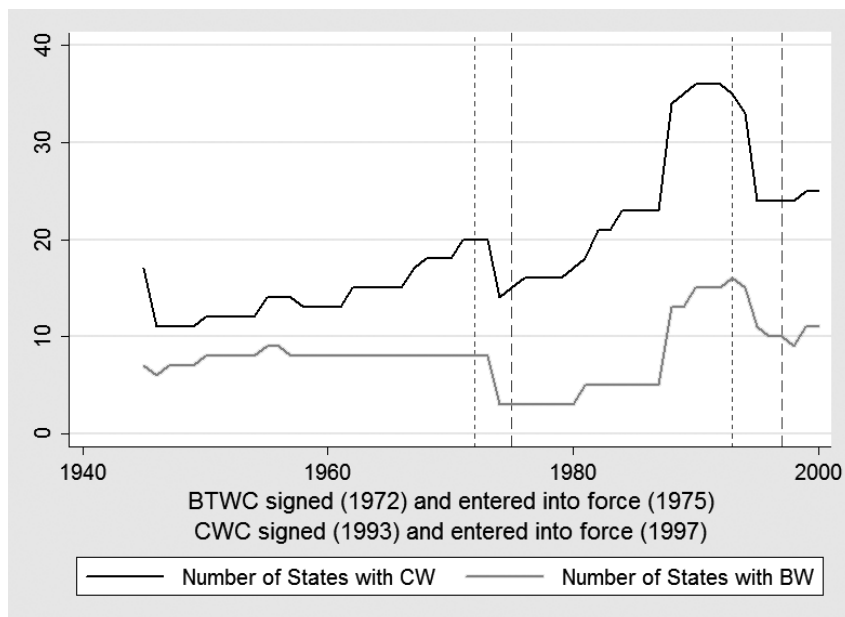


Figure 1. BTWC, CWC, and Rate of CBW Possession³⁴

In this vein, caution is in order regarding any evaluation of the normative effect of these conventions on preventing the actual use of either weapon. Signing The Hague Convention of 1899 did not prevent massive use of chemical weapons in World War I. Similarly, the Geneva Convention was less important in preventing their massive battlefield use in World War II; what primarily deterred their use were overt threats of massive retaliation. Likewise, several terror organizations have openly declared that they are not bound by these taboos, but thus far have not used these weapons. Again, the lack of terrorist use suggests that the historical rarity of CW and BW use may be entirely due to considerations of effectiveness and efficiency relative to readily available conventional alternatives.

That said, it is noteworthy that the BTWC and CWC exist at all, given that both are fraught with massive verification and enforcement challenges. First, in both chemical and biological weapons, many substances and methods are “dual use” – meaning they have both legitimate civilian as well as banned military purposes. Even within military use, chemical and biological substances can be developed for offensive purposes (thus, prohibited) or permitted, and even encouraged, defensive purposes. For example, the development and manufacture of a vaccine usually requires developing a micro-organism (virus or bacteria), weakening it, and producing mass quantities in order to vaccinate the population. Using the same methods and infrastructure, one can develop an even more violent microorganism and use it as a biological weapon.

Second, particularly in biological weapons, the amount of weaponized substance needed is very small. Large development and production facilities are not needed, and it is possible to conduct research and development for offensive use in small, simple, and undetectable labs. Likewise, recent developments enable the manufacturing of chemical substances in mini-reactors that are difficult to identify. Comparatively, nuclear weapons and missiles require infrastructure and labs that are much harder to conceal.

Another relevant lesson for the cyber realm is that in the years that followed the drafting of the CWC, several countries, most notably the Soviet Union, developed highly toxic materials not covered in the treaty. These substances are now widespread, remaining outside the CWC’s control mechanism, and precisely for that reason, pose a threat to the treaty.

Prospects for a Convention on Cyber Warfare

What from the experience of the CWC and BTWC relates to cyber warfare? Can a convention be reached and would all relevant actors adhere to it?

The first lesson from the BTWC and CWC is that whether effective verification is possible or not is not, as logicians would put it, a “necessary condition” for determining whether states sign and even ratify an arms control convention. Even more counter-intuitively, as indicated by figure 1, it may not even be the most important factor for determining whether countries abide by an arms control treaty. Instead, the most important lesson from the experience of the CWC and BTWC is that perception of these weapons’ limited tactical and strategic utility was paramount in the willingness of some states to abandon them, and likely factored into the decision making of other states not to pursue BW or CW in the first place.

In other words, many have drawn an analogy between BW and the cyber realm because of the shared verification challenges as a way to suggest that a cyber convention is a real possibility. Yet in stark contrast to CW and BW, cyber weapons are not only already extremely effective at achieving a wide variety of aims, but programmers are still pushing the frontier by leaps and bounds as to what cyber weapons can accomplish. This is perhaps the single greatest reason why consensus is unlikely to be achieved on a cyber convention in the coming years.³⁵

Of course, this does not mean that inherent obstacles to verification are unimportant to the robustness and success of an arms control regime. While on paper the BTWC and CWC take polar opposite approaches to verification – with the BTWC having almost none and the CWC having an extensive and intrusive scheme – in practice they are actually more similar than one might expect, because the CWC’s challenge inspection mechanism was not used even once since the treaty came into force.

If inherent obstacles to verification matter, then cyber weapons again appear to be a one of the worst candidates for an arms control convention. If anything, the verification challenges of cyber weapons are far worse than those of CW or BW. To begin with, almost everything about an offensive cyber program is dual use (similar to a BW program, only more so). This means, for instance, that nothing a country or lab imports could even appear suspicious. The dual use problem is so overwhelming for cyber that even if an inspection team were to walk right through an offensive cyber warfare center during a short notice “snap” inspection, it would likely appear terribly

similar to most computer programming companies, and worst of all, would be indistinguishable from a defensive cyber command post. As a result, it would be nearly impossible to catch a country cheating “red-handed.”³⁶

Moreover, the civilian infrastructure that engages in software development is far larger than its biological or chemical counterparts, meaning pinpointing a cyber command would be like finding a needle in a haystack. Likewise, the thousands of private software companies will not be interested in having foreign arms control experts looking too closely at what they are doing, as they are more vulnerable to industrial espionage than other fields. Finally, whereas CW and BW development may be very hard to detect, the actual use is easier. When CW is used, it is relatively easy to detect as CW agents stand out from their biological environments, and so cannot be used for long and on a large scale undetected. The same, of course, is not true for cyber weapons, which often go undetected for years after being released. Likewise, while many BW agents carry genetic and other signatures so that countries can make a determination with some degree of accuracy about the origin of the weapon, cyber weapons often lack such identifying features.

Presumably another point in common, at least between BW and cyber, is that if a weapon cannot be controlled after use (i.e., there is potential “blow-back”), then states should have greater motivation to agree that the weapon not be used at all, and hence sign a convention. In its report, the EastWest Institute argued, “Cyber weapons can deliver, in the blink of an eye, wild viral behaviors that are easily reproduced and transferred, while lacking target discrimination.”³⁷ However, critical in that determination here too is whether scientists believe they can forecast the outer limits of effectiveness and control. In other words, if a new type of weapon emerges that is difficult to contain, this does not mean it will forever be so. In the case of BW, for instance, it took decades before scientists thought they had reached a technological plateau, whereby it became difficult to imagine BW without potential blow-back concerns. Cyber weapons may have blow-back concerns, but it is entirely imaginable that once a weapon is deployed and discovered, offensive programmers can then share the vulnerabilities with those on the defensive end to plug the holes immediately. This is not true for CW or BW, certainly not with the same ease or cost.

Another major consideration is how costly or difficult is the weapon to develop and/or deploy. As the costs of development and deployment grow, fewer actors will have the wherewithal to develop, maintain, or use them.

If the costs become especially high, both non-state actors and poor states will be unable to develop or use the weapon. This is critical for a number of reasons, first, because fewer actors make verification more feasible, by reducing costs for setting up an impartial verification regime and for creating an intelligence capacity for covertly verifying compliance. Second, smaller numbers of actors should also increase the likelihood that actors will uphold their obligations, as violations of one's commitment is more likely to be met with retaliation, or at least should lead to a collapse of the agreement (which should be valued by potential violators as well). Thus as more actors can obtain and use a weapon, deterrence becomes more difficult. Again, although the costs for CW and BW development are not terribly prohibitive, they are still far greater (and the requisite skills more rare) than waging a cyber attack.

Finally, there are critical normative differences between CBW and cyber weapons. When nations in the modern era first prohibited the use of poisons and gases, they were motivated by the idea that they caused excessive and unnecessary pain and suffering, and thus had no place in the civilized world.³⁸ In contrast to CW and BW, however, cyber weapons are elegant in use: they achieve their aims without gruesome civilian deaths painting grisly portraits on TV screens worldwide. Indeed, they generally leave no images at all. In that case, and given that states cannot realistically be expected to stop fighting or engaging in espionage, then it is difficult to understand how a normative consideration might lead to a convention on cyber warfare when these weapons are no worse than conventional weapons, which are only rarely checked by international convention.

Notes

The authors would like to thank Daniel Cohen, Aviv Rotberg, and Gabi Siboni for their comments and thoughts about this article, and Tamar Levkovich for her dedicated research assistance. We would also like to thank Michael Horowitz and Neil Narang for giving us access to their data and paper drafts prior to publication.

- 1 In January 2013, the United States Department of Defense announced that its Cyber Command would grow from 900 personnel to 4,900. See Ellen Nakashima, "Pentagon to Boost Cyber Security Force," *Washington Post*, January 28, 2013, http://www.washingtonpost.com/world/national-security/pentagon-to-boost-cybersecurity-force/2013/01/19/d87d9dc2-5fec-11e2-b05a-605528f6b712_story.html. The British government spent an additional £560 million over four years, which security experts have called a relatively small sum. See Mark Urban, "Is UK Doing Enough to Protect Itself from Cyber Attack?" *BBC News*, April 30, 2013,

<http://www.bbc.co.uk/news/uk-22338204>. In 2012, and again in August 2013, the Russian government announced plans to set up both a cyber command of its own, as well as a Russian equivalent of DARPA that would work on advanced research projects. See “Russia Considering Cyber-Security Command,” *Ria Novosti*, March 21, 2012, <http://en.rian.ru/russia/20120321/172301330.html>, and “Russian Army Indicates Cyber Force Plan Underway,” *Ria Novosti*, August 20, 2013, http://en.ria.ru/military_news/20130820/182870107/Russian-Army-Indicates-Cyber-Force-Plan-Underway.html. One market research report claimed annual global spending is set to rise by 50 percent from 2013 to 2023. See “Cyber Warfare Systems Market Expanding to US\$19.4Bn by 2023,” *Aerospace & Defense News*, August 8, 2013, [http://www.asdnews.com/news-50561/Cyber_Warfare_Systems_Market_Expanding_to_US\\$19.4Bn_by_2023.htm](http://www.asdnews.com/news-50561/Cyber_Warfare_Systems_Market_Expanding_to_US$19.4Bn_by_2023.htm).

- 2 On the extensiveness of cyber espionage, see, for example, Craig Timberg and Ellen Nakashima, “Chinese Cyberspies have Hacked most Washington Institutions, Experts Say,” *Washington Post*, February 21, 2013, http://www.washingtonpost.com/business/technology/chinese-cyberspies-have-hacked-most-washington-institutions-experts-say/2013/02/20/ae4d5120-7615-11e2-95e4-6148e45d7adb_story.html; Sohail al-Jamea, Robert O’Harrow, Jr., and Whitney Shefte, “Zero Day: Exploring Cyberspace as a New Domain of War,” *Washington Post*, June 2, 2012, http://www.washingtonpost.com/investigations/zero-day-exploring-cyberspace-as-a-new-domain-of-war/2012/06/02/gJQAFgc09U_video.html. On Stuxnet, see John Markoff, “Malware Aimed at Iran Hit Five Sites, Report Says,” *New York Times*, February 11, 2011, <http://www.nytimes.com/2011/02/13/science/13stuxnet.html>; William J. Broad, John Markoff, and David E. Sanger, “Israeli Test on Worm Called Crucial in Iran Nuclear Delay,” *New York Times*, January 15, 2011, <http://www.nytimes.com/2011/01/16/world/middleeast/16stuxnet.html>.
- 3 On bridging air-gapped systems, see James P. Farwell and Rafal Rohozinski, “Stuxnet and the Future of Cyber War,” *Survival: Global Politics and Strategy*, January 28, 2011, <http://dx.doi.org/10.1080/00396338.2011.555586>.
- 4 The Russian example was mentioned by Richard Clarke, a former National Coordinator and Special Assistant for Counterterrorism, Security, Global Affairs, and Cyber Warfare, in a speech at the Naval Postgraduate School on August 17, 2010. Barbara Honegger, “Former Counterterrorism Czar Richard Clarke Calls for New National Cyber Defense Policy to Prevent a Cyber 9/11,” Naval Post-Graduate School website, <http://www.nps.edu/About/News/Former-Counterterrorism-Czar-Richard-Clarke-Calls-for-New-National-Cyber-Defense-Policy-to-Prevent-a-Cyber-9/11-.html>. On air defenses, see Eric Schmitt and Thom Shanker, “U.S. Debated Cyberwarfare in Attack Plan on Libya,” *New York Times*, October 17, 2011, <http://www.nytimes.com/2011/10/18/world/africa/cyber-warfare-against-libya-was-debated-by-us.html>.
- 5 For integration of cyber warriors into regular combat missions, see Tom Gjelten, “Pentagon Goes on the Offensive Against Cyberattacks,” *National Public Radio*, February 11, 2013, <http://www.npr.org/2013/02/11/171677247/pentagon-goes-on-the-offensive-against-cyber-attacks>.
- 6 Timberg and Nakashima, “Chinese Cyberspies have Hacked Most Washington Institutions, Experts Say.”

- 7 The \$300b estimate and quotation come from “IP Commission Report,” IP Commission, May 2013, http://ipcommission.org/report/IP_Commission_Report_052213.pdf; James A. Lewis, a senior fellow and director of the technology and public policy program at the Center for Strategic and International Studies, has taken issue with the estimate. See James Andrew Lewis, “Five Myths about Chinese Hackers,” *Washington Post*, March 22, 2013, http://articles.washingtonpost.com/2013-03-22/opinions/37923854_1_chinese-hackers-cyberattacks-cold-war.
- 8 Some have put forward more modest proposals, like British Foreign Secretary William Hague, who in his speech to the Munich Security Conference in February 2011 suggested that the widespread threat of cyber weapons requires a “global response,” whereby countries would agree to certain standards of behavior on the internet. See “William Hague: UK is under Cyber-Attack,” *BBC News*, February 4, 2011, <http://www.bbc.co.uk/news/uk-12371056>. Similarly, the June 2013 summit between China’s President Xi Jinping and President Obama in California sought to create more informal understandings on cyber warfare and espionage between the two countries, though seemingly with little success. Alternatively, the EastWest Institute proposed ways to adapt previous conventions (e.g., Geneva Conventions) to the cyber age. See Karl Frederick Rauscher and Andrey Korotkov, “Working towards Rules for Governing Cyber Conflict: Rendering the Geneva and Hague Conventions in Cyberspace,” EastWest Institute, 2011.
- 9 Convention on International Information Security, <http://www.mid.ru/bdomp/ns-osndoc.nsf/1e5f0de28fe77fdcc32575d900298676/7b17ead7244e2064c3257925003bcbcc!OpenDocument>. See also Louise Arimatsu, “A Treaty for Governing Cyber-Weapons: Potential Benefits and Practical Limitations,” in *2012 4th International Conference on Cyber Conflict*, eds. C. Czosseck, R. Ottis, K. Ziolkowski (Tallin: NATO CCD COE Publications, 2012), <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6243968>.
- 10 Lee Taylor, “Cyber Warfare Technology will be used by Terrorists, says Eugene Kaspersky,” *Perth Now*, May 22, 2012, <http://www.perthnow.com.au/technology/cyber-warfare-technology-will-be-used-by-terrorists-says-eugene-kaspersky/story-fn7bsj10-1226363625940>. See also Andrew Colley, “Cyber Weapons Conventions Needed, Kaspersky tells CeBIT,” *The Australian*, May 22, 2012.
- 11 Senator Feinstein’s remarks, as prepared for delivery, February 2, 2010. See <http://www.feinstein.senate.gov/public/index.cfm/2010/2/909a405b-5056-8059-7671-b791002862e1-post>.
- 12 Honegger, “Former Counterterrorism Czar Richard Clarke Calls for New National Cyber Defense Policy to Prevent a Cyber 9/11.” Brackets are in original article.
- 13 The allusion was made by Frank Langfitt, “U.S. Security Company Tracks Hacking to Chinese Army Unit,” *National Public Radio*, February 19, 2013, <http://www.npr.org/2013/02/19/172373133/report-links-cyber-attacks-on-u-s-to-chinas-military>.
- 14 Jane’s Defense Weekly, *Jane’s US Chemical-Biological Defense Guidebook: Comprehensive Resource for Chemical and Biological Agent Weaponization and Emergency Response* (United Kingdom: Jane’s Information Group Limited, 1998).
- 15 Declaration of St. Petersburg, November 29, 1868.
- 16 Historical agreements can be found at the International Committee of the Red Cross website: <http://www.icrc.org/applic/ihl/ihl.nsf/vwTreatiesHistoricalByDate.xsp>.

- 17 The website of the Organisation for the Prohibition of Chemical Weapons, <http://www.opcw.org/chemical-weapons-convention/about-the-convention/genesis-and-historical-development>.
- 18 Price and Tannenwald argue that the taboo had an important impact in preventing CW use. See Richard Price and Nina Tannenwald, "Norms and Deterrence: The Nuclear and Chemical Weapons Taboos," in *The Culture of National Security: Norms and Identity in World Politics*, ed. Peter Katzenstein (Columbia University Press, 1996), pp. 114-52.
- 19 On BW use, see the interview (undated) with Jeanne Guillemin, author of *Biological Weapons: From the Invention of State-Sponsored Terrorism to Contemporary Bioterrorism*, Columbia University Press, <http://cup.columbia.edu/static/Interview-Guillemin-Jeanne>. Regarding CW, this section benefited greatly from Frederic J. Brown's *Chemical Warfare: A Study in Restraints* (Princeton, NJ: Princeton University Press, 1968), pp. 198-240.
- 20 As quoted in Brown, *Chemical Warfare*, p. 201. The statement was sent to the President by the Department of State on June 3, 1942.
- 21 Ibid., p. 235. For two contrasting views on why the norm held in World War II, see Jeffrey W. Legro, "Which Norms Matter? Revisiting the 'Failure' of Internationalism," *International Organization* 51 (1997): 31-63; and Price and Tannenwald, "Norms and Deterrence: The Nuclear and Chemical Weapons Taboos."
- 22 Napalm, phosphorus shells, and other weapons not classified as CW in the CWC have been used on occasion elsewhere.
- 23 Michael Horowitz and Neil Narang, "Poor Man's Atomic Bomb? Explaining the Relationship between Weapons of Mass Destruction," *Journal of Conflict Resolution* 57 (November 2013), online, appendix tables 1-2.
- 24 Twenty-three countries sought chemical weapons and ten sought biological weapons. Those who began pursuing CW in the 1970s or 1980s were: Argentina, Syria, Vietnam, Libya, Ethiopia, Taiwan, Afghanistan, Pakistan, Saudi Arabia, Angola, Iran, Brazil, Chad, Chile, Indonesia, Japan, Laos, Mozambique, Peru, Philippines, Somalia, Thailand, and Burma. Those who began pursuing BW in those years were South Africa, Libya, Cuba, Bulgaria, the USSR, Iran, Iraq, North Korea, Laos, and Vietnam. See tables 1 and 2 in Horowitz and Narang, "Poor Man's Atomic Bomb."
- 25 See also Horowitz and Narang, "Poor Man's Atomic Bomb." However, in practice, neither weapon really substitutes for a nuclear weapon. Chemical weapons in particular are not likely to be a good deterrent against a country armed with nuclear weapons because most countries that can afford nuclear weapons can also afford to give their militaries and citizens gas masks. Actually, chemical weapons are most effective against poor countries with large, compact populations, and underequipped troops (e.g., Iran in the 1980s). This point is made by Matthew Meselson, "Implications of the Kuwaiti Crisis for Chemical Weapons Proliferation and Arms Control," *Chemical Weapons and Security in the Middle East: Proceedings from a Congressional Briefing*, ed. Eric H. Arnett, American Association for the Advancement of Science Program on Science and International Security, Washington, DC, 1990, p. 16.
- 26 In 2002, videotapes emerged that showed al-Qaeda had successfully developed and tested cyanide and sarin. Nic Robertson, "Tapes Shed New Light on Bin Laden's Network," *CNN*, August 19, 2002, <http://www.cnn.com/2002/US/08/18/terror.tape>.

- main/. In 1984, a religious cult called the Rajneeshee contaminated the salad bars in one Oregon county with salmonella. The plot led to 751 people becoming ill, but no one died. The second instance of BW was in 2001, when anthrax was sent in the mail on several occasions, but here as well, there were only 18-22 infected and five deaths. Ely Karmon, "Are the Palestinians Considering Biological Weapons?" ICT website, August 14, 2001, <http://www.ict.org.il/articles/articleDet.cfm?articleid=376>. On the 2001 anthrax attacks, see "FBI Renews Search in Anthrax Probe," *CBS News.com*, December 12, 2002, <http://www.cbsnews.com/stories/2002/09/04/national/main520719.shtml>.
- 27 Karmon, "Are the Palestinians Considering Biological Weapons." However, recently, biological and chemical sciences have developed considerably. As a result, actors can now develop and manufacture more toxic, durable, and deadlier agents than ever before, at the same time that production has become both simpler and cheaper. In biology, the genetic engineering revolution, biotechnology, and "synthetic biology" allow the production of deadlier micro-organisms with relatively little expense and simple means. This development is a major challenge in defending against and preventing the proliferation of chemical and biological weapons.
- 28 President Richard Nixon, "Statement on Chemical and Biological Defense Policies and Programs," November 25, 1969, http://en.wikipedia.org/wiki/Statement_on_Chemical_and_Biological_Defense_Policies_and_Programs; Judith Miller, Stephen Engelberg, and William Broad, *Germes: Biological Weapons and America's Secret War* (New York: Simon & Schuster, 2001). See also interview with Jeanne Guillemin.
- 29 Miller, Engelberg, and Broad, *Germes*; Phillip M. McCauley and Rodger A. Payne, "The Illogic of the Biological Weapons Taboo," *Strategic Studies Quarterly* 4 (2010): 6-35; and Tom Mangold, *Plague Wars: The Terrifying Reality of Biological Warfare* (New York: Macmillan, 1999).
- 30 For these reasons, the United States has led the opposition to a verification regime. Countries critical of America's stance claim that it is motivated mainly out of fear that verification would expose its supposed clandestine biological warfare activity which contradicts the BTWC. Despite the US objection to the verification regime, it is very supportive of the BTWC, arguing that the best way to implement the treaty is by prompting internal legislation in the member states, and by promoting and implementing defense and disease prevention. This is to be done by developing health and medicine systems, promoting interstate cooperation, and assisting developing countries – steps already taken by the United States. See, for instance, President Obama's National Strategy for Countering Biological Threats published in December 2009, http://www.whitehouse.gov/sites/default/files/National_Strategy_for_Countering_BioThreats.pdf.
- 31 Daniel Feakes, Brian Rappert, and Caitriona McLeish, "Introduction: A Web of Prevention?" in *A Web of Prevention: Biological Weapons, Life Sciences and the Governance of Research*, eds. B. Rappert and C. McLeish (London: Earthscan, 2007), p. 6, <https://ore.exeter.ac.uk/repository/bitstream/handle/10036/31457/9781844073733.pdf?sequence=1>.
- 32 As of January 2014, according to the website of the Organisation for the Prohibition of Chemical Weapons: <http://www.opcw.org/about-opcw/member-states> and <http://www.opcw.org/about-opcw/non-member-states>.

- 33 Brown (forthcoming) attempts to estimate this using W-NOMINATE, leveraging state signing decisions on other treaties, along with signing decisions of other states on the treaty in question, plus data on compliance for all states to estimate how much signing either document actually impacted on state behavior.
- 34 Based on data by Horowitz and Narang, “Poor Man’s Atomic Bomb.”
- 35 We believe the overwhelming importance of this factor is consistently underestimated by experts. For instance, Louise Arimatsu has written in “A Treaty for Governing Cyber-Weapons”: “At its most basic, the different approaches pursued [by the US and Russia] are primarily, although not exclusively, a reflection of the different ideological viewpoints on the role of the State. A supplementary reason driving Russia’s ambitions for an international cyber arms control treaty (and one that must not be under-estimated) is its perceived inferiority in field of communications technology,” p. 5. Our point is that Russia’s inferiority is not a supplementary reason for its leading the charge on a cyber convention while America drags its feet – it is *the* reason.
- 36 When one considers the difficulties the IAEA has had convincing countries about the nefarious programs of countries like Iran about its nuclear program – a relatively straightforward and clear program – then it is impossible to imagine an effective inspection regime convincing other countries that a cyber program was violating an agreement.
- 37 Rauscher and Korotkov, “Working towards Rules for Governing Cyber Conflict,” p. 8.
- 38 Henry Maine, “Lecture VII: The Mitigation of War,” Lectures on International Law, Project Avalon, http://avalon.law.yale.edu/19th_century/int07.asp. Richard Price, in contrast, argues that there is nothing inherent about the weapons themselves that led to the ban of these weapons, as opposed to the use of, for instance, flame throwers. Richard M. Price, *The Chemical Weapons Taboo* (Ithaca: Cornell University Press, 1997).

Controlling Robots: It's Not Science Fiction

Liran Antebi

Introduction

New weapons appearing on the battlefield often give rise to discussion on the legality and morality of their use. This is also the case with unmanned systems, which are becoming more prevalent on the modern battlefield. The United States and Israel, the leading countries in the development and use of these systems, benefit from their various inherent advantages, including increased precision and reduced loss of human life (both soldiers and innocent civilians). For these and other reasons, there has been increasing development and use of these tools by the armed forces of many states, and recently, by violent non-state actors as well.

The development and use of unmanned systems, some of them robotic, is an established and at this point inevitable fact. Yet notwithstanding its many advantages, this advanced technology also raises concerns and questions in moral, legal, social, and other spheres. More than anything else, the autonomy of some of these tools – their ability to carry out tasks independently, without human intervention – is what arouses the greatest fears and opposition, and has even encouraged an initiative by international organizations to promote restrictions or prohibitions on their development, use, and trade.¹

The need to restrict use of these tools is discussed mainly by human rights experts, and there is a lack of serious, professional discussion that takes into account the unique nature of this technology and its accelerated and beneficial development in the civilian realm as well as in the military. This one-sided discussion has led to a situation in which on the one hand there is a general campaign of intimidation against the technology, and on the other hand, its development has continued in various places without oversight in a manner that could allow it to become dangerous. This dissonance raises

the question of whether military robots should be restricted and whether it is sufficient to restrict their use in the military context without restricting it in the civilian context.

This article describes the issues that are the basis for opposition to the use of unmanned systems, including robots, for combat purposes, and cautions that the unique nature of this technology renders control of its use in the military ineffective in the absence of restrictions on its use for civilian purposes. If it is decided to place restrictions on this technology, more comprehensive and far-reaching steps will be needed than those that are customary for other types of weapons. In other words, new tools are needed for arms control and restriction.

The Robotic Revolution

In the past two decades, in the wake of technological developments and the miniaturization of powerful computing capabilities, the use of unmanned systems and robots has greatly increased in a variety of fields: in industry, medicine, and transportation, in the home, and on the battlefield. Since about 2000, there has been a significant increase in the use of unmanned systems, mostly aircraft, in warfare. These tools do not always meet the accepted definition of “robots,” but there is often a failure to distinguish between them. While some disagree on the definition, the accepted definition of an unmanned platform is “an air, land, surface, subsurface, or space platform that does not have the human operator physically onboard.”² A robot is also an unmanned platform, but in order to fit the definition of a robot, a system must have three key components: sensors, processors, and effectors.³ These components allow the robot a certain amount of autonomous action. This is in contrast to an unmanned platform that may need an operator and is not capable of any independent activity in a changing environment.

Unmanned tools have a variety of advantages. Among these are the fact that they reduce and sometimes even eliminate the risk there would be to a human being in carrying out an action; they are usually more accurate than their manned counterparts; and in some cases, because their operation does not entail a physical or physiological burden, they make possible a variety of actions that could not be carried out in the past by means of manned systems. Their many advantages have led to their increased use; a prominent example is the increase between 2005 and 2012 in the number of countries employing unmanned aerial vehicles, from forty to more than seventy-five.⁴

The United States is at the forefront of increased use of unmanned platforms on the battlefield, some of them robotic, and has deployed a large number of such systems over the past two decades. Their use is especially prominent in air warfare against terrorist organizations in Afghanistan, Pakistan, and Yemen, where unmanned aerial vehicles have been used extensively for missions of surveillance, intelligence gathering, and attacks on targets on the ground. As of 2010, the United States possessed 12,000 unmanned ground systems and more than 8,000 unmanned aerial vehicles.⁵ In the same year, the ratio of robots to US troops in the battlefield in Afghanistan was 1:50 (one robot to every fifty soldiers), and it has been reported that it is likely to rise within a few years to 1:30.⁶

Notwithstanding this significant increase, the use of unmanned platforms is not free of ethical dilemmas and issues, particularly in regard to remote operation that is risk-free for the operator. The following ethical question hovers over this trend: Is it appropriate to fight with such extreme asymmetry, with one side exposed and vulnerable in the battlefield, and the other side striking from a remote and protected position? Questions concerning the use of autonomous systems that operate without any human involvement and that can cause loss of human life are even more complex. There are those who claim that such actions are not fair or dignified, that they are cowardly, or that it is not sportsmanlike to attack the enemy from a protected location, whether with planes or submarines or unmanned systems. However, according to international law these are not illegal acts.⁷

Autonomy

Autonomy in unmanned systems is the ability of a system to carry out a task independently, without human intervention, and can be divided into four main levels: systems that are remotely but completely human operated and are therefore not autonomous at all; systems capable of carrying out very specific operations relatively independently; systems capable of performing a variety of activities independently under human supervision; and systems that barring initial activation are completely independent and do not require the intervention of a human operator to carry out their mission (although a human operator can intervene and influence events if necessary, for example, by ordering that the mission be aborted).⁸

Of the elements noted earlier that define a robot, what in fact enables autonomous activity more than anything else is the computing capabilities

of the computer processor. Algorithms (computerized instructions on how to perform a task or tasks) are usually responsible for the actions of an autonomous system. Software-based, this capability is therefore fundamentally a cyber (computational) capability, and in a world of cyber threats, there is a risk of its being stolen or hacked into or disrupted as a result of a malfunction. Nevertheless, when tools are developed by serious companies under the supervision of the countries ordering them, we can rationally assume that the required steps are taken to protect them from possible threats, although malfunctions do sometimes occur.⁹

Most of the systems in use today in the service of modern armies are autonomous to a limited extent only. In other words, a high level of human intervention is needed to operate them. For example, the American Predator (an unmanned aerial vehicle), used for attacking targets on the ground (since 2012, mainly in Afghanistan), controls and supervises landing, takeoff, and time in the air with a certain level of autonomy. However, planning of the mission, identification of the target, and the attack itself are guided and controlled by a human operator from a control room on the ground (located usually within the United States, while the aircraft flies in another country).

While most military unmanned systems today are remotely controlled, there are a limited number of completely autonomous systems that have the ability to choose their targets independently, without human intervention. These systems are either very simple or highly sophisticated. Examples of the latter include the American Patriot and the Israeli Iron Dome, anti-missile defense systems that identify their targets independently and use algorithms to calculate independently the most effective way to strike. (These systems raise almost no objections, apparently because they do not operate against human beings.) There are very few such systems active in the battlefield today, and most of them actually require the approval of a human operator to carry out an action.

In contrast, most autonomous systems choose targets by identifying movement, heat, or other relatively simple parameters. Thus, for example, using heat and motion sensors, South Korean robots in the demilitarized zone between South and North Korea can identify and shoot people without human intervention.¹⁰ Most of these systems are able to be more selective in choosing their targets than, for example, land mines, which make no distinction between targets, and therefore are prohibited by the United Nations Convention on the Prohibition of the Use, Stockpiling, Production,

and Transfer of Anti-Personnel Mines and on their Destruction, which has been signed by 139 countries.¹¹ Likewise, unmanned aerial systems, for example, are considered to be different from missiles, even guided missiles, mainly because they can be used more than once, but also because of their ability to be selective about their targets.

According to publications on this topic, lethal autonomous robots exist today in the United States, Israel, South Korea, and Great Britain, and will soon be used by technology leaders such as China and Russia.¹² These systems evoke the greatest opposition by human rights groups and other organizations, which object to the use of robots in the battlefield and are at the forefront of the struggle to ban their use.

Objections to Autonomy

In November 2012, Human Rights Watch, in collaboration with the International Human Rights Clinic at the Human Rights Program at Harvard Law School, published a report called *Losing Humanity: The Case against Killer Robots*, which calls for a ban on the use of killer robots and for outlawing the use of armed autonomous systems on the battlefield. The report was accompanied by a widely publicize international campaign.

The authors of the report state that within twenty to thirty years, there may be fully autonomous weapons that will be able to select their targets without human intervention, and that in spite of claims by military officials that human beings will always remain involved in the process, the direction of technological development indicates that this is not the case.¹³ The report's authors claim that the absence of human intervention in the decision making process on the use of lethal force in armed conflict will deny civilians existing non-legal protective mechanisms that derive from human qualities such as compassion and empathy, lacked by robotic tools. This, they claim, could lead to increased harm to innocents.¹⁴

Another organization prominent in the opposition to armed robotic systems is the International Committee for Robot Arms Control (ICRAC). Members of the committee, which was established in September 2009, have called on the international community to launch an urgent discussion on an arms control regime for unmanned systems. They propose to address the following topics: the potential of these systems to lower the threshold for armed conflicts; a ban on the development, deployment, and use of armed autonomous systems, because machines should not make the decision as

to whether to kill people; limitations on the range of unmanned systems by adding an element of human involvement in their operation; a prohibition on arming unmanned systems with nuclear weapons; and a ban on the development, deployment, and use of robotic weapons in space.¹⁵ ICRAC's recommendations call on the leading countries in the field to institute self-imposed restrictions, or alternatively, for the international community to lead the move for restrictions. The first report even addresses an appeal to engineers and developers to apply ethical rules to their own work.

The ICRAC's reservations are legitimate but problematic. Both the report and the committee completely ignore the fact that if autonomy presents such a great danger, then the military realm and its subsets of human rights and the laws of war are only the tip of the iceberg; given the development of autonomy in many other areas, including transportation, industry, the home, medicine, nano-robots, and civilian aviation, it could spill over into military applications even if these are subject to restrictions.

The fact that only officials from the fields of human rights and military affairs are discussing the matter and highlighting its importance may obscure other urgent issues. The most conspicuous example of this is displayed by the United Nations. The UN is the most important international organization with the ability to coordinate handling of issues such as weapons restrictions. However, two UN committees that deal with unmanned aerial vehicles and robots are led by people from the field of human rights and address the issue from the point of view of defending innocents. Their perspective is largely limited to the battlefield, and does not take into account the challenge of monitoring the development of autonomy in other areas.

What follows are a number of highly pertinent facts not noted in these reports that should not be overlooked:

- a. There is currently nothing in international law or any other framework that would enable restrictions or a total ban on the arming of states. The international arena is violent by nature, and therefore, superiority in weaponry is not only completely legal but also necessary for military forces.¹⁶ Given this, as long as weapon systems are used subject to international law or are not banned specifically in conventions or in customary law, they are entirely legal. As of 2013, attempts by various organizations and officials to assert that unmanned systems are illegal have been based mainly on their extensive use in the war on terror for the

- purposes of targeted killings. The dispute surrounding the ethical aspects of such killings is not connected to the weapons used to carry them out.
- b. Autonomous systems are programmed by human beings and carry out commands as given to them by these human beings. If they are programmed with the necessary attention to minimizing malfunctions and the commands are given in accordance with the appropriate laws, they might even reduce the harm to innocents because they are more precise and faithful to instructions than a human soldier.¹⁷
 - c. In spite of the multiplicity of asymmetric conflicts and battles in urban areas over the past two decades, not every battlefield contains civilians, is located near civilians, or endangers civilians. Therefore, the attention to the risks to innocents greatly reduces the scope of the overall discussion.¹⁸
 - d. The various organizations dealing with this subject ignore the uniqueness of the technology and the fact that autonomous properties, like chemicals or nuclear capability, have a dual use, military and civilian. However, autonomous properties are likely to be simpler to transfer or to steal because they are partly computational, rather than physical. A restriction upon autonomy, and within autonomy, upon the learning abilities of weapon systems, is not sufficient because this feature may be imported or stolen from other applications and easily implemented in violent ways.
 - e. The current trends in unmanned technologies toward reduced costs and increasing availability are having a favorable effect on civilian robotics and enabling almost any household to have a robot. This could also mean that in the future there will be autonomous capabilities that could spill over from non-military uses and reach those who ignore the laws of warfare and international law, such as violent non-state actors and others. Anyone with internet access and a credit card has the capability to purchase a range of unmanned aircraft for personal use, without supervision or control. In some cases, it is possible to purchase components that could, with home customization and assembly, produce tools that are banned for sale by multi-state regimes that aim to limit the export of unmanned aircraft. Examples of these regimes are the Missile Technology Control Regime (MTCR), which has thirty-four signatories, and the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, which has forty-one. Both are based on an agreement by the signatories to restrict the export of sensitive technologies

that appear on the restricted list, including technologies for producing missiles and unmanned aircraft.¹⁹

An additional problem with these requirements and with the UN committees investigating the use of unmanned aircraft and restricting the use of combat robots is that the organizations that have taken action on this issue have succeeded in persuading various elements, including international public opinion and decision makers, that these tools are more dangerous than manned systems used today in violent conflicts. The problem stems from the fact that these systems are used today mainly by democratic countries in their war on terror. Therefore, attention is diverted from the discussion of the technology itself and the risks it involves, to a discussion of targeted killings and possible harm to innocents. This sometimes results in self-imposed restrictions in democratic countries, precluding an orderly development of international policy on the issue for the good of humanity, led by the pioneering countries in this field.

Arms Control and Restriction of Weapons in the Field of Robotics ***The Problematic Nature of Legal Restrictions***

Article 36 of Protocol I of the Geneva Convention states:

In the study, development, acquisition or adoption of a new weapon, means or method of warfare, a High Contracting Party is under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party.²⁰

Although one can argue about the interpretation of this article or even about the classification of armed autonomous systems as new weapons, means, or methods of warfare, this does not require a decision that using them is prohibited in some or all circumstances.

Weapons and various means are generally restricted because they do not conform to the laws of warfare or to the principles of ethics and morality in the battlefield as defined throughout history. Nevertheless, in order to make a restriction legal, it is necessary to receive the consent of states, as reflected in their signing and ratification of treaties. The interest of these countries is usually a result of domestic pressure due to their liberal democratic foundations, or a desire to avoid prolonged, costly arms races (as with the

agreements signed between the United States and its allies and the Soviet Union and its allies in the late stages of the Cold War).

Nonetheless, even in cases in which there is relatively broad agreement there is not always a consensus. A good example of this is the ban on the use of land mines. The use of these lethal weapons was restricted because they completely lack the ability to distinguish between targets, and they can cause serious harm to innocents. In addition, they have a long term impact that remains even after violent conflicts have ended (as seen in the cases of land mines in the Middle East and in Africa). However, not all countries in the world are signatories to the relevant convention, and they cannot be forced to sign.

In order to make restrictions effective, it is also necessary to monitor their implementation once they are agreed upon. This is problematic in and of itself because of the lack of a sovereign in the international arena. Thus, for example, implementation of the Nuclear Non-Proliferation Treaty (NPT) is overseen by the International Atomic Energy Agency (IAEA), but as evidenced in the past decade in the cases of North Korea and Iran, in order for these restrictions to be effective, there is a need for every state to cooperate. A sovereign state may choose not to cooperate with treaties and restrictions, and the chances that international sanctions, particularly violent sanctions, will be imposed on it are slim. Furthermore, a long time is required for approval to set sanctions in motion and to carry them out, sometimes longer than the time to develop and acquire the capability itself in a manner that is not reversible.

In addition to the international restrictions that states accept of their own volition, particular states are restricted or adopt restrictions for themselves. Sometimes restricted states lack the technological or economic capability to develop a particular system, and they forego it or purchase what they are able and what other states agree to sell them. The self-imposed restrictions of states sometimes result from international pressure, but usually, they stem from a mood prevailing in the country. This generally happens in liberal democratic states in which some of the public, influential and articulate, is relatively opposed to the use of violence internationally or believes that an investment in these areas will come at the direct expense of other areas such as welfare, education, or health, which in their view are more important. The most influential factor in states' restrictions on themselves is public opinion, which stems from concern for human rights and opposition to the

use of certain methods. A clear example of this is the set of restrictions that the US Department of Defense placed on itself in the area of autonomous weapon systems in November 2012.

US Restrictions and their Disadvantages

Given the small number of international restrictions on unmanned systems today, the limitations the United States has placed on itself concerning autonomous weapon systems is particularly noticeable. The United States, which is the leading country today in the development, manufacture, and use of robots in the battlefield, imposed restrictions on itself in response to published reports, the campaign to stop killer robots, and media coverage on the subject. According to directive number 3000.09 of the US Department of Defense, published on November 21, 2012, a relatively short time after publication of *Losing Humanity*, US forces will not purchase or make use of autonomous weapon systems that do not involve a human being in the cycle of operation.²¹

Despite the good will that is perhaps implicit in this declaration, it cannot truly restrict the field of autonomous weapons for a number of reasons. First, the directive applies only to US forces under the Department of Defense, and therefore, it is not binding on other states or organizations in the international sphere. Second, the directive concerns only “purchase and use,” and therefore it does not prevent the development and production of such systems. This allows commercial companies, even if they are American, to continue to work on development and to sell to anyone not subject to the DoD, and also to be prepared with off-the-shelf products in the event that the DoD changes its mind and cancels the directive. Third, the directive addresses only weapon systems, and therefore it does not apply the restrictions to autonomous systems in a general way. This does not eliminate the risks of development of autonomous systems without oversight or the risk of leakage between fields and between countries. Finally, the main problem with this directive is that it creates an appearance of restriction and established procedures when in fact, it deals only with a specific point; it thus has no real ability to have an impact, even in the narrow domain it purports to address.

Given the difficulty in creating international restrictions and the problematic nature of specific restrictions, the question becomes clear: Is it perhaps worthwhile to leave the field open, to cancel all existing restrictions (such

as the MTCR, for example) and to allow an arms race and the creation of a deterrence-based balance of terror, as during the Cold War?

The Lethal Potential of an Arms Race and a Deterrent Balance

During the Cold War, there were scholars and statesmen who believed that more is better. The most prominent representative of this idea was the neo-realist scholar Kenneth Waltz, who claimed that given the existence and inherent risks of technology, widespread proliferation of nuclear weapons among states should be permitted because it would lead to a better balance of deterrence and thus increase the chances of preventing wars in general, and the use of nuclear weapons in particular.²²

This approach is less appropriate in the case of robot technology because of risks that today resemble science fiction but are beginning to take hold in reality. In contrast to weapons dependent on nuclear fission, autonomous robotic technology is developing in a variety of civilian fields as well. In order to develop algorithms that will allow a tool to function independently and also to learn to improve its performance, there is no need for centrifuges and large, costly facilities, only for computer know-how and technologies that are becoming less and less expensive. Given the fact that today this field is wide open and not restricted, there is a risk that learning capabilities will be programmed irresponsibly and that independent development will slip out of control.

One could claim that even with atomic, biological, or chemical materials (for purposes of war or peace) there are risks that do not stem from their use as weapons, but from the chance of a technical malfunction or poor maintenance and the potential for theft. These are real risks, but they are fundamentally different from the risks inherent in robotics. First, technologies from non-military autonomous systems may leak into weapon systems. Second, autonomous systems, military or non-military, may slip out of control as a result of faulty programming and harm people. Third, a remote takeover (through cyber warfare) may occur that will turn the system against its operators or against people who were not its original targets,²³ since even in the event of a remote takeover of autonomous machines or medical robots, serious damage can be caused to human beings.

Modifying Existing Arms Control Tools for Use in Robotics

There are three leading treaties today in the field of arms control and prevention of the proliferation of nonconventional weapons: nuclear weapons (NPT, 1970), chemical weapons (Chemical Weapons Convention, 1993), and biological weapons (Biological Weapons Convention, 1975),²⁴ and these are supplemented with additional treaties. There is also a customary law that has been established in international relations over decades. Although there is no sovereign in the international arena, nations have agreed throughout history to restrict or prevent use of various weapons, whether voluntarily or for purposes of maintaining a balance in the international system, or as a result of economic and other constraints. These longstanding tools were relatively good for the weapons in use until now, but even then, they were highly dependent on cooperation among states. In spite of the long history of these tools, experts in the field acknowledge that the effectiveness is limited even among states, and all the more so in restricting terrorist organizations or criminal elements.²⁵ The field of robotics (and the cyber realm), given that they are based on software, will pose an even greater challenge because of their leakage capabilities and the difficulty in monitoring their development.

Anyone who believes that existing arms control tools – such as treaties, survey committees, and partial commitment by internationally prominent states – are suited to the new era must attempt to answer the following questions: Will states agree to sign on restrictions on autonomous systems and artificial intelligence, which have tremendous economic potential? How can an agency on the model of the IAEA monitor the proliferation of autonomous robots for industrial or medical purposes, which could, with only small modifications, be turned into armed robots? And how is it possible to contend with leakage of such technologies to violent non-state organizations in the context of decreasing costs and the greater availability of technologies generally?

Anyone who believes that it is a positive development for leading countries to restrict themselves, as with the directive of the US Department of Defense, should understand that these are isolated cases, and that their impact in the long term could be negative. This is because they do not achieve a proper solution to the problem, but create the appearance of a solution and allow prominent countries to avoid appropriate confrontation of the problem.

The biological and chemical conventions, together with the NPT, are the leading channels today for restriction of weapons. In spite of the vast

differences among these three fields, the restrictions work similarly. They are based on agreement by states and on monitoring and inspection of military and civilian facilities.²⁶ Although these fields have civilian applications, with some of the biological and chemical components readily available in the civilian market, they are still significantly different from robotics, where the serious risks are in the software, which creates artificial intelligence capabilities.

We can learn a great many lessons from the history of these treaties: on building confidence, on building control mechanisms, and on dependence on the good will of states that are conspicuous for their power in the international arena, such as the United States and Russia. Nevertheless, it is important to understand that aside from the fact that biological, chemical, and even nuclear weapons have a longer history in the battlefield and that the restrictions on them began only after the problematic nature of their use was proven in practice, their economic potential is relatively small compared to that of robots. In the past decade, there has been constant growth in the various markets for robotics, which is a relatively new field.²⁷ Another significant difference is the ability of individuals to do work in this field at home, making monitoring and detection more difficult.

Therefore, an in-depth examination of the subject is warranted, not in connection with committees on human rights, but in order to address broader and deeper aspects. It is prudent to understand the similarities and differences between chemical, biological, and nuclear weapons, while addressing the essential differences between these weapons and robotics, in order to acquire new tools for coping with the new problems that the robotic future is liable to present.

Conclusion

We are in a new era of the battlefield, one in which robotic tools are capable of using lethal force and taking human life autonomously, without human intervention. Unmanned systems, and robotic systems in particular, are playing an increasingly large role in military forces, and they will continue to develop in a variety of fields in which they are active today and spread to others as well.

The trends that enable proliferation of autonomous systems are also part of their inherent risk. The lower cost and greater availability of technologies could enable any person to purchase systems or assemble them using purchased

components, with the potential to inflict serious damage. Furthermore, more than other technologies, these systems have a dual use, civilian and military, and are easily converted from one to the other because they are computer based. This creates a real difficulty in placing restrictions on the technologies, significantly increasing their hazardous potential.

The ethical and moral questions raised by the use of armed autonomous systems grab much attention today, because those leading the campaign to limit or to outlaw the use of such systems are human rights organizations and scholars from the field of human rights who work at the UN. Their focus on harm to civilians diverts the discussion from even greater risks.

Countries that impose restrictions on themselves voluntarily, whether by means of internal directives or by multi-state agreements that lack an enforcement mechanism, perhaps soothe public opinion in the short term, but they adversely affect the chances of preemptive, in-depth treatment of this issue for the benefit of all of humanity. Consequently, it is preferable to stop treating this issue under the umbrella of human rights and the laws of warfare. Leading states and international organizations, and particularly the United Nations, should initiate an in-depth discussion on the future impact of robotic technologies on humanity in order to cope with the risks and enjoy the benefits. To this end, the international community should develop and apply new arms control tools, because the current ones are not suited to the age of robotics, an age that is no longer in the realm of science fiction.

Notes

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Nonconventional Deterrence between Three Parties: Lessons from the Gulf War

Avner Golov

The Spanish philosopher George Santayana said, “Those who cannot remember the past are condemned to repeat it.”¹ But Yehezkel Dror makes a no less valid point: drawing complete analogies between the present and past experience could lead us to ignore the particular circumstances characterizing the challenges of the present and damage our ability to confront them.² Because there is never full congruence between the past and the present, it is important to examine their similar and different conditions, and in light of this ask what we can learn from the past. This essay seeks to balance the two philosophical insights in studying the lessons of the triangle of nonconventional deterrence between the United States, Israel, and Iraq in the 1991 Gulf War and apply them to future cases of triangles of nonconventional deterrence.

A “triangle of deterrence” is a simple form of multilateral nonconventional deterrence, whereby three different parties concurrently use the threat of nonconventional capabilities attributed to them to deter at least one of the other two parties, giving rise to a situation in which three deterrent efforts are exerted simultaneously. The deterrence triangle that existed for many years between three nuclear powers – the Soviet Union, the United States, and China – is an example of the model. Were the nuclear nations of France, Great Britain, India, and Pakistan to have used their nonconventional capabilities to create deterrence against the three superpowers, the world would have had a state of multilateral deterrence. While this example is theoretical, meant to demonstrate the complexity of a multilateral deterrence model, changes in the international arena are making this model more relevant than it has ever been in the past.

The fall of the Berlin Wall in 1989 signaled the death knell for the bipolar condition that typified the Cold War era. In this world, the two nuclear superpowers – the Soviet Union and the United States – maintained a deterrence regime known as MAD (mutually assured destruction) to prevent escalation to nuclear war.³ The deterrence involved a Soviet nuclear threat to the United States and an American nuclear threat to the USSR. The world arranged itself around these poles, and nations were divided into American allies, Soviet allies, and the bloc of nonaligned nations. Virtually every crisis that occurred during the Cold War was overshadowed by the threat of nuclear war and was therefore affected by the bilateral nuclear deterrence between the United States and the Soviet Union.

The Cold War may be divided into three waves of theoretical development, during which three basic principles were formulated that are critical to the success of deterrence as a strategy:⁴

- a. The deterred side's decision making process⁵ must be guided by *strategic rationalism*, namely, a process of examining the utilities of various alternatives in an organized fashion and choosing the alternative with the highest utility level. This is a necessary condition, because potential threats issued by the deterring side are designed to raise the cost of a threatening action and reduce its value to the opposing side so that such an action will not pay off compared to other alternatives, especially when compared to maintaining the status quo.
- b. *Threat relay*: The deterring side must make sure that the other side understands exactly what the prohibited act is and that engaging in it will result in an intolerable punishment.
- c. *Threat credibility*: The threat must be seen as credible in order to have an effect on the deterred side's decision making process. If the deterred side views the threat as empty, the threat will have no effect on its decision making. This condition entails two components: the deterred side must believe that the deterring side has the capability to make good on its threats in practice and that it is determined to act if the deterred side engages in the prohibited act.

The professional literature dealing with deterrence maintains that all three conditions are necessary for deterrence to succeed and be stable, i.e., prevent unintentional and uncontrolled escalation. This conclusion served as the foundation for the strategy of deterrence between the United States and

the Soviet Union during the Cold War as well as the basis for the theoretical discussion of deterrence that has developed ever since.

Since the fall of the USSR and the weakening of America's hegemony, the world order has become multipolar rather than bipolar, i.e., many parties have varying capabilities though none has more power than the combined might of all the others. For example, alongside the economic and military force of the United States, Russia has regained some of its historic power since the rise of Vladimir Putin; China has become a global superpower; Japan, Turkey, and Iran have started to fill the regional void left by the waning of influence of the United States and the USSR in Asia and the Middle East, respectively. In this matrix, regional powers, small nations, and non-state entities have increased incentive to attain nonconventional military capabilities in order to upgrade their status and expand their ability to operate in a changing environment.⁶ Nations that were once under the auspices of one of the superpowers during the Cold War and are now trying to maintain or even enhance their regional power must develop independent means of deterrence to ensure maneuvering ability against the other players. This conclusion holds for both nations seeking to maintain independence vis-à-vis neighbors who are vying to become regional powers and non-state entities seeking to exploit the changes in the balance of power in order to expand their own reach. In such a multipolar and unorganized system, the appearance of multilateral models of deterrence becomes more likely.

However, despite the need for a broad, multi-layered review of nonconventional deterrence, the professional literature continues to focus on the traditional bilateral model.⁷ For example, the typology suggested by Thazha Varkey Paul, the efforts of the "fourth wave" of deterrence (in addition to the three that occurred during the Cold War) suggested by Jeffrey W. Knopf, and even the analysis by Suzanne Werner of the dynamics of what she calls "extended deterrence" in which Player A seeks to deter Player B from attacking Player C, all retain the classical bilateral approach.⁸ The few attempts made to study the multilateral model are mostly theoretical and are not based on past case studies.⁹ In light of the theoretical lacuna, this essay undertakes a specific case study – the 1991 Gulf War, which includes a trilateral model of nonconventional deterrence that represents a relatively simple model of multilateral deterrence. Expanding the analytical limits of the three fundamental principles of bilateral deterrence to the trilateral case poses three challenges; these will be examined for relevance and validity to

the case study. The essay will conclude with some policy recommendations based on the conclusions of the analysis about the current state of trilateral deterrence.

Triangle of Deterrence: The 1991 Gulf War

The 1991 Gulf War, known in common parlance as the First Gulf War, was the second stage of the Persian Gulf crisis, which started on August 1, 1990, when the Iraqi military invaded Kuwait and occupied the country. American President George H. W. Bush reacted by enlisting 34 nations, including some Arab states, in a coalition to liberate Kuwait. In light of the American threat, Iraqi President Saddam Hussein threatened that if he were attacked, he would attack Israel. Operation Desert Storm, designed to drive the Iraqi forces out of Kuwait, started on January 17, 1991. Immediately after the attack on Kuwait and Iraq, the Iraqi leader realized his threat and ordered conventional missile fire at Israeli cities. Saddam Hussein repeated his threats of April 1990 that he would also use nonconventional weapons against Israel.¹⁰ In response to the Iraqi threats, the American administration threatened to expand the attack on the Iraqi regime. Some of the American threats contained veiled references to nonconventional means for retaliating against Iraq for a nonconventional Iraqi attack on Israel. The Israeli government, headed by Prime Minister Yitzhak Shamir, also relayed threats that a nonconventional attack by Iraq would result in a similar Israeli response. As demonstrated in this essay, as part of Israel's vague policy of deterrence, the messages hinted that Iraqi use of chemical or biological weapons would serve as a reason for Israel to use the nuclear capabilities attributed to it. By the end of the fighting, 43 Iraqi missiles with conventional warheads would be fired at Israel; not a single missile fired carried a nonconventional warhead.¹¹

In the First Gulf War, there was a specific three-sided model of deterrence in which two players, with attributions of nuclear weapons, operated against a third player with chemical and biological WMD. The American administration and the Israeli government tried to deter the Iraqi leader from using WMD against Israeli targets.¹² Since then, many studies have analyzed the Israeli and American decisions aimed at deterring Saddam Hussein from attacking Israel during the war, especially with nonconventional weapons.¹³ These analyses usually assume that the Iraqi restraint was the result of Israel's policy of deterrence. Yet because "all deterrence is self-deterrence"¹⁴ in the eyes of the party one wants to deter, what is lacking is an analysis from

the point of view of the Iraqi leader: how did he interpret the Israeli and American messages, and how did they affect his decision not to fire missiles with chemical or biological warheads at Israel? Attention to these questions would enable analysis of the influence of the Israeli and American threats on Saddam Hussein's decision to avoid firing nonconventional missiles at Israel in 1991 and analyze the success of deterrence, specifically an analysis of the effect of the deterring party's threatening messages on the party being deterred.¹⁵

Iraqi documents obtained during the American invasion of Iraq in 2003 and recently released to the public allow a glimpse of the Iraqi decision making process and the effect that the American and Israeli threats had on it.¹⁶ These documents inform part of the "third leg" of the triangle of nonconventional deterrence in the First Gulf War and should provide an empirical, historical foundation for implementing two of the three fundamental principles of bilateral deterrence – threat relay and threat credibility – to the trilateral deterrence model.¹⁷

The First Challenge: Relaying a Coherent Message despite Different Understandings of the Strategic Situation

In bilateral deterrence, the major challenge is relaying a coherent message that will affect the matrix of considerations of the deterred side so that it will conclude that engaging in the prohibited act is not worthwhile. To achieve this it is necessary that there be coordination between the organizations and people in charge of generating and transmitting the messages of deterrence, establishing communication with the deterred side, and relaying a convincing message about the deterring side's ability and willingness to punish the deterred side should it engage in the prohibited act.¹⁸ In a triangle of deterrence, this key challenge is even harder. Not only does the deterring side have to transmit a clear, coherent message to the deterred player, but it must also do so in a way that matches the deterred side's understanding of a complex strategic situation. In bilateral deterrence, it is clear that each actor communicates only with the other, but in triangle of deterrence each actor communicates with two other players. If the deterred side views the other two as independent actors, it will distinguish between their messages. But if it believes the two are operating in concert against it, it will attribute the messages of Actor A also to Actor B. In such a case, the deterred side's assessment of the strategic situation and the relationship between the policy of the two players

facing it is a decisive factor in the deterring players' ability to maintain a clear, coherent message. The analysis is of course graduated and dynamic, affected by real-time events, rather than dichotomous or static. The closer the relationship between the two deterring parties is seen to be, the blurrier the distinction between them by the deterred side. The dynamics of the First Gulf War provide a clear demonstration of a state in which three players comprising one trilateral nonconventional model of deterrence arrived at different strategic assessments.

For the Iraqis, the triangle of deterrence between the three nations was in effect a case of bilateral deterrence between Iraq and its enemies that cooperated fully against it. An analysis of Iraqi documents indicates that Saddam Hussein hardly distinguished between Israel's policy and America's policy. For him, it was all a single entity, even if geographically divided into two, one close by and one far away. For example, in a meeting with a member of the Cuban National Defense Council in 2001, Hussein claimed that, "If Iraq had possessed long-range missiles [during the 1991 Gulf War], we would have hit the White House."¹⁹ Since he had no long range missiles, the Iraqi leader believed that attacking Israel was as almost attacking the United States.

Evidence of the close relationship the Iraqi leader attributed to the United States and Israel, not only in offensive aspects, lies in the explanation that Tariq Aziz, the Iraqi foreign minister, offered in a 1996 interview about the decision to attack Israel after the start of the NATO air strikes on Kuwait: "Israel was part and parcel of the military aggression against Iraq. They did not participate directly, openly, but they provided all support to the aggression against Iraq so...well, when you are attacked by an enemy, you attack your enemies."²⁰

Researchers David Palkki and Hal Brands examined the Iraqi documents and concluded that "because Saddam frequently failed to distinguish U.S. from Israeli policies, he held Israel largely responsible for the conflict and assumed hidden Israeli involvement."²¹ They explain that "Saddam was never entirely clear on whether the United States controlled Israel or vice versa, but he nevertheless perceived a dangerous nexus between U.S. power and Israeli ambitions. He argued that Israel had been 'created by colonialism,' and that Israel was merely 'an extension of the United States of America.'"²² Their research supports the assessment that in Iraq's mind there was almost total congruence between Washington and Jerusalem.

However, the Iraqi understanding of the link between Israeli and American policy was in no way similar to Israel's strategic perception of the triangle of deterrence. The Israeli leadership vacillated between near complete loss of trust in the American administration's willingness to work with Israel and ensure its security, and great wariness of the administration, while trying to force it – by threatening to operate independently – to promote Israel's interests during the fighting. Loss of trust was at the root of the doubt expressed by Foreign Minister Arens on the eve of the war about America's ability and willingness to undermine Iraq's threat against Israel. On December 24, 1990, the US State Department transmitted a message to Tel Aviv demanding that Israel suspend its security relations with South Africa at once. Arens recalls: "The very fact that, at this time, Bush and Baker bothered sending Israel such a message was for me a clear signal of a lack of sympathy and distrust on their part....The point – if there was indeed a point to this ruse – seems to have been to remind us that the administration was capable of embarrassing Israel publicly and that we'd better behave ourselves. It was a boorish, ugly move, typical of much of the diplomacy conducted by that administration towards Israel."²³

On January 16, 1991, the day before the war broke out, Arens wrote: "I wasn't at all sure about the ability of the Americans to take out the Iraqi missile threat against Israel. I was angry with their unwillingness to share with us with intelligence they had that was most critical for Israel, and I was frustrated by the lack of trust that was typical of their attitude to us."²⁴ Prime Minister Shamir, too, made his suspicions clear by sending frequent threats to President Bush that unless he acted to preserve Israel's security, Shamir would be forced to act contrary to America's wishes that Israel conduct itself with restraint. For example, in a phone conversation between Shamir and Secretary of State James Baker on January 15, 1991, the Prime Minister said that Israel had prepared a response to Iraqi fire.²⁵ In a letter forwarded to the President on January 22, 1991, Shamir demanded that the administration "step aside and allow Israel to retaliate."²⁶

To be sure, the cooling off of relations between Washington and Israel was apparent before the war. The Bush administration was busy constructing its anti-Iraq coalition and cooled its relations with the Israeli government as part of the effort to recruit Arab nations into that coalition. In part, the cooling off also stemmed from differences of opinion on the Palestinian question. The administration supported the international condemnation of Israel that

followed the suppression of the riots that broke out on the Temple Mount on October 13, 1990 and the United Nations declaration that Israel had no sovereignty over Jerusalem.²⁷ The deterioration in relations also stemmed from a lack of coordination between the two nations on intelligence issues and policies on the Gulf crisis. The Israeli sense was that the United States was not sharing the intelligence it had gathered on Iraq, including information about the missile threat to Israel, and that the American administration did not comprehend the Israeli fear of an Iraqi attack on Israel's cities, even going so far as to ridicule it.²⁸ In early December, Reuters reported on an Iraqi mid-range missile test. Arens estimated that "it was clear that the decision had been made not to provide us with this important information. I didn't think there was any excuse for this hypocritical behavior."²⁹ In other words, from Israel's perspective the triangle of deterrence had two independent parties cooperating up to a point in trying to deter a third party from taking action.

The tense relationship between Washington and Jerusalem resulted in an American assessment by the American leadership of the triangle of nonconventional deterrence that differed from the assessments made both in Israel and Iraq. The key concern in Washington was that an uncoordinated attack by Israel would threaten American efforts to establish a broad-based coalition against Iraq whose purpose was to ensure the withdrawal of Iraqi forces from Kuwait. Such a scenario could have unfolded had Iraq attacked Israel with nonconventional weapons or had Israel decided to respond to conventional missile fire from Iraq. This is why the administration sought to deter Saddam Hussein from using nonconventional weapons against Israel while simultaneously trying to prevent Israel from acting independently and without first coordinating its actions with the United States. Secretary of State Baker claimed that, "We were very concerned about what Israeli intervention in the war might mean for our effort to keep the coalition together; there's no doubt about that."³⁰ Richard Haass, special assistant to the American president explained that, "Not only did we not want the Israelis to shoot first, we didn't even want them to shoot second and that if they were attacked the understanding was that they would come talk to us before responding because our equities in this entire crisis were arguably even greater than theirs." He added that, "We almost wanted to become members of the Israeli cabinet on this decision and I think it worked."³¹

In other words, according to the American view, the Gulf War was a triangle of deterrence in which the United States worked together with Israel

to deter Iraq from attacking Israel with weapons of mass destruction but was working against Israel to prevent it from attacking Iraq. In this sense, the United States was moving between a state of extended deterrence in which it was deterring Saddam Hussein from attacking Israel and a state of “pivotal deterrence” in which it was deterring both sides from escalating the conflict.³² The more Israel cooperated, the more the administration moved in the direction of extended deterrence; the more Israel threatened to act independently, the more the administration moved toward a pivotal stance.

In short, each of the players – Iraq, Israel, and the United States – had a different strategic perception of the triangle of deterrence. Iraq viewed the relationship of deterrence with the United States and Israel as a bilateral one, while Israel and the United States assessed that the triangle of deterrence was one in which both nations conducted independent strategies of deterrence. The difference between these perceptions was of strategic significance: Iraq attributed American messages to Israel and Israeli messages to America. Given this perception, a very high level of cooperation and coordination between the United States and Israel was needed in order to ensure that a clear, coherent message of deterrence was being transmitted. Because the two governments viewed the relationship of deterrence differently and operated independently of one another, they failed to grasp both the opportunity that had come their way and the challenge to maintain the first condition of deterrent stability, i.e., prevent unintentional escalation.

To delve more deeply into some of these challenges and opportunities, it is necessary to understand the transition from extended deterrence to a triangle of deterrence. The following two challenges deal with the significance of this transition in terms of the second condition for deterrent stability – the credibility of the threat.

Deterrence literature deals at length with the problem of credibility in extended deterrence.³³ An example of extended deterrence is the American threat to act against the USSR should the latter attack America’s European allies. It is not hard to understand that a nation will be less inclined to act when another nation is attacked, than when it is attacked itself. Therefore, a threat to act in the case of an attack not aimed directly at the nation issuing the threat will be perceived as less credible than a threat to retaliate if it itself is attacked. In order to confront the limits of extended deterrence, the deterring side must persuade the deterred side that it is both capable and determined to act on its threats. The second challenge has to do with the

element of willingness, and the third challenge is connected to the element of capability.

The Second Challenge: Deterrence – Credibility toward the Third Player

In the case of bilateral deterrence, the deterred side must be convinced of the willingness of the deterring side to act. In a triangle of deterrence, it is critical that the third actor, whom the deterring side seeks to protect, must also be convinced. If the third side does not feel it is protected, it is liable to act independently and thereby escalate the crisis. For example, had France concluded that the United States did not demonstrate sufficient deterrent power against the USSR during the Cold War, it could have threatened a preemptive strike against the USSR in order to force the United States to show greater resolve towards the Soviet Union. In such a case, the French lack of trust in American deterrence could have caused tension in the triangle of deterrence by damaging the Soviet sense of security, driving a further wedge into French-American relations, thereby damaging United States extended deterrence against the USSR, and at a later stage forcing France into a preemptive strike.

This example demonstrates the difference between a state of extended deterrence and a triangle of nonconventional deterrence. In extended deterrence there are clear power relations, in which the third party relies on the threats issued by the deterring party. In such a situation, the deterring side has significant leverage with the third side. In a triangle of deterrence, this leverage is greatly reduced because the third party has the means to take independent action and exert pressure on the other two parties. Therefore, the perception of the credibility of the threat of the deterring party, which is supposed to protect the third party from the deterred side, becomes critical for maintaining the stability of the state of deterrence and preventing escalation.

The French example is theoretical, but is relevant to the dynamics that developed in the Gulf War in 1991. The Israeli government did not trust the credibility of the American threat to respond to an Iraqi nonconventional attack and therefore threatened to damage the launch capabilities of the Iraqi army in a preventive effort to reduce the threat. By doing this, Israel also sought to exert pressure on the United States to exhibit greater resolve against the Iraqi nonconventional threat. The United States, understanding the complex situation and worried about independent Israeli action, sought

to prevent it by increasing the attacks on the Iraqi launch forces in western Iraq, sending Patriot anti-missile batteries to Israel, establishing a hotline between the military HQ in Tel Aviv and the White House, and increasing public declaration of America's commitment to Israel's security. After the war, Vice President Richard Cheney said that these efforts "helped us justify to the Israelis why they had to stay out of the war, that we were doing everything that could be done."³⁴

However, during the war it was not at all clear to the American administration that it could rein in the Israelis. For example, Richard Haass claimed that during the war his assessment that the United States could prevent Israel from responding to the Iraqi missile fire (and take advantage of the attack for foiling purposes) was about 50 percent.³⁵ General Scowcroft, the National Security Advisor, concluded that it was almost certain that the United States would fail.³⁶ His assessment led President Bush to propose to the Israeli government that it retaliate to the January 19 Iraqi missile attack in coordination with the United States. According to the testimony of the American President, he suggested to Prime Minister Yitzhak Shamir to launch surface-to-surface missiles at Iraqi air force bases located in northern Iraq.³⁷

Despite American concerns and Israeli efforts to formulate an independent operational plan, Prime Minister Shamir did not in fact issue the order to attack during that war. The United States managed to ensure Israeli restraint and prevent Israeli intervention, which could have resulted in escalation that would have jeopardized the unity of the coalition forces, thus damaging American efforts in Iraq. Although the Americans correctly identified the challenge and succeeded in preventing escalation, the US policy provided more than one hint that the response to an Iraqi nonconventional attack on Israel would have to be Israeli rather than American. The most prominent example was the interview the vice president granted to CNN during the war. In the interview, Cheney referred explicitly to the toll Israel would take on Saddam Hussein if he decided to use nonconventional weapons: "I assume that he [Saddam Hussein] knows that if he were to resort to chemical weapons, that would be an escalation to weapons of mass destruction and that the possibility would then exist – certainly with respect to the Israelis, for example – that they would retaliate with nonconventional weapons as well."³⁸

The American policy, both its successes and its failures, is linked to the first challenge, the credibility factor, which relates to the deterring party's

willingness to make good on its threat as perceived by both the deterred party and the third party.

The Third Challenge: The Credibility of the Capability Factor

The second factor regarding threat credibility is the capability factor. The deterred party's assessment of the deterring party's ability to punish it in an intolerable fashion, i.e., its ability to carry out its threat using serious retaliation (in the case of nonconventional weapons, an intolerable response) to the prohibited act, is critical to the success of a policy of deterrence.³⁹ Only if the deterred party believes that the deterring party can – and will – realize its threats is the deterred party likely to change its intentions. If the deterred party believes the deterring side is bluffing, and is not backed by real capabilities, it will not attribute any importance to the threat. In order to convince the deterred party of the credibility of the capability factor, different nations employ the media to reveal information about their abilities, e.g., by publishing information about weapons testing or by demonstrating their capabilities in another arena. For example, if we accept the assertion that the American use of the atomic bomb at the end of World War II in Japan was meant to showcase American military nuclear capabilities to the USSR, thereby deterring the Soviet leadership from destabilizing relations with the United States,⁴⁰ then America's use of nuclear weapons on the Japanese arena was meant to serve American deterrence in the European arena.

While the key challenge of demonstrating capability in a bilateral deterrence regime is the skill in transmitting a credible message to the deterred party, in a triangle of deterrence one may identify both an opportunity and a challenge: the opportunity that the deterrence regime might help amplify the credibility of the deterrence, and the challenge of reducing the deterrent damage that could result from an assessment that the capability is no longer independent but has become relative to the capability of the other deterring party.

In order to demonstrate the opportunity inherent in a triangle of deterrence, consider a situation in which two nations are trying to deter a third. Nation A has a large, advanced navy allowing it to carry out nonconventional attacks. Nation B has a giant, advanced air force with highly developed nonconventional capabilities. Nation C, which Nations A and B are trying to deter, knows its enemies can punish it both at sea and in the air. It will find it much more difficult to foil such a joint attack than to foil each attack separately, and therefore the chances that Nation C will avoid going to war

in the case of a coordinated threat by Nations A and B are much higher than they are in the scenario in which Nation A or Nation B takes separate action. Morgan describes a state of “collective actor deterrence,” in which one party is the collective player, i.e., an organization in which the level of coordination and congruence of interests is high.⁴¹ He explains that in the context of such organizations – like NATO and the European Union – nations whose military power is small amplify their deterrence thanks to reliance on the capabilities of their strong allies. Although this is an extreme state of deterrent relations, it is possible to infer from it the inherent potential of coordination and cooperation at different levels, from ad hoc cooperation to full prior cooperation, in order to amplify the capability factor and therefore also the credibility of the deterrence. Note that a cardinal condition of transmitting a credible message about joint capabilities is agreement on the action the two parties would carry out. These insights are relevant both to conventional and to nonconventional deterrence.

In the Gulf War, Israel doubted America’s willingness to respond to an Iraqi nonconventional attack and made a distinction between its own credibility and that of the United States. This skepticism resulted in the Israeli military receiving orders to develop operative capabilities for striking Iraq;⁴² and in the presence of 25 American senators, Foreign Minister David Levy threatened that were Israel to be attacked it would retaliate in order to maintain its security and defend its citizens.⁴³ Senior Israeli officials, including Prime Minister Yitzhak Shamir and Defense Minister Moshe Arens, made it clear that a nonconventional attack by Iraq would constitute the “crossing of a red line” and result in damage “of the most serious kind.”⁴⁴ The Israeli defense minister referred explicitly to Cheney’s threat that Israel would retaliate with nonconventional weapons to an Iraqi nonconventional attack: “Cheney did not talk specifically, and I would not have expected him to do so under present circumstances. But if you say that Saddam has reasons to worry – that is correct.”⁴⁵

The defense minister’s testimony indicates Israel’s nervousness and suspicion about America’s willingness to retaliate against attacks on Israeli cities, and about the future use of WMD. The message transmitted to Washington was clear: were Israel to suffer an attack with nonconventional weapons, Israel would be the one to retaliate.⁴⁶

According to Haselkorn,⁴⁷ this message was read loud and clear by the American side: “In response to an Iraqi CB attack, Washington – rightly or

wrongly – expected Israel to resort to its nuclear missiles.” The testimony of American Defense Secretary General Colin Powell also indicates that the United States believed Israel would retaliate on its own to an Iraqi nonconventional attack. In his meeting with Deputy Chief of Staff Ehud Barak, the Israeli general told him that should the Iraqis attack with chemical weapons, “You know what we must do.”⁴⁸ Powell said that “I had a pretty good idea of what he meant. Israeli missile crews were reportedly on full alert. And who knew what they would be firing.”

Haass, the presidential advisor, also testified in a similar vein,⁴⁹ corroborating the assumption in Washington that any retaliation to an Iraqi nonconventional attack on Israel would be Israeli. In an interview granted after the war, he stated that after the news of the first Iraqi attack on Israel arrived in Washington, it wasn’t clear if Saddam Hussein had used chemical weapons. “My reaction was, if that’s true, you can’t keep the Israelis from holding back, and at that point we said, if it’s true that the Iraqis have used chemicals, then we’re talking about the nature of the Israelis response, not whether the Israelis will respond.”

By contrast, the Iraqi perception of an almost bilateral state of deterrence resulted, in practice, in Israel benefiting from the might of America’s nonconventional deterrence. Saddam Hussein, for whom the two nations were virtually synonymous, was afraid of a destructive nuclear attack and did not distinguish between Israel’s limited capabilities and the far greater capabilities of the world’s strongest nuclear power. For example, in 1995, General Hussein Kamal, the Iraqi minister of military industry, and Saddam Hussein’s stepson, stated that, “During the Gulf War... there was no decision to use chemical weapons for fear of retaliation. They realized that if chemical weapons were used, retaliation would be nuclear.”⁵⁰ General al-Samarrai also raised this claim in a 1996 television interview: “I do not think that Saddam was capable of taking a decision to use chemical weapons or biological weapons, or any other type of weapons against the allied troops, because the warning was quite severe, and quite effective. The allied troops were certain to use nuclear arms and the price would be too dear and too high.”⁵¹

These statements are congruent with the actions taken by the Iraqi regime before and during the war. In September 1990, Iraqi intelligence analyzed the nuclear capabilities of the United States and its policy, and distributed the conclusions among Iraq’s leaders.⁵² In December 1990, Baghdad held a large scale evacuation drill simulating an attack “with WMD used by the

United States or its allies” on the city.⁵³ Immediately after the start of the aerial attacks by the coalition forces on Iraq and Kuwait, Saddam Hussein ordered missiles fired at Israel, showing that he did not make a distinction between his attacker, the coalition forces headed by the United States, and the target of his attacks – Israel: “Iraq would initially attack only with conventional warheads...and would use its chemical and biological weapons ‘in return for the warheads they use.’”⁵⁴

In this situation, and although its leadership was unaware of this in real time, Israel in practice enjoyed the deterrent might of the world’s strongest nuclear power. The fact that Israel saw fit to threaten to use its own limited capabilities, compared to those of the United States, is ample evidence. Had the messages Israel transmitted caused Saddam Hussein to distinguish between them and the messages transmitted by the White House, Israel’s deterrence would have shrunk compared to the deterrence Israel enjoyed in practice. Because it was clear that the potential of Israel’s retaliation was limited compared to American capabilities, Saddam Hussein’s cost-benefit analysis could have been affected as a result of the lower cost he would have to pay for using his stock of chemical and biological weapons against Israel.

The example of Israel’s policy during the Gulf War points to the opportunity inherent in a triangle of deterrence in terms of capability; the Israeli threat did not stand alone but was accompanied by the American threat. However, this rationale can also be applied to the threat that a triangle of deterrence poses. Because the deterrent message does not stand alone, but in relation to the third party’s capabilities and message, the deterring player must present a threat of greater damage than that presented by the parallel state of deterrence. The Gulf War provided an example also of this. Although it was a case of conventional deterrence between nations, it can be instructive in the case of a triangle of nonconventional deterrence.

Early in the crisis in the Gulf, Israel tried to deter Saddam Hussein from launching conventional missiles at Israel should he be attacked by the United States. After the start of the attack by NATO forces headed by the United States military, Saddam Hussein ordered the attack on Israel. In 1996, Iraqi Foreign Minister Tariq Aziz explained that the Israeli army could not have caused Iraq significant damage in addition to the damage already inflicted by the US-led coalition.⁵⁵ Israel, failing to understand that its capabilities in this situation were limited compared to the American attacks, continued to issue threats until the war broke out and it was targeted by Iraqi missiles.

The Israeli threats were in fact irrelevant once they were put to the test, because they did not promise additional damage beyond that already caused by the American attacks. The Israeli failure provides an important lesson for triangles of deterrence: the parties must understand that their threat does not stand alone but affects the deterred side relative to the threats issued by the third side.

The analysis of the triangle of deterrence during the Gulf War from the Israeli perspective reveals that Israel's planning was flawed in that it failed to grasp the opportunity offered by relying on America's nonconventional deterrence, and it also failed to understand the threat that the conventional American force posed in its messages of deterrence at the start of the crisis, before the war broke out. These Israeli failures indicate that triangles of deterrence raise both new opportunities and new dangers to the stability of the deterrence, opportunities and dangers that need to be studied further.

Trilateral Deterrence is Less Stable than Bilateral Deterrence

The state of deterrence between three nations, all of which are said to have possessed nonconventional weapons in the Gulf War, is a case study instructive for possible current triangles of deterrence given a multipolar world lacking clear lines of demarcation between powers. The dynamics of deterrence that characterized the 1991 Gulf War are an example of a very specific type of trilateral deterrence that occurs when two players of significantly different strengths work in tandem, even if independently of one another, against a third player with nonconventional, though not nuclear, capabilities. Despite this reservation, one can learn something about the dynamics of a trilateral nonconventional deterrent system from this analysis and present the insights as the basis for recommendations for Israeli policy, should Israel again find itself in a similar situation.

The main conclusion suggested by this analysis is that a trilateral nonconventional system of deterrence is structurally less stable than a bilateral system of deterrence, i.e., it is more prone to inadvertent escalation. While such a system provides opportunities for improving the credibility of the capability factor, it does so only under very specific circumstances of coordination and congruence of interests. Alongside this opportunity inherent in the triangle of deterrence, however, is a significant danger, to the actors' ability to transmit a clear, coherent message to their enemies, and of erosion of credibility of the capability factor, i.e., the ability to convince

both the deterred and the third party that the threat is credible. This is true in a multipolar world in which nations have unequal powers and interests and mistrust one another. In this situation, the task of transmitting a credible message of intolerable retaliation for an attack becomes more complex and harder to fulfill than in a state of bilateral deterrence.

The insights suggested herein are not limited to the theoretical realm, and can be adapted to today's reality. The Israeli-American dilemma in terms of the Syrian chemical threat, as well as Israeli-American cooperation against Iran's nuclear ambitions, show the relevance of the triangle of deterrence to challenges facing the Israeli government. This analysis gives rise to three insights on Israeli policy on these issues and on others that may arise in the future.

The Use of Models of Trilateral Nonconventional States of Deterrence

Although the analysis herein is preliminary, it demonstrates that bilateral models, including that of extended deterrence, are insufficient for understanding the special dynamics created in trilateral deterrence. In a bipolar world, experts expect to encounter ever more complex deterrent states, and it is therefore necessary to analyze them by means of an appropriate model. One must determine when the analysis calls for the traditional bilateral model and when a more complex model is necessary. In light of the power that Israel's enemies attribute to the relationship between Israel and the United States, it is necessary to examine when Israel's deterrence is perceived by its enemies to be trilateral. Much has been written about the nonconventional deterrence expected to develop between Israel and Iran, should the latter develop nuclear weapons.⁵⁶ It may be that the Tehran leadership sees itself as a power taking on Israel and the United States simultaneously. If the outlook in Tehran is similar to the outlook adopted by the Iraqi leadership in the Gulf War, the analyses that have been conducted to date are partial, making a more complex analysis – one based on trilateral deterrence – imperative. It would have to take into account the Iranian assessment of the relationship between Israel and the United States, the United States' commitment to attack Iran in retaliation to an Iranian attack on Israel, and the power available to Israel and the United States jointly.

Skepticism of the Credibility of Trilateral Nonconventional Deterrence

The main conclusion derived from the analysis is that trilateral nonconventional deterrence is, by its very nature, less stable than bilateral deterrence. In other words, in this type of deterrence the challenge of avoiding escalation is greater than in deterrence involving only two parties. The challenges presented by this model, as well as the opportunities inherent in multilateral deterrence, have not yet been studied comprehensively, casting doubt upon the likelihood of trilateral deterrence remaining stable. The State of Israel, or any nation that considers nonconventional deterrence as a major strategy in its security concept, must approach this strategy with a great deal of skepticism. This insight demonstrates, for example, some of the limitations of nonconventional deterrence vis-à-vis Bashar Assad at the present (as long as he possesses chemical and biological weapons), as well as the fragility of future deterrence vis-à-vis a nuclear Iran. The reservation about the stability of multilateral deterrence will become stronger if the threat of a nuclear arms race in the Middle East should be realized as a result of Iran's successful development of nuclear weapons.⁵⁷ In such a situation, deterrence would be multilateral, thus more complex and less easily understood than trilateral deterrence. The organizations responsible for intelligence assessments and policy formulation for the Syrian and Iranian arenas must provide comprehensive analyses that take into account this complexity and the implications for the stability of the deterrence.

The Importance of US-Israel Relations

The analysis of the triangle of deterrence in the Gulf War reveals the importance of the relations between the United States and Israel, both for the stability of deterrence and for furthering Israel's interests in the context of the complex dynamics created by the system of deterrence. The cool relations between the George H. W. Bush administration and the Shamir government gave rise to grave concern in Jerusalem that damaged Israel's ability to rely on the credibility of the nonconventional deterrence of the world's greatest superpower, as attributed to Israel by the Iraqis. The shaky relationship between the respective leaders also resulted in the transmission of messages that could have damaged the credibility of the threat attributed by the Iraqi side and Israel's unnecessary allocation of resources to the development of independent deterring capabilities that may have been redundant given American policy and the credibility attributed to it by Saddam Hussein.

This may lead to the conclusion that given better coordination between Washington and Jerusalem, Israel might have been able to enhance its deterrence against the Iraqi threat before the outbreak of the war and allow more effective management during the war.

When confronting the nonconventional crisis in a conflict with Syria or Iran, Israel and the United States will have to formulate and present better coordination and cooperation than what was displayed during the Gulf War. Their ability to engage in frank discourse and achieve full coordination will be a decisive factor in deciding whether to rely on deterrence or embark on a preemptive strike. The development of the crisis during the 1991 Gulf War teaches us that this question will come up at the very start of a crisis and grow more insistent as the crisis progresses when the divergent interests of the nations involved are at risk. Only excellent relations between Washington and Jerusalem will ensure that when the interests of one nation are threatened, it can rely on cooperation with the other and clearly transmit this message to the enemy – preconditions for maintaining the stability of trilateral nonconventional deterrence.

Notes

- 1 George Santanaya, *Life of Reason: Reason in Common Sense* (Scribner's, 1905), p. 284.
- 2 Yehezkel Dror, *Be Our Leader* (Tel Aviv: Yediot Ahronot, 2011), pp. 488-89.
- 3 Gordon S. Barrass, *The Great Cold War: A Journey Through the Hall of Mirrors* (Stanford: Stanford University Press, 2009).
- 4 Lawrence Freedman, *Deterrence* (Cambridge: Polity Press, 2004); T. V. Paul, "Complex Deterrence: An Introduction," in *Complex Deterrence: Strategy in the Global Age*, eds. T. V. Paul, Patrick M. Morgan, and James J. Wirtz (Chicago: University of Chicago Press, 2009), pp. 1-30.
- 5 That is, the party toward which the efforts of deterrence are aimed. For the readers' convenience, the essay will use phrases such as "detering party/side/actor" and "deterred party/side/actor," even though these terms describe the success of the deterrence efforts rather than the objective state. Some of the literature speaks of "challengers" and "defenders" when describing the existence of efforts of deterrence.
- 6 Keith B. Payne, "Deterring the Use of Weapons of Mass Destruction: Lessons from History," in *The Niche Threat: Deterring the Use of Chemical and Biological Weapons*, ed. Stuart E. Johnson (Washington, DC: National Defense University Press, 1997), pp. 71-94; E. Dougherty and Robert L. Pfaltzgraff, Jr., *Contending Theories of International Relations: A Comprehensive Survey*, 5th ed. (New York: Longman, 2001), pp. 384-85; Freedman, *Deterrence*; Paul, "Complex Deterrence: An Introduction."

- 7 Suzanne Werner, "Deterring Intervention: The Stakes of War and Third-Party Involvement," *American Journal of Political Science* 44, no. 4 (2000): 720-32; Jeffrey W. Knopf, "The Fourth Wave in Deterrence Research," *Contemporary Security Policy* 31, no. 1 (2010): 1-33; Paul, "Complex Deterrence: An Introduction."
- 8 Analyzing a policy of extended deterrence by the deterring side is done in the context of a bilateral examination – between the deterring and deterred sides – so that although the purpose of the policy is to protect the third side, the framework of the analysis retains the dynamics between the deterring and deterred parties.
- 9 Stephen L. Quackenbush, "Not Only Whether but Whom: Three-Party Extended Deterrence," *Journal of Conflict Resolution* 50, no. 4 (2006): 562-83; Patrick M. Morgan, "Collective Actor Deterrence," in *Complex Deterrence: Strategy in the Global Age*, pp. 158-82.
- 10 Kevin M. Woods, *The Mother of All Battles: Hussein's Strategic Plan for the Persian Gulf War* (Annapolis, MD: US Naval Institute Press, 2008), p. 152. On April 2, 1990, Saddam Hussein warned that were he to be attacked, he would "burn down half of Israel." In his book (p. 169), Woods explains that this threat preceded the Iraqi capability of launching missiles armed with nonconventional warheads, a capability attained only in August that year.
- 11 Although the Israeli assessments are that 41 or 42 Iraqi missiles were launched, this essay uses the Iraqi estimate that 43 missiles were fired at Israel.
- 12 It is important to note that the American policy of deterrence also included a threat against using chemical and biological weapons against American troops and America's allies, including Saudi Arabia. Because this goal did not overlap with Israel's goals, it is not suited to a trilateral model of deterrence, and was therefore not included in this analysis.
- 13 Amatzia Baram, "Israeli Deterrence, Iraqi Responses," *Orbis* 36, no. 3 (1992): 385-403; Laura Zittrain Eisenberg, "Passive Belligerency: Israel and the 1991 Gulf War," *Journal of Strategic Studies* 15, no. 3 (1992): 304-29; Shai Feldman, "Israeli Deterrence and the Gulf War," in *War in the Gulf: Implications for Israel*, ed. Joseph Alpher (JCSS: Jerusalem, 1992); Avigdor Haselkorn, *The Continuing Storm: Iraq, Poisonous Weapons, and Deterrence* (New Haven, CT: Yale University Press, 1999).
- 14 Freedman, *Deterrence*, p. 30.
- 15 Ibid, p. 29.
- 16 The collection of the Saddam Hussein regime lies in the National Defense University (NDU). See the table of contents at the official website of the Saddam Hussein collection at <http://www.ndu.edu/inss/index.cfm?type=section&secid=138&pageid=4>. Woods notes that some of the Iraqi narrative was misconstrued. However, despite the language barrier, which should be kept in mind, these documents offer a unique observation into Iraqi perceptions, within the limits of a non-Iraqi viewpoint. See "A Note on Sources" in Woods, *The Mother of all Battles*.
- 17 Given the scope of this essay, the analysis does not refer to the issue of strategic rationalism and the implications for a trilateral model of deterrence. The complex issue requires its own in-depth analysis.
- 18 Gerald M. Steinberg, "Parameters of Stable Deterrence in a Proliferated Middle East: Lessons from the 1991 Gulf War," *Nonproliferation Review* 7, no. 3 (2000): 43-60;

- Patrick M. Morgan, *Deterrence Now* (Cambridge: Cambridge University Press, 2003); Freedman, *Deterrence*; Robert L. Jervis, "The Confrontation between Iraq and the US: Implications for the Theory and Practice of Deterrence," *European Journal of International Relations* 9, no. 2 (2003): 315-37; Paul, "Complex Deterrence: An Introduction"; Janice Gross Stein, "Rational Deterrence against Irrational Adversaries? No Common Knowledge," in *Complex Deterrence: Strategy in the Global Age*.
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- 20 Tariq Aziz, interview to *Frontline*, January 25, 2000, available at <http://www.pbs.org/wgbh/pages/frontline/gulf/oral/aziz/1.html>.
- 21 Brands and Palkki, "Saddam, Israel, and the Bomb: Nuclear Alarmism Justified?" pp. 157-58.
- 22 Ibid, p. 158.
- 23 Moshe Arens, *War and Peace in the Middle East 1988-1992* (Tel Aviv: Yediot Ahronot 1995), pp. 182-83.
- 24 Ibid, p. 190.
- 25 James Baker and Thomas M. DeFrank, *The Politics of Diplomacy: Revolution, War, and Peace, 1989-1992* (New York: G. P. Putnam's Sons, 1995), p. 387.
- 26 Ibid, p. 389.
- 27 Arens, *War and Peace in the Middle East 1988-1992*, pp. 172-73.
- 28 For example, Arens refers to a statement attributed to General Schwarzkopf, commander of the coalition forces, to the effect that an Iraqi missile attack on Israel was no worse than a thunderstorm over Atlanta. The general made this statement during discussions about the tasks to be carried out by the aerial forces in Iraq and whether to bomb the launchers and missiles capable of reaching Israel or to bomb targets that would help the war in Iraq. Arens, *War and Peace in the Middle East 1988-1992*, p. 203.
- 29 Ibid, p. 179.
- 30 James Baker, interview to *Frontline*, January 25, 2000, available at <http://www.pbs.org/wgbh/pages/frontline/shows/saudi/interviews/baker.html>.
- 31 Richard Haass, interview to *Frontline*, January 25, 2000, available at <http://www.pbs.org/wgbh/pages/frontline/gulf/oral/haass/1.html>.
- 32 For more reading on pivotal deterrence, see Timothy W. Crawford, *Pivotal Deterrence: Third-Party Statecraft and the Pursuit of Peace* (Ithaca: Cornell University Press, 2003); Timothy W. Crawford, "The Endurance of Extended Deterrence: Continuity, Change, and Complexity in Theory and Policy," in *Complex Deterrence: Strategy in the Global Age*, pp. 294-95.
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- 56 Shmuel Bar, "Can Cold War Deterrence Apply to a Nuclear Iran?" *Strategic Perspectives* 7 (2011): 1-16, http://jcpa.org/text/cold_war_deterrence_nuclear_iran.pdf; James M. Lindsay and Ray Takeyh, "After Iran Gets the Bomb: Containment and Its Complications," *Foreign Affairs* 89, no. 2 (2010): 33-50, <http://www.foreignaffairs.com/articles/66032/james-m-lindsay-and-ray-takeyh/after-iran-gets-the-bomb>; Kenneth N. Waltz, "Why Iran Should Get the Bomb," *Foreign Affairs* (July/August 2012); Amos Yadlin, "A Conceptual Framework and Decision Making Model for Israel about Iran," *Strategic Assessment* 15, no. 2 (2012): 69-73; Emily B. Landau, "When Neorealism Meets the Middle East: Iran's Pursuit of Nuclear Weapons in (Regional) Context," *Strategic Assessment* 15, no. 3 (2012): 27-37.
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Arms Control in Civil Society: Controlling Conventional Arms Smuggling in Sinai

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Introduction

Over the last decade, the Sinai Peninsula – the 60,000 sq km border region connecting North Africa to the Middle East – has evolved from a relatively quiet buffer zone between Egypt and Israel into a lawless frontier of conflict awash with increasingly advanced weaponry. Most of these weapons originate in Libya and Sudan, and are smuggled into Sinai by indigenous Bedouin tribesmen. The smugglers hoard the weapons for their own purposes or turn a profit by either selling them to Sinai residents or smuggling them into Gaza via tunnels underneath the Philadelphi Corridor – the 14 km strip of land running along the Egyptian-Gaza border. Any approach to arms control in Sinai must tackle the phenomenon of arms smuggling. So long as illicit weapons continue to flow into Sinai, any state attempt to rid the population of them will be futile.

Numbering around 300,000, the Bedouin comprise roughly 70 percent of the Sinai population. With help from their stockpiled arms, they rose during the 2011 Egyptian revolution to chase out President Hosni Mubarak's widely despised government officials and heavy-handed (now defunct) state security forces, and arms smuggling flourished in the ensuing political and security vacuum. The state has responded by collapsing smuggling tunnels, improving its intelligence coverage, intercepting, with the help of US-donated scanners, weapons crossing the Suez Canal, and deploying forces on its borders with Sudan and Libya, among other measures. While these efforts have made some headway against smuggling, illicit arms remain readily

available in a peninsula gripped by spiraling insecurity. In the wake of the July 3, 2013 ouster of former Egyptian President Mohamed Morsi, violence has spiked again in what has become nearly an all-out war between Egyptian military and Salafist jihadi groups in Sinai – most prominent among them Ansar Bayt al-Maqdis, Majlis Shura al-Mujahidin Aknaf Bayt al-Maqdis, and al-Salafiyya al-Jihadiyya.

The deteriorating security situation and the growing polarization of the Sinai Peninsula have not developed within a vacuum. The landscape of the Middle East is changing: as centralized states dissolve, their power and authority are diffusing across civil societies and non-state actors. In the absence of strong, legitimate state institutions and social consensus on the shapes of these new states, many of these newly empowered actors are beholden unto no higher authority. To navigate the resulting turmoil, states must adapt their national security doctrines; since the state is no longer the principal actor on the domestic scene, it cannot act alone. For new national security doctrines to be effective, they must be formulated with the input and buy-in of civil society. In Sinai, any long term state solution to weapons proliferation and trafficking must include the newly empowered – albeit state-marginalized – Bedouin population. The post-Mubarak approach of “be and let be,” punctuated by periodic security and smuggling crackdowns, does little to build the harmony of interests that lies at the core of every effective arms control regime. It does not offer sufficient incentives to outweigh the profits of arms smuggling and the risks of disarmament. Nor does the military have the resources, personnel, or will to sustain these crackdowns and counter-smuggling efforts in the long-term – or the counter-insurgency training to protect itself while doing so. A more holistic approach must be developed that addresses the root causes of arms smuggling.

Accordingly, it falls to the Egyptian government and security forces to work together with local Bedouin tribes to understand and address the incentives that lead to arms trafficking; transform social norms that have come to accept smuggling as a legitimate livelihood; incorporate local intelligence and Bedouin into the security forces to enhance the efficacy of “hard power” measures; and ultimately, encourage the population to participate in weapons collection drives.

Overview of the Problem

Arms smuggling in Sinai is not a new phenomenon. Hamas and Palestinian Islamic Jihad smuggled weapons via underground tunnels from cities like Rafah as early as the mid-1990s, and this activity intensified during the second intifada. In particular, smuggling flourished following the 2005 Israeli disengagement from Gaza and Hamas's 2007 takeover of the coastal enclave. The subsequent Israeli air, sea, and land blockade of Gaza led to a burgeoning demand for smuggled commodities, and the business and tunnel infrastructure expanded accordingly. According to Israeli intelligence estimates, roughly "250 tons of explosives, 80 tons of fertilizer, 4000 rocket-propelled grenades, and 1800 rockets were transported from Egypt to Gaza from September 2005 to December 2008."¹

For the most part, the Egyptian state security forces turned a blind eye or were complicit in the illicit flow of weapons and goods, often demanding bribes in exchange for keeping tunnel operators out of jail. In 2007, then-Israeli Foreign Minister Tzipi Livni publicly denounced Egyptian efforts against smuggling into Gaza as "terrible," claiming that she possessed videotape evidence of Egyptian police helping Hamas smuggle militants and weaponry across the border.² Some Bedouin even accuse the security forces as having first introduced them to the arms trade.³

Yet it was in the wake of Mubarak's fall in early 2011 that the smuggling industry in Sinai reached its zenith. With the collapse of the state security forces, smugglers were free to move unfettered across the desert. Tribal networks familiar with the rugged desert and mountainous terrain move easily across the region, aided by their machine gun-mounted 4x4 pickups and Land Cruisers, dubbed by many as "the new camel." As Mohamad Sabry, a journalist and activist from the northern town of el-Arish describes, "Geography is one of the main reasons it is difficult to exert control over Sinai; Bedouins know their land more than the authorities and have secret escape routes."⁴

After the 2011 overthrow of Libyan dictator Muammar Qaddafi, looted Libyan arsenals flooded the black market with a variety of advanced weaponry, catapulting the business to new heights. The Sawarka, Rumaylat, and Tarabeen tribes, whose lands border Gaza, dominate the trade. A young political activist from Sinai noted, "Following the security breakdown in the wake of the revolution and easy access to Libyan arms, Bedouins took over the trade in north Sinai. It is so lucrative that they not only earn a living but can

amass fortunes.”⁵ Thus, while reports of interceptions of rockets, anti-aircraft missiles, and other explosives by Egyptian forces have peppered the media, a growing number of newly built villas and luxury cars have peppered the landscape of northern Sinai.⁶

Not all of the weapons that flow through Sinai are smuggled into Gaza. In recent years, the desert has witnessed a surge in armed militias and terrorist groups, including armed gangs that target the Egyptian security forces and state infrastructure, Salafi jihadist groups, and Palestinian terrorist operatives and their Sinai-based ideological offshoots. As these armed elements and their activities proliferate, they contribute to a growing domestic demand for arms.

Many of these are Bedouin smuggling networks that used their massive accumulated wealth to heavily arm themselves for both defensive and offensive purposes. They seek to protect their newfound riches and lucrative smuggling routes from rival tribes, and protect themselves from police crackdowns and arrests. “This business of the [smuggling] tunnels brings in billions of pounds, so a lot of people have interest in it, and they have interests in stopping any police presence there,” explained General Essam al-Bedawi, head of media affairs at the Egyptian Department of Homeland Security.⁷ Indeed, several Egyptian policemen stationed near the border with Israel were shot and killed by migrant smugglers.⁸

However, these gangs, deeply resentful of state security forces after years of brutal crackdowns, mass arrests, and widespread corruption, have also used their newfound military might to settle old scores and demand reparations. “We’ll kill them if they return,” one Bedouin sheikh said of the police.⁹ True to their word, Bedouin gunmen have sprayed police checkpoints with heavy weaponry, killed policemen in revenge for Bedouin deaths, stormed seaside resorts, and abducted hostages.¹⁰ They leveraged their ability to hold security forces by the throat to demand a list of concessions from the government. These include amnesty for Bedouin who were sentenced, often in absentia, under Mubarak; Egyptian citizenship for the thousands of Bedouin who are without; acknowledgment of Bedouin land ownership; basic municipal services for Bedouin villages; an end to government appointment of mukhtars (tribal chiefs); access to jobs in government, the military, and local industry; and compensation for the tribes whose land is used for the Egyptian-Israeli-Jordanian gas line.¹¹

Bedouin disgruntlement, combined with the security vacuum and porous borders, has also fed into a burgeoning jihadi presence. Sinai has seen a rise in Salafi jihadi groups since the early 2000s, when a series of bombings at Taba and other seaside resorts resulted in the deaths of over 100 people, mostly Egyptians. The state responded with a massive crackdown that decimated the leadership of the alleged Salafi culprits, al-Tawhid wal-Jihad, yet other groups rose on its heels.

The rise of these Salafi jihadists can be attributed to several factors. Since the 1980s, the Bedouin, largely wary of Islamism due to its emphasis on religion over tribe and its perceived threat to hierarchical tribal structure, were increasingly exposed to Salafi doctrine. Bedouin youth who spent time in Egyptian jails, studied in predominantly Islamist universities in the Delta, or worked abroad in Saudi Arabia introduced Salafi thought to Sinai upon their return. As one Massoura sheikh explained, “When state security [arbitrarily] arrested the men of Sinai and threw them in prisons, we demanded that they would be separated from militant Islamists so that radical thought wouldn’t diffuse. But no one listened.”¹² Hamas’s crackdown on jihadists in Gaza in 2009 sent additional Salafis fleeing into Sinai,¹³ while its strengthened economic ties with Bedouin in northeastern Sinai created a new channel for the export of its ideology, heightening Palestinian sympathies among the Bedouin. The fusion of radical Salafi doctrine, anti-Israeli sentiment, Bedouin grievances against the state, and a sense of solidarity generated by indiscriminate state arrests fostered ripe conditions for terror recruitment. These groups have flourished within the post-Morsi security vacuum, their numbers bolstered by jihadist fugitives who broke free from Egyptian prisons during the revolution, and by a growing number of foreign jihadis. Some of these groups are al-Qaeda inspired – such as the shadowy Ansar Bayt al-Maqdis, whose videos have featured clips of speeches by former Islamic State of Iraq leaders Abu Musab al-Zarqawi¹⁴ and Abu Omar al-Baghdadi.¹⁵

Working in conjunction or independently of these Sinai-based groups are Gaza-based terror operatives, such as those belonging to Jaish al-Islam (Army of Islam), who infiltrated into Sinai via smuggling tunnels or maintain cells in Sinai to launch attacks against Israeli and Sinai targets.

Attacks by these groups have spiked in the wake of Morsi’s ouster, with almost daily, increasingly sophisticated attacks on security forces in Sheikh Zuwiad and el-Arish. Some of these attacks are in reaction to Morsi’s ouster – not because their perpetrators necessarily approved of Morsi (indeed, many

Salafists rejected him for being too moderate in his implementation of *sharia*), but because they see his ouster as part and parcel of a broader state attack on Islamism. Others simply seek to take advantage of the domestic unrest to challenge Egyptian forces, promote their demands, and signal that they will not accept a return to the police state of the Mubarak era. However, in recent months, these attacks have been obscured by the far more sensational – and deadly – assaults by jihadi groups such as Ansar Bayt al-Maqdis, who ratcheted up their campaign (in ferocity and propaganda, if not in number) against the military since the latter launched its latest crackdown in August.

Taken together, the rise of these groups has led to Sinai's snowballing militarization. As they proliferate, the groups seek a greater number of weapons to protect their interests, fend off the state's security forces, and launch their offensives. The spread of armed conflict heightens the already pervasive sense of insecurity in the region and the local demand for arms.

Current Efforts and Policy Recommendations

In the past, Egyptian counter-smuggling efforts in Sinai met with limited success. Prior to its latest offensive, Egyptian security forces conducted three large scale operations – the first following the 2004-2006 terrorist attacks, the second in August 2011, and the third in the wake of the August 5, 2012 attacks. Although purported to be crackdowns on jihadi elements in the Peninsula, in practice they resulted in the mass arrests of thousands of non-jihadi Sinai residents.¹⁶ The blanket security sweeps did little to combat smuggling, while their aggravation of tensions between Sinai residents and security forces gave jihadi elements fodder for future recruitment.

The full effects of the latest military offensive remain to be seen, but by most estimates, it has successfully destroyed roughly 80-90 percent of the smuggling tunnels to Gaza and has begun to clear a 500 meter wide zone along the border that will significantly complicate any future efforts to revive the business.

Yet tunnel destruction is a tactic – not a strategy. It has brought the illicit trade to a near halt without providing any alternative economic livelihood to the many Bedouin who supplied, worked, or owned the tunnels. It is an ad hoc, military approach to what will ultimately require a long term, political-economic solution. Moreover, it inflames the tensions between the Bedouin and the state.

Although the military has claimed “our highest rates for successfully achieving our targets,”¹⁷ locals complain of indiscriminate targeting that has resulted in civilian deaths and widespread damage to homes and mosques. The resulting anger has provided local jihadi groups with a crucial advantage in the broader narrative battle. Ansar Bayt al-Maqdis videos open with clips of police brutality against protestors, military raids of homes, and images of the charred bodies of children.¹⁸ A September 4, 2013 statement released by al-Salafiyya al-Jihadiyya included photos of a damaged mosque and accused the military of targeting homes hosting women, children, and the elderly.¹⁹ By carefully couching their rhetoric in the language of local grievances, these groups use the military’s imprudence to expand their local recruitment, feeding the demand for arms.

To deal with the proliferation of arms across the Peninsula, therefore, the Egyptian government must couple its “hard” measures of tunnel destruction, weapons cache seizures, and tighter border security with a multifaceted “soft power” approach that tackles the incentives of arms smuggling. More specifically, the Bedouin cannot be coerced into cooperation; Egypt must reach out to them economically, politically, and socially. They must have something to lose; only when they have a personal stake in the security and the stability of their region will their interests begin to overlap with those of the state. Such an approach should consist of four elements; (1) development of the Sinai Peninsula to incentivize alternative livelihoods to arms smuggling; (2) integration of the Bedouin into the security of the area; (3) continuation of traditional “hard” security measures, including the tunnel demolitions and arrests of smugglers; and (4) incentivization of disarmament and recruitment of local Bedouin communities in the collection of illicit arms.

Development of Sinai

Since Egypt regained control over Sinai in 1982, the Bedouin have been largely excluded from the three pillars of the Sinai economy – the agricultural, industrial, and tourism sectors. With no state recognition of Bedouin land ownership, a shortage of accessible water, a lack of basic facilities, and the emigration of Bedouin youth to more profitable jobs in the Nile Valley region,²⁰ local Bedouin agriculture has had few legs on which to stand. Local farmers rely mostly on rainwater and over-exploited groundwater that is often saline. The al-Salam Canal, constructed as part of the 1997 North Sinai Agricultural

Development Project (NSADP), suffers from severe water shortages, while the water that does exist is largely polluted by saline groundwater and waste from the Hadous and Serw drains. Its location has also sparked land feuds with local Bedouin who claim tribal ownership.²¹ Moreover, plots that were sold by the state were mostly allotted to big farmers who employed Nile Valley migrants, shutting off any local Bedouin from the benefits of their region's agricultural development.²²

The Bedouin have been similarly excluded from the tourism industry in the south and the scant private industry that exists in the north and central Sinai. Although more than 80 percent of the Sinai population resides in the north, the south has long enjoyed greater state, private, and international investment and development due to its idyllic tourist sites and Suez oil. Between 1991 and 1993, the World Bank allocated roughly \$850 million to fund infrastructure and environmental protection projects in Sinai, managed by the Egyptian Tourism Development Authority (TDA).²³ Disregarding local Bedouin land claims, the TDA auctioned off coastal and desert lands at \$1 per square meter to private investors, who developed hundreds of luxury hotels and a thriving tourist industry. Bedouin were again debarred from the region's development, with Nile Valley migrants hired almost exclusively for the attendant job boom, including in the informal employment sector.²⁴ Nile Valley migrants were similarly favored for the jobs created by the few private factories and quarries in North Sinai and Central Sinai. Local resentment of several of the factories in the north is compounded by their cooperation with Israeli industry in the Peninsula's Qualified Industrial Zones (QIZs).²⁵

So long as the Bedouin have no other means of economic livelihood, smuggling will continue. Shut out from regional employment opportunities and unable to sustain their traditional agriculture and pastoral livelihoods, Bedouin have made do with the scarce resources they do possess, namely, arms, drugs, and illegal immigrants, a thriving black market, and expert navigation abilities. As the head of the Sinai Tribes Union Sheikh Ibrahim el-Manei said of the Peninsula's residents, "There is no development; the region has long been clinically dead...No wonder they have taken to arms and drugs trafficking, jihadism or crimes."²⁶

In 2012, former Egyptian President Morsi unveiled the Nahda ("renaissance") Project for the development of Egypt, dedicating one of its "four axes"²⁷ to the Sinai Development Plan. Although the plan correctly identified many of the critically underdeveloped sectors of the Peninsula, it

was vague in its specifics, lacking a timetable for implementation and any mechanisms to ensure Bedouin integration into new industries and jobs. It failed to address existing Bedouin land ownership claims, and a subsequent law opening land purchases to any single-nationality Egyptian citizen born to Egyptian parents was rejected by the Bedouin, many of whom do not have national identification cards to prove their nationality.²⁸ Moreover, as explained by Khaled Arafat, secretary general of North Sinai's al-Karama Nasserist party, "We don't have to prove we're Egyptian, we're already here. We are not waiting for someone to tell us we own this land.... We made this land Egyptian, from the south to the north... who are you to give me ownership to my own land?"²⁹

Despite Morsi's allocation of over 6 billion Egyptian pounds to the development of the Peninsula³⁰ and numerous promises³¹ of "urgent" implementation, few plans materialized. Many Bedouin lost faith in what they saw as the government's empty promises.

Sinai development must begin as soon as possible and in full consultation with the Bedouin to ensure that the state's limited resources are effectively funneled to the services and infrastructure most needed on the ground. Skeptics of this approach will understandably question Egypt's ability to fund such development amid its dire financial straits, yet the dividends that would accrue to the state from the development of the region and its natural resources would help jumpstart the now moribund Egyptian economy, as would the return of foreign investment and tourism. A small portion of the newly created jobs could be reserved for disgruntled, unemployed young graduates of Cairo and the Egyptian mainland. The international community also has a large role to play in this regard; in 2009, the US government awarded \$50 million for this purpose.³²

Such long term development will take time, as will its effects on arms trafficking. Yet if implemented consistently, inclusively, and accountably, development of the Sinai Peninsula is likely to become self-reinforcing. The more Bedouin are employed in local industry and agriculture, the greater their interests will be to protect and expand their newfound sources of income. Newly employed locals are unlikely to tolerate disruptions of their everyday lives and earning potential by armed attacks and ensuing security crackdowns. As the new beneficiaries of foreign investment, the Bedouin will have a strong interest in reigning in the smuggling gangs and jihadists whose activities unnerve foreign investors and tourists.

To be sure, few jobs will be able to compete with the soaring profits of arms trafficking, yet they offer different incentives, namely, a more stable and significantly safer source of income, especially during periods like the present, when the military has sealed most smuggling tunnels, bringing business in Rafah to a near halt.³³ Greater income stability, coupled with the construction and accessibility of new schools, will enable more families to send their children to school, keeping them away from smuggling gangs and contributing to a more skilled and educated workforce over the years.

Local development could also help reassert the tribal social norms that have been undermined in recent years by rapid socio-economic change and the rise of newly powerful armed gangs. As related by prominent Bedouin activist Musaad Abu Fagr, “Our customs and tribal laws have been ruined so it’s no wonder that many people here have turned into outlaws over the years.”³⁴ Together, stable economic opportunity, decreased exposure to radical Islamist ideology in Egyptian prisons, functioning state institutions to rival those of Salafis who have since stepped into the state vacuum,³⁵ and a revival of Bedouin tribal identity and social norms could serve as powerful countervailing forces against smuggling and jihad recruitment.

Integration

Although Sinai development would incentivize alternative livelihoods to arms smuggling, it alone is insufficient to stem the flow of arms; the Bedouin must be simultaneously and formally integrated into the security apparatus of the Peninsula. The reasons for this are twofold. One, on a psychological level, so long as the Bedouin feel threatened by the security forces, rival tribes and smuggling gangs, highwaymen, and jihadists, arms will remain in circulation. Two, operationally, only a force that integrates the Bedouin, works with and commands the respect of the local tribes, and understands both the cultural sensitivities and rugged terrain of the region is likely to succeed in obstructing arms trafficking.

For many years, the Bedouin were virtually barred from enlisting in the military and the security services. Staffed almost entirely by Nile Valley Egyptians, the heavy-handed security services have long been perceived as “invaders” and “conquerors,”³⁶ leading the Bedouin to take up arms in their perceived self-defense and to secure the release of their jailed brethren. Said one Bedouin leader from the Tarabeen tribe, “We have declared war against

the military and will not wait for them to kill us all...I personally have ten 14.5 mm anti-aircraft guns that I bought at \$12,000 a piece.”³⁷

Now, outmanned and outgunned, the few police that remain in Sinai have even less to offer the locals in the way of security. Stories abound of their helplessness and fear of armed gangs and jihadists,³⁸ and they have staged multiple protests themselves, calling for better security and improved weaponry.³⁹ As a result, locals have taken their security into their own hands. As one former arms smuggler explained, “The people won’t allow the police to come back until there’s an amnesty for Bedouin who’ve been wrongly prosecuted. How can you protect your life? You have to bear arms.”⁴⁰

A paradox has thus emerged: although the Bedouin demand improved regional security, they reject the presence of state security forces. To diffuse the pervasive sense of insecurity and taper the resulting demand for illicit arms, the Bedouin and Sinai residents must be integrated into the security forces in a manner that builds trust with the locals, thus legitimizing the forces and allowing them to resume their duties. Significantly, the Bedouin have indicated their interest in joining the security apparatus. According to the Sinai Rebels movement, 13 Sinai applicants were rejected from the Military Academy in 2012.⁴¹ Bedouin leaders often offer to mediate between the government and Sinai criminals, including during the hostage crisis this past May. As recalled by one young Bedouin from the Tawabeen tribe, “I offered to take part in ‘Operation Eagle,’ but they refused.”⁴²

The state should take advantage of this interest while it still exists. Tribal sheikhs have begun to voice concern about the growing “complications” of their mediation on behalf of the government during crises, citing criticism by fellow tribesmen for aiding a government that fails to fulfill its promises.⁴³ Last October, al-Salafiyya al-Jihadiyya released a statement that anyone who provided the security forces with “information and spies for them...is merely an apostate and deserves to be killed by us,” warning that “the treacherous agent will only get the sword.”⁴⁴ Since then, several tribal leaders and their relatives have been targeted.

Bedouin integration into the security services and the military would afford the latter the legitimacy and local tribal cooperation that is crucial to combating arms smuggling. As explained by Sheikh Salem Bin-Jirma of the Association of Arab Egyptian Tribes, only a force that includes the Bedouin would command the respect of the tribes “due to the presence of their children within it.”⁴⁵ Bedouin forces could serve as valuable interlocutors with the

tribal sheikhs and elders, building bridges to the local chieftains who can then obligate their respective tribes to cooperate. Counter-smuggling efforts would also benefit from Bedouin tracking abilities and familiarity with the local topography. As Sheikh Ali Freij, head of the Sinai tribes council and Arab Party for Justice and Equality argued in a May 24, 2013 interview, “It is necessary to fully re-establish security and include the people of Sinai in the security system. Sinai has a large area, and its people best know its trails and hideouts. It is impossible for any forces to achieve comprehensive security in Sinai without integrating the people into the security system.”⁴⁶

The integration of Bedouin into the Sinai security structure can and should take place alongside the development of the region. Although their effects will not be immediate, the initiation of this process will likely have a positive, albeit fragile, impact on Bedouin-state relations in the short term and improve counter-terrorism efforts by the security forces in the interim.

The Fusion of “Hard” and “Soft” Power

The “soft power” disincentivization of arms smuggling outlined above is not a substitute for the “hard power” security measures already employed in the Sinai Peninsula. A full description of these measures is beyond the scope of this paper, but they include such tactics as tunnel demolitions, tightened border security, improved intelligence, and arrests (with due process) of known smugglers. The international community can improve these operations by providing counter-smuggling and counter-insurgency technology and training. Currently, the Egyptian military is equipped and trained for conventional inter-state war.

The hard and soft power approaches must be used in tandem; the former can target and imprison smuggling kingpins from the top, while the latter can syphon off their support from the bottom. Fusing together these two approaches will also enhance the efficacy of each. Bedouin seeking to restore security to their lands can provide valuable intelligence to counter-smuggling efforts by the military and security services. Conversely, the security services can use innovative social campaigns to involve the community in its arms control efforts. For example, many Bedouin complain about the smuggling into Gaza of commodities that are scarce within their own communities, such as fuel. Mobilizing the community against fuel smuggling could produce spillover benefits for the fight against arms smuggling. By factoring out

such common interests between the community and arms control efforts, the state can broaden the realm of possible community-state partnerships.

Demilitarization and Arms Collection

The development of the Sinai Peninsula and tribal-state security partnerships will take time. In the long run, however, they could create favorable conditions for arms collection programs. In order to prevent arms exchange programs from generating new demands for arms and inadvertently fueling the trade, these programs should take place alongside improved policing and border control measures. The Bedouin will prove critical to these efforts, but only once their grievances are addressed and their security ensured. Only when they feel that the collection and destruction of weaponry will enhance – rather than detract from – their security will their motivational balance begin to tip in favor of arms control. Indeed, according to media reports, the primary tribes to answer a recent military call for unlicensed weapons were those whose territories lie in the west and the south, areas that have seen significantly less conflict and violence than in the volatile north.⁴⁷ There are a number of examples of creative, civil society-based initiatives that states around the world have successfully employed to encourage locals to relinquish illicit arms.

In August 2012, the UN launched a new set of International Small Arms Control Standards (ISACS) to provide “clear, practical and comprehensive guidance to practitioners and policymakers on fundamental aspects of small arms and light weapons control...[and] built upon best practices elaborated at regional and sub-regional levels.”⁴⁸ Its weapons-for-development model, which offers an increase in ongoing development in exchange for weapons, could form the basis for a Sinai weapons collection program. By offering attractive but non-crucial assistance, such as advanced school equipment and medical facilities instead of monetary rewards, it would prevent cash handouts from being used to fuel illicit activities. Moreover, it would benefit the community as a whole, rather than rewarding individual offenders. It would also work well with the Bedouin tribal structure, which could pressure individuals to turn in their weapons for the benefit of the collective.

Weapons-for-development initiatives have enjoyed limited success in countries such as Albania, where the program resulted in the collection and destruction of around 16,000 small arms and light weapons.⁴⁹ Yet they are most effective when backed by public support, as demonstrated by the events

in Libya in September 2012. After the revolution, the Libyan government implemented a number of incentive-based disarmament schemes with little success, including buy-back programs and weapons-for-jobs exchanges.⁵⁰ However, in the wake of the September 11, 2012 militia attack on the US consulate in Benghazi and the death of Ambassador Christopher Stevens, thousands of protesters took to the streets to demand the demilitarization and disbanding of armed militias. Several days later, over one thousand Libyans⁵¹ turned in over 600 different types of arms⁵² at an army collection drive, including anti-aircraft guns, rocket and missile launchers, landmines, and even tanks.

Conclusion

Given the administrative and security disarray in Sinai and the power now wielded by the Bedouin, any state approach to arms control in the region must integrate the population. No military operation can provide a long term solution to a phenomenon that is rooted in civil society's socio-economic and political grievances.

Of course, the implementation of the above recommendations depends on the political will of the Egyptian government, now de facto ruled by the military. The military missed its opportunity for reforms during its previous rule; it should not make the same mistake twice. Given the widespread unrest and violence in mainland Egypt at the moment, it can hardly afford to fight on two fronts at once. Its standing may also be at stake, as Sinai is increasingly seen as a test of the military's – and by extension, the state's – ability to provide stability.

Now is the time for the military to offer the Bedouin a deal – one that includes the development of the Peninsula and integration of the Bedouin into the regional security structure, but which also allows “hard” security measures such as tunnel destruction to continue apace. Giving the Bedouin a stake in Sinai development and security will incentivize local pushback against destabilizing phenomena such as arms trafficking and jihadist groups. The restoration of a sense of regional security will taper the domestic demand for arms and encourage foreign investment and tourism. Alternative economic livelihoods will syphon off would-be smuggling recruits, while tunnel destruction and arrests by a more knowledgeable, legitimate, and therefore more effective security force will significantly raise the costs of smuggling. Taken together, this approach could favorably alter the context in

which future arms control measures take place, such as weapons collection drives. It could also provide a blueprint for civil society-based approaches to arms control elsewhere in the world.

However, there is no magic formula that will guarantee the success of this approach; it must remain flexible, capable of adapting to the complex and fluid conditions in which it will be implemented. For example, many Bedouin may refuse to join the security services until the government agrees to grant amnesty to Sinai residents who were imprisoned or convicted in absentia under Mubarak.⁵³ The military may also be forced to open the Rafah border crossing for the flow of commercial goods to replace the lost livelihoods of tunnel operators. The military must not allow such demands to obstruct the process, but rather discuss – and if necessary, negotiate – them in parallel. Momentum is paramount; amid the highly flammable current climate of resentment and distrust, any significant disruption in the development and integration of Bedouin society would risk outbreak of renewed conflict, setting back the process and making the future rebuilding of trust all the more difficult.

There are certain steps that the international community can take to encourage the military to tackle the challenges posed by Sinai. For example, the US could earmark a determined portion of its military aid to Egypt for the purchase of hi-tech, counter-terrorism technologies that will be of greater use in Sinai than F-16s and M1A1 Abrams tanks, and even apply a “use it or lose it” time limit. Many other countries with significant interests in securing the international shipping lane through the Suez Canal might also be persuaded to pressure the military to do more for Sinai security. As recently as September 1, 2013, a Panama-flagged cargo ship was attacked as it passed through the canal.

With or without international pressure however, the military’s hand may be forced, either by high-profile embarrassments, such as jihadis’ ambush and execution of 25 off-duty Egyptian policeman in August 2013, or by cross-border jihadist activities that threaten to drag Egypt into conflict with Israel. The Sinai-launched rocket that the Iron Dome intercepted over Eilat on August 13, 2013 was not the first to target an Israeli population center, nor presumably will it be the last. Israel has thus far shown restraint, preferring to authorize greater Egyptian military deployments in the demilitarized zone of the Peninsula, as required by the Camp David Accords. Yet the greater the number or lethality of the attacks, the more pressure will build

on the Israeli government to respond, as was likely the case with the August 9, 2013 alleged Israeli drone strike against Sinai militants preparing to launch a rocket into Israel. On the one hand, coordinating its response with the Egyptian military (as Israel evidently did with the drone strike) could prevent the two militaries from being inadvertently drawn into conflict. On the other hand, the two militaries' cooperation drew scathing criticism from the Egyptian public that, if repeated, could seriously damage the military's standing. In either scenario, then, the Egyptian military loses from Israeli involvement in Sinai. The urgency of the deteriorating situation therefore require the military's interference sooner, rather than later.

Until the Bedouin are recruited to become partners in their own security, the Sinai Peninsula will remain a battleground between the competing interests of the state and the local population. The time is ripe for action, and the burden rests now with Egypt.

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