



To Join or Not to Join the Nuclear Club: How Nations Think about Nuclear Weapons: Lessons from and for the Middle East

Relinquished Nuclear Powers: A Case Study of Libya

Målfrid Braut-Hegghammer

Pakistan's Motivations for Possessing Nuclear Weapons
and Challenges to the "Unitary Rational Actor" Model for
Managing Deterrence

George Perkovich

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at the Marine Corps University

Middle East Studies Monograph Series

As part of its mission to broaden U.S. Marine Corps access to information and analysis through publishing, Middle East Studies at Marine Corps University (MES) has established different mechanisms to disseminate relevant publications, including a Monograph Series. The aim of the MES Monograph Series is to publish original research papers on a wide variety of subjects pertaining to the Middle East and South and Central Asia. The focus of the Monograph Series is on timely subjects with strategic relevance to current and future concerns of the U.S. Professional Military Education community.

This issue is a revised and expanded version of the fourth issue of the MES Monograph Series that featured two papers presented by Dr. Målfrid Braut-Hegghammer, Assistant Professor at the Norwegian Defence University College, and Dr. George Perkovich, Vice President for Studies and Director of the Nuclear Policy Program at the Carnegie Endowment for International Peace, as part of a workshop entitled “To Join or Not to Join the Nuclear Club: How Nations Think about Nuclear Weapons.” The workshop was sponsored by the Minerva Research Initiative and held at Marine Corps University. This issue includes a forward by former Minerva Chair Dr. Norman Cigar and his research assistant Stephanie Kramer as well as rapporteur notes prepared by the Public International Law & Policy Group. I thank Dr. Cigar and Ms. Kramer for their sustained support of the work of MES while working as part of the Minerva team.

The MES Monograph Series will be available both in print and electronically through the MES website at www.mcu.usmc.mil under the “Middle East” tab as well as on Facebook at [middleeaststudies.mcu](https://www.facebook.com/middleeaststudies.mcu). For information on obtaining print copies, please contact Mr. Adam C. Seitz, Senior Associate at MES, at seitzac@grc.usmcu.edu, telephone number (703) 432-5260.

We welcome comments from readers on the content of the series as well as recommendations for future monograph topics.

Amin Tarzi
Director, Middle East Studies
Marine Corps University

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Forward

by Norman Cigar and Stephanie Kramer, Marine Corps University

This publication consists of the proceedings of a conference and workshop entitled “To Join Or Not to Join the Nuclear Club: How Nations Think about Nuclear Weapons.” Our purpose in holding this conference and workshop, as part of the Minerva Research Initiative, was to gain a better understanding of the multidimensional aspects of how regional powers decide whether or not to acquire and retain nuclear weapons by using case studies from around the globe. This issue is particularly salient for the Middle East at present, and the conference and the ensuing discussions both take lessons from and provide lessons for the region. Of the cases studied here, four of the six are from that region, while insights gleaned from the experience of countries in other parts of the world are also clearly relevant to the situation in the Middle East.

Scholars and policymakers have long sought to understand why some countries decide to embark on a nuclear path while other do not, and many of their insights, or models, may be helpful in analyzing these case studies and, conversely, conclusions drawn from these case studies may support, qualify, or call into question certain facets of such models. Efforts over the years to develop a universal model to explain nuclear proliferation have deepened our understanding of the phenomenon but have not generated a consensus, despite a substantial amount of scholarly literature.[1]

Analytical approaches have coalesced into models relying, in broad terms, on “realism” or on “idealism.” Both models are in a sense deterministic, each in its way, and, while contributing insights into the phenomenon of proliferation, have difficulty in accounting for decisionmaking that does not conform to constraints suggested by these models. The realist perspective of nuclear proliferation, in its essence, has focused on international security threats (especially nuclear ones), coupled to the absence of adequate alternative options such as reliable alliances, as the stimulus for states to pursue nuclear weapons.[2] An alternative idealist approach views the preceding model as weakened by the many exceptions of countries that do not follow that path as would be posited by the realist model, and relies on national, cultural, or individual aspects as an analytical and explanatory tool. An extension of the idealist model sees as key, in particular, the psychology of individual decisionmakers, who respond to national security threats based on a psychological national identity, for “the decision to acquire nuclear weapons is not only a means to the end of getting them; it is also an end in itself, a matter of self-expression ... The oppositional nationalist’s emotional impulses in this direction are so strong that the mere arrival in power of such a leader is practically a sufficient condition to spark a decision to build the bomb.”[3]

Other scholars, such as Scott D. Sagan and Peter R. Lavoy, have developed models intended to provide a more comprehensive analytical framework by combining perspectives from both approaches, recognizing the need to adapt analysis to a variety of countries characterized by complex security, social, political, and

[1] Tanya Ogilvie-White carried out a particularly comprehensive analysis of the strengths and weaknesses of various theoretical approaches in “Is There a Theory of Nuclear Proliferation? An Analysis of the Contemporary Debate,” *The Nonproliferation Review*, iv, 1, Fall 1996, 43-60.

[2] For an elaborated version of this model by its originator see, Kenneth N. Waltz, “Toward Nuclear Peace,” in Robert J. Art and Kenneth N. Waltz, eds., *The Use of Force* (Lanham, MD: University Press of America, 1993), 527-55.

[3] Jacques E. C. Hymans, *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy* (Cambridge: Cambridge University Press, 2006), 35-36.

economic dynamics by relying on an assessment of multiple variables.[4]

Participants in the conference were encouraged to consider such factors as threat perceptions, the interpretation of lessons learned from the experience of other countries, the calculus of perceived costs and benefits for national security, the envisioned modes of employment of nuclear weapons (political and military), a country's specific political decisionmaking process and its institutions, and the legal/ethical considerations—all from the perspective of regional actors. An understanding of how actual and potential regional nuclear powers make decisions on the nuclear issue, of the motivations, and of the perceived utility of nuclear weapons from the perspective of recent and potential nuclear powers, can provide insights that can contribute to the crafting of more effective U.S. and multilateral nonproliferation, counterproliferation, and deterrence strategies.

The conference was held at the General Gray Research Center, the Marine Corps University, Quantico, on 31 January 2012. Major General Susan Y. Desjardins, USAF, Director of Plans and Policy, U.S. Strategic Command, provided the keynote address, in which she assessed U.S. military perspectives and the U.S. policy on nuclear proliferation.

In the morning session, panels examined three sets of case studies: countries that had the capability to acquire nuclear weapons, or actually did so, but decided to relinquish or decline that option (South Africa and Libya), countries that have developed a nuclear capability (Pakistan and North Korea), and countries that may be considering a nuclear option (Iran and Saudi Arabia).

In a follow-on afternoon workshop, a select number of renowned experts in nuclear and regional studies participated in three break-out groups, mirroring the three morning panels, in order to continue broader discussions and to synthesize some of the issues brought up previously.

We were fortunate to be able to host a broad spectrum of the leading authorities on nuclear issues from academia, the policy community, the military, think tanks, and the media from both the United States and from the regions under discussion both as participants and as members of the audience.

Both the papers that were presented and the subsequent discussions highlighted the commonalities and distinctive features inherent in each individual case, and the daunting complexity of finding a universal model to account for the diversity in the regional security situations, threat perceptions, and strategic cultures. Perhaps the broadest commonality which emerged was that of the uncertainty connected with the forecasting the decision to adopt or relinquish nuclear weapons, which contribute to the uncertainty and risks that are part of the challenge which the United States and the international community face in dealing, in particular, with cases such as those of Iran and North Korea.

The text published here contains an account of the panel proceedings and of the discussions in the subsequent break-out groups. We are including the text of two case studies presented by Dr. Målfrid Braut-Hegghammer, of the Norwegian Defence University College, "Relinquished Nuclear Powers: A Case Study of Libya," and by Dr. George Perkovich, of the Nuclear Policy Program, Carnegie Endowment for International Peace, "Pakistan's Motivations for Possessing Nuclear Weapons and Challenges to the 'Unitary Rational Actor' Model for Managing Deterrence." These two papers were selected for their particular insights on differing paths taken by two countries in the greater Middle East region—Libya and Pakistan—with one having decided to relinquish its nuclear program while the other decided to acquire a military nuclear capability. Other complete papers are being published separately.

We are indebted to Dr. Paul Williams, President, and Mr. Tyler Thompson, Ceasefires Fellow—both of the Public International Law & Policy Group (PILPG)—for making rapporteurs available to record and synthesize the proceedings. PILPG is a non-profit organization that operates as a global pro bono law firm

[4] Scott D. Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security*, xxi, Winter 1996-97, 54-86, and Peter R. Lavoy, "Nuclear Proliferation over the Next Decade: Causes, Warning Signs, and Policy Responses," *The Nonproliferation Review*, xiii, 3, November 2006, 434-54.

to provide free legal assistance to states and governments involved in peace negotiations, advise states on drafting post-conflict constitutions, and assist in prosecuting war criminals. To facilitate the utilization of this legal assistance, PILPG also provides policy formulation advice and training on matters related to conflict resolution. The PILPG rapporteurs—Tyler Thompson (team leader), Ivan Carpio, Cindy Gierhart, Margret Gonzales, David Jims, Josh Kuyers, Clarissa Pintado, and Erica Tokar—recorded and synthesized the proceedings and produced the transcript appearing here.

The conference was made possible through the generosity of the Minerva Research Initiative, the Marine Corps University, and the Marine Corps University Foundation. Special thanks are extended to Dr. Amin Tarzi and Mr. Joel Westa of the Marine Corps University for their valuable professional input and advice in the planning of this conference, and to Major General Thomas M. Murray, USMC, former President, Marine Corps University, and Dr. Jerre W. Wilson, Vice President for Academic Affairs, Marine Corps University, for their support and encouragement at every stage of the process.

The Minerva Initiative is a Department of Defense (DoD)-sponsored, university-based social science research initiative launched by the Secretary of Defense in 2008 focusing on areas of strategic importance to U.S. national security policy. The goal is to improve DoD's basic understanding of the social, cultural, behavioral, and political forces that shape critical regions of the world. The Minerva Initiative funds projects at American universities and, since 2010, research chairs at professional military education institutions.

Minerva Program Site: <http://minerva.dtic.mil/>

Minerva at MCU: <http://minerva.marinecorpsuniversity.org>



Workshop Agenda

0805-0815 Introductory Remarks

MajGen Thomas Murray, President MCU

0815-0900 Morning Keynote Presentation

Major General Susan Y. Desjardins, USAF, Director of Plans and Policy, U.S. Strategic Command

0915-1015 Panel 1: Relinquished Nuclear Powers

Chair: Mr. Paul Bernstein, National Defense University Center for WMD

South Africa: Mr. Frank V. Pabian, Los Alamos National Laboratory

Libya: Dr. Malfrid Braut-Hegghammer, Norwegian Defence University College

1020-1120 Panel 2: States Possessing a Nuclear Capability

Chair: Ms. Sharon Squassoni, Center for Strategic and International Studies

Pakistan: Dr. George Perkovich, Carnegie Endowment for International Peace

North Korea: Mr. Joel S. Wit, U.S.-Korea Institute, SAIS

1135-1235 Panel 3: Potential Nuclear Powers

Chair: Dr. Amin Tarzi, Marine Corps University

Iran: Dr. Olli Heinonen, Harvard Belfer Center

Saudi Arabia: Dr. Norman Cigar, Marine Corps University

1235-1245 Closing Remarks for Plenary Session

1300-1515 Lunch and Follow-On Discussion in Breakout Groups

Group 1: States That Declined to Develop or Gave Up Their Nuclear Program

Group 2: States Possessing Nuclear Capability

Group 3: Possible/Potential Nuclear Powers

1530-1630 Reconvene, Report, Conclusions, Final Discussions

1630-1645 Closing Remarks



Breakout Session Participants

Group 1: States That Declined to Develop or Gave Up Their Nuclear Program

Paul Bernstein (Moderator)	Senior Research Fellow, NDU Center for Center for the Study of WMD
Malfrid Braut-Hegghammer	Norwegian Defence University College
Frank V. Pabian	Los Alamos National Laboratory, Visiting Fellow, CISAC
Mark Jansson	Deputy Director, Project on Nuclear Issues, CSIS
Bruce MacDonald	Senior Director, Nonproliferation & Arms Control Program, USIP
Francis Marlo	Faculty, Command and Staff, MCU
Sharon Weiner	Professor, School of International Service, American University
Hugh Gusterson	Professor of Anthropology and Sociology, George Mason University
Mahdi Obeidi	Author and Nuclear Scientist
Yuki Tatsumi	Senior Associate, Stimson Center

Group 2: States Possessing a Nuclear Capability

Sharon Squassoni (Moderator)	Director, Project on Nuclear Issues, CSIS
George Perkovich	VP for Studies, Director of Nuclear Policy Program, Carnegie Endowment
Joel S. Wit	Visiting Fellow, U.S.-Korea Institute, SAIS
Damon Franklin	A10, Strategic Deterrence & Nuclear Integration Office
Paul Kerr	Analyst, Congressional Research Service
Lt Col Everett Lilya, USAF	Chief, Operations and Strategy, European Liaison Office, EUCOM, Pentagon
Zia Mian	Researcher, Princeton University
Nima Gerami	Research Fellow, NDU Center for Center for the Study of WMD

Group 3: Potential Nuclear Powers

Amin Tarzi (Moderator)	Director, Middle East Studies, Marine Corps University
Olli Heinenon	Senior Fellow, Harvard Belfer Center
Norman Cigar	Minerva Research Chair, Marine Corps University
Michael Adler	Public Policy Scholar, Woodrow Wilson Center
Michael Eisenstadt	Director, Military & Security Studies, Washington Institute
Chen Kane	Senior Research Associate, James Martin Center for Nonproliferation Studies
Adam C. Seitz	Senior Reseach Associate, Middle East Studies, Marine Corps University
Douglas B. Shaw	Elliott School, George Washington University
Lt Col Jim Dishaw, USAF	A10, Strategic Deterrence & Nuclear Integration Office
Col Samuel L. McNeil, USAF	Deputy Staff Director, U.S. Nuclear Risk Reduction Center
Lawrence Scheinman	Distinguished Professor, James Martin Center for Nonproliferation Studies

Rapporteur Notes

Prepared by the Public International Law & Policy Group (PILPG)

Panel I: Relinquished Nuclear Powers: South Africa and Libya

The first panel of speakers analyzed states that have relinquished their nuclear weapons and provided lessons learned from these cases.

Mr. Frank Pabian discussed how South Africa's capability and motivation precipitated its nuclear program. South Africa is home to a large supply of natural uranium, which the state supplied to the United Kingdom and the United States during the Cold War. Additionally, after benefitting from U.S. scientific training, South Africa began developing its own indigenous uranium enrichment process. South Africa was also motivated by the notion that it was a "first world nation in a third world continent" and thought that it must act as a "bulwark against Communism" in the region. When P.W. Botha took power in September 1978, he instituted his "Total Strategy," which included a nuclear program that he believed acted as an equalizer, stabilizer, and insurance policy in an uncertain world, as well as a guarantee to protect its domestic system of apartheid. A changing world, however, made South Africa's nuclear program much less necessary, with increased stability in the region and the end of the Cold War. Increased scrutiny from the International Atomic Energy Association (IAEA) caused South Africa to reveal the existence of six or more nuclear weapons in March 1993. Nevertheless, South Africa justified its nuclear program and uranium enrichment under the framework of an energy program and its vast natural resources.

Dr. Malfrid Braut-Hegghammer, Norwegian Defence University College followed up the discussion with an analysis of the Libyan model. Colonel Muammar Qadhafi gave up pursuing a nuclear weapons program in 2003 through a process of diplomatic negotiations.

The Qadhafi regime began pursuing nuclear weapons shortly after Colonel Qadhafi's ascension to power in 1969. His nuclear ambition lacked focus, however, and the commitment of the regime to the nuclear weapons program vacillated over the years.

From the outset, Qadhafi was not sure for what or against whom he would use nuclear weapons. Much of the motivation for nuclear weapons came from a desire to be respected by the international community. When Qadhafi came to power, Libya was one of the poorest countries in the world; it had no indigenous capacity to develop nuclear weapons, and technology and infrastructure were weak. Thus, the Libyan regime tried unsuccessfully to buy nuclear materials from other powers.

In 1973, the leadership in Libya made a decision to focus on developing the ability to make nuclear weapons domestically. Two main factors contributed to this decision. First, Libya's regional ambitions were expanding, as they felt that Egypt had left a power vacuum that Libya could fill following Arab-Israeli war. Secondly, Libya had begun accumulating profits from the nationalization of Libya's oil industry, and so had money to pursue the option.

Throughout the 1980s, the Qadhafi regime faced increased scrutiny and isolation due to some of its foreign policy maneuvers, including the support of terrorist groups. This prompted a debate within the regime: Libya could either reform the country domestically to build popular support through internal reforms, or to work

at gaining strength, if not respect, through external means. From 1986-95, Libya's isolation continued, due in part to the state's involvement in the 1986 bombing of La Belle Discotheque in Berlin and the 1988 bombing of PanAm Flight 103 (the Lockerbie incident). The general consensus was that Libya should enhance the security of the state by developing a nuclear deterrent. However, not much progress was made on the nuclear front, as Libya found it difficult to procure supplies.

From 1995-2003, Libya's desire to build nuclear weapons as a means for self-preservation intensified. A blessing to the Libyan regime came in the form of an offer from A.Q. Khan from Pakistan for nuclear technology. At the same time, Qadhafi also attempted to enact major socio-economic reforms at home to mitigate for biting international sanctions. It was a two-track policy: weapons of mass destruction (WMD) would act as insurance while the state attempted to solidify its international standing.

In late 2003, Libya abandoned all nuclear programs. Some commentators have suggested that the U.S. invasion of Iraq was the reason for this decision, presumably because Qadhafi would want to avoid a similar invasion. While the Iraq invasion may have affected the timing, Braut-Hegghammer argued that evidence shows that this decision was not sudden. She noted that coercive diplomacy was instrumental in convincing Libya to abandon its nuclear program, and that this strategy may also be useful in dealing with future nuclear states. Proponents felt giving up nuclear weapons would make the country more secure in light of its relationships with world powers. The nuclear weapons program served Qadhafi's purposes by bringing states to the table for negotiations with Libya, and in the negotiation process, many of Libya's security concerns were addressed, eliminating much of the justification for the nuclear weapons. Furthermore, buying technology from A.Q. Khan on the black market was expensive.

How close was Libya to being a nuclear power? Dr. Braut-Hegghammer believed Libya was several years away from developing the capacity to create its own nuclear weapons. The program was never robust, as the country lacked the scientists and engineers to develop a truly capable system, and had to purchase most of its nuclear development materials from the black market. However, the program should not be considered the "court jester" in the world of proliferation. Though the state was held back by a lack of technology, know-how and manpower, several of these hurdles could have been overcome relatively quickly.

The lessons learned from Libya are not entirely clear. The Libyan example showed that despite a relatively rudimentary basic infrastructure, countries can still go fairly far down the nuclear path through the black market. The Libya example may well yield applicable lessons for negotiating disarmament as part of an incremental approach to a broader normalization of relations. However, another lesson is that negotiated nuclear rollbacks are unlikely to appeal to isolated regimes. At first, Qadhafi and his regime boasted about the rollback decision, calling it a model to be followed. In the following months, however, his opinion soured as he did not feel that Libya was treated with the respect it deserved considering the sacrifice it had made. The 2011 NATO intervention in Libya and subsequent deposition of Qadhafi only seem to strengthen this reasoning. Today, other powers including Iran and North Korea look to Libya as an example of what not to do, believing that Libya succumbed to Western pressure in relinquishing its weapons and, unable to deter foreign intervention, were repaid with forcible regime change.

Panel II: States Possessing a Nuclear Capability: Pakistan and North Korea

The second panel addressed Pakistan and North Korea, both of which possess a nuclear capability.

Dr. George Perkovich, Carnegie Endowment for International Peace, discussed Pakistan's experience developing nuclear weapons. Pakistan was influenced by a perception during the 1950's that nuclear proliferation was in vogue, and, like many other states, the beginnings of its program benefited from the Atoms for Peace Program, which recognized the legitimacy of civilian nuclear programs. However, the real motivation for developing nuclear weapons was India. The specific catalyst for Pakistan's nuclear weapons program arose out of that country's major territorial losses in the Indo-Pakistani War of 1971, as India supported the secession of East Pakistan (now Bangladesh). Pakistan sought nuclear weapons to prevent

any further loss of territory in future conflicts; it was a "never again" moment. An internal dimension also influenced Pakistan: the civil-military balance of power. By being in control of the country's nuclear arsenal, the civilian leaders hoped to "balance out" Pakistan's powerful army. In the end, this was a miscalculation, as the Army ended up with control of the nuclear program.

For Pakistan, nuclear weapons are viewed as a deterrent against aggression from India, which is the largest arms importer in the world. As long as India remains a threat, there is a perception that nuclear weapons will be a compelling deterrent. Nuclear weapons are seen as a guarantor of national sovereignty and territorial integrity, as Pakistan still considers its nuclear program as a deterrent against conventional aggression from India. With the strength of India's conventional military, Pakistan believes that nuclear weapons are necessary in order to deter the use of conventional force across a wide tactical, operational, and strategic spectrum. Domestically, control over the nuclear weapons program gives status and international policy veto power for the military: essentially, the government cannot do anything without the military's approval.

Dr. Perkovich pointed out that analyzing the situation in Pakistan is challenging, as traditional deterrence models do not always to apply. There are two main, related, challenges:

First, the spectrum of conflict between India and Pakistan operates in a very different scenario from that of the tensions which prevailed between the two superpowers—the United States and the Soviet Union—during the Cold War. The traditional model of escalation to nuclear war assumes that the conflict will start out with conventional warfare between armies of relatively stable states, and escalate to a nuclear attack. However, in Pakistan, it is more likely that the conflict would start out with a "subconventional" act of aggression: an irregular or even clandestine attack that many would call a terrorist attack, such as the 2008 bombing of the hotel in Mumbai, India. Dr. Perkovich asked: 'What is the model going from "subconventional" to "conventional" to nuclear?'

Similarly, the Pakistan case poses problems for the "unitary rational actor" model. Traditionally, state governments have a monopoly on the legitimate use of violence—they are the unitary actors that have direct control over military actions, intelligence maneuvers, and, hypothetically, nuclear attacks. However, in Pakistan, acts of aggression are often not linked explicitly to top leadership of the state, or at least, the state can claim that they are not tied to the government. On the one hand, this gives Pakistan deniability; the government can always say that there were no orders given to attack, and therefore they should not be penalized. On the other hand, Pakistan risks international embarrassment if state involvement is later discovered, as it was when ties were found between the 2008 Mumbai bombings and members of the Inter-Services Intelligence Agency.

Regardless, this ladder of subconventional escalation and the lack of monopoly over the use of force complicate calculations and destabilizes regional security. How does the other state—i.e., India—react to a terrorist attack that may or may not have been controlled by Pakistan? How do both sides negotiate and signal to each other when there is no control over individuals within the country? Dr. Perkovich offered this scenario: India considers the subconventional attacks coming from within Pakistan as acts of Pakistani aggression, and builds up conventional rapid reaction forces to counter them. Pakistan sees the conventional build-up as an act of Indian aggression, since the government of Pakistan asserts that it did not order the terrorist attacks. Pakistan's response to conventional Indian aggression could then be nuclear. Ultimately, Pakistan must gain control over the monopoly of force in order to stabilize the region. Otherwise, Pakistan will never be seen as a reliable negotiating partner.

Mr. Joel S. Wit discussed North Korea's nuclear weapons program, both its history and its future. He cautioned that it is nearly impossible, due to North Korea's secrecy, to have a fine-tuned, clear cut analysis of North Korea's program. Much remains unknown with regards to its program regarding type, number, and purposes of the weapons. North Korea's nuclear proliferation ambition dates back to the late 1950s, but its motivations for nuclear power appear to have changed over time.

From the 1950s to the 1980s, it seemed that North Korea was bent on building nuclear weapons, and spent billions of dollars on the program. North Korea was uniquely situated because it fought a war with the United

States, and the fear that the latter would use nuclear weapons during that war drove Pyongyang's outlook on nuclear weapons. After the Cuban Missile Crisis, North Korea concluded that it could not depend on the Soviet Union to defend it against the United States. Finally, North Korea was doing well economically at the time, and dreamed of reunifying the Korean Peninsula—an objective that could have been helped by the possession of nuclear weapons. North Korea went considerably far down the nuclear path during this time period: it had plutonium reactors, a radiochemical reprocessing facility, and by the 1980s, was conducting tests that indicated to the United States that it planned to make a nuclear weapon.

From the late 1980s to 2002, however, North Korea seemed to de-emphasize the development of a nuclear capability, suggesting a shift of motivations. First, North Korea was facing a very different geo-political situation. China was making moves to befriend South Korea, the Cold War was over, and after the Soviet Union disintegrated, North Korea pragmatically initiated better relations with the United States by agreeing to a denuclearization program. In the early 1990s, the United States saw facilities that suggested that North Korea could have had enough material to build up to 80-100 nuclear weapons by the early 2000s. However, these facilities deteriorated to the point that by 2002, it was estimated that North Korea only had perhaps enough fissile material for a handful of nuclear weapons, and the plutonium enrichment program was essentially let go. This suggests that motivations in North Korea had changed, as the state allowed a multi-billion dollar investment to deteriorate.

North Korea currently appears to have shifted back to believing that nuclear weapons are a central part of its strategy. At present, there is an ongoing debate about whether North Korea will denuclearize. However, Mr. Wit expressed that the more important questions concerned the size and magnitude of the program, and how North Korea intends to use nuclear weapons. What model would North Korea compare to? China? India? Pakistan? Would it be like France in the 1960s? Many suspect that North Korea will use nuclear weapons as insurance to buttress its foreign policy initiatives.

A nuclear North Korea has stark implications for the United States and regional security and paints a disturbing picture for non-proliferation. First, of course, is the threat of a direct attack from North Korea. Secondly, North Korea could gain the technical knowledge and political courage to sell technology to other countries without fear of reprisal. North Korea's insistence on developing nuclear weapons brings into question the credibility of the American nuclear umbrella, and may even cause a breakdown of the regional non-proliferation regime. North Korea could also use nuclear weapons as a guarantee to threaten and coerce Seoul and exacerbate tension in the region. This environment may also cause the United States to rethink its defense initiatives and its relationships with states like China.

Panel III: Potential Nuclear Powers: Iran and Saudi Arabia

For the third panel, Dr. Olli Heinonen and Dr. Norman Cigar discussed two countries that are potential future nuclear powers: Iran and Saudi Arabia.

Dr. Olli Heinonen of the Harvard Belfer Center focused on the challenge that Iran's suspected nuclear weapons program poses for the nuclear non-proliferation treaty (NPT). Article III of the NPT states that the goal is to prevent the diversion of nuclear energy from peaceful to military uses. In Dr. Heinonen's opinion, it is too late to stop Iran from developing nuclear materials; action must be taken now to ensure that Iran does not divert those materials to military uses.

Article II of the NPT seeks to prevent the development of nuclear weapons. The production and development of nuclear materials are kept separate from the development of Iran's weapons systems, regardless of whether those weapons are eventually destined to carry nuclear material. Article II of the NPT only proscribes the development of nuclear weapons, not conventional ones, and so Iran can claim that it is merely developing its conventional systems alongside nuclear energy. As the IAEA's mandate is only to monitor nuclear materials, Iran can also claim that the IAEA does not have the right to monitor its weapons systems.

Iran is seeking raw materials to support a nuclear program both through the black market and from its own natural resources. However, Dr. Heinonen noted with concern that Iran's capabilities are becoming more and more indigenous, meaning that they rely less and less on outside sources. Iran is taking over the entire fuel cycle. Dr. Heinonen noted that the grey area between nuclear development for weapons and civil energy use makes it difficult to control development, as the equipment and basic materials are the same for both tracks.

Dr. Heinonen concluded that Iran's progress is slow due to design problems, manufacturing/quality problems, a lack of materials, development in spread-out locations, and sabotage. Nevertheless, he warned that the program is on the cusp of reaching a "break-out" capability, particularly as Iran's nuclear program is becoming more and more indigenous. The first weapon could be manufactured by 2013 if the country was able to overcome some of the technical challenges.

Dr. Norman Cigar of Marine Corps University judged that Saudi Arabia may be considering acquiring a nuclear capability. He posited that the Saudi government is motivated by its perceived need to maintain legitimacy by its defense of the country, as well as its role as a leader of the Gulf region and the Islamic community from, in particular, a potential Iranian nuclear threat. He suggested that, in addition to its deterrent function, Saudi Arabia views nuclear weapons development as a political leverage asset and a tool for cultivating prestige. Saudi Arabia has been successful in mobilizing its religious establishment to acquire legitimacy for any future acquisition of nuclear weapons. Saudi Arabia is skeptical that Iran can be stopped from acquiring nuclear weapons. Saudi Arabia's principal fear is that Iran would use nuclear weapons as a deterrent screen against retaliation behind which it could promote instability among the Shia communities in the Gulf and establish its regional hegemony. With the perceived threat of a nuclear Iranian state, Saudi Arabia's quest for nuclear weapons could be an acceptable sell to the international community. However, Dr. Cigar noted that if Saudi Arabia would acquire weapons, it would most likely be through purchase from an outside source, probably Pakistan.

Cost is not a consideration for Saudi Arabia, and it will invest considerable resources into protecting its national interests. A nuclear Saudi Arabia would combine nuclear weapons with conventional arms so as not to be dependent solely on a nuclear deterrent. Saudi Arabia is skeptical of any "nuclear umbrella" extended by the United States. Saudi Arabia is currently developing its strategic rocket force and a space sector which would also be key to the credibility of a deterrent threat. Ultimately, the deciding factor in Saudi Arabia's becoming a nuclear power is likely to be whether Iran develops a nuclear arsenal.

The Breakout Sessions

Working Group I: States That Have Relinquished or Declined to Pursue Nuclear Weapons

The key focus of the breakout panel was why states seek to acquire nuclear weapons and why states may then cease to pursue the acquisition of nuclear arms. The group identified three motivating factors: security, domestic politics, and prestige. The primary motivation for acquiring nuclear weapons, the group felt, was security. In particular, many countries feel that having nuclear weapons will deter other countries from attacking them. States that feel ignored and irrelevant seek to gain prestige on the world stage with nuclear weapons. If they gain nuclear weapons, other states will start paying attention and will invite them to have a seat at the table. In states with unstable dictators, sometimes the motivation is tied to the leader's ego. Yet another motivation for developing nuclear weapons is simply to challenge U.S. power, while some states seek to equalize the power dynamics among the world's nations.

The group disagreed on what deters states from pursuing nuclear programs. One group member offered that, to persuade states from relinquishing their nuclear program, there has to be a sufficient incentive. The threat of violence alone is insufficient. The same group member argued that until states feel that their options are better without nuclear weapons than with them, they will not relinquish them. In response, another group member said this was not an effective way to deal with nations that have violated their treaty agreements because it is tantamount to rewarding bad behavior. If the state has developed nuclear weapons in violation

of treaty agreements, there is no reason to give them incentives. Rather, the international community needs to be forceful and put pressure on the state to comply.

The group also discussed the issue of latency—states that have the capability to develop nuclear weapons but so far have not (or have relinquished their programs). The group discussed a number of states that have the latent capability and/or motivation to develop nuclear weapons, concluding that there may be different motivations for different states to not pursue a nuclear option.

Libya. One group member suggested that Libya obtained nuclear weapons simply because Qadhafi was a madman and wanted the world to think he was powerful. Libya was discussed as a case where the decision to relinquish nuclear power may have been purely technical.

Iraq. Another group member said that Iraq had the same motivation as Libya. Saddam Husayn was a delusional leader and had no real strategy in gaining nuclear weapons. Iraq stopped its nuclear weapons program primarily because the sanctions were impeding the process, and the top promoter of the program was killed. But, another group member suggested that, if the sanctions had been lifted, Iraq would have resumed its nuclear program.

Japan. Japan has not developed nuclear weapons because it has such a strong alliance with the United States that it feels secure without such weapons. Japan is a prime example of a state that has sought shelter under a larger U.S. security umbrella. In addition, Japan has the cultural view that nuclear weapons are immoral because they remember Hiroshima and Nagasaki. Moreover, after the nuclear disaster at Fukushima in 2011, one group member said that Japanese citizens would not support a nuclear program because they know all too well the damage of radiation and other concerns. However, Japan could move very quickly if it wanted to develop nuclear weapons, as it has an astounding capacity in this field.

Taiwan. Taiwan “should” be thinking about nuclear weapons, but no one knows if it is.

Indonesia. Indonesia, too, seems to be off everyone’s radar, but it has two large nuclear centers.

South Korea. Because of the strong threats South Korea faces from North Korea, one would presume that it has a strong incentive to develop nuclear weapons.

Brazil. Brazil had a secret program to develop nuclear weapons in the 1970s and 1980s, but relinquished it in 1990. The vice president of Brazil said something a while back to the press about how Brazil should develop nuclear weapons, but that did not seem to be a real threat.

Saudi Arabia. If Iran goes nuclear, other states in the region are likely to want to pursue a nuclear program. There is a potential that Saudi Arabia will be granted a “hall pass” in light of an Iranian breakout.

Working Group II: States That Have Developed a Nuclear Capability

This group agreed that there is not a set of static factors that lead states to pursue nuclear weapons programs. Rather, no state’s experience is entirely predictive of another’s and priorities of states change over time. Therefore, states must be analyzed on a case-by-case basis. States pursue nuclear proliferation due to concerns about money, nationalism, a desire to preserve territorial integrity, and an ambition to enhance regime legitimacy.

In some circumstances, such as North Korea, the decision to engage in nonproliferation is in flux. In Pakistan, however, the political and territorial cost of nonproliferation is perceived as too high. The “never again” mentality seems to motivate states which have been invaded, like France and Pakistan, to pursue nuclear weapons programs in the interest of national security. Nuclear weapons programs can be slowed and rolled-back. Decisions to do so may be based on parity between rival states, external signals, the strengthening of trade relations, and a lack of crises, but these processes should not be derivative, as each

state has unique circumstances.

One goal of non-proliferation is to change the lexicon, change the paradigm, and inspire states to consider new paths to security and international relations. States do not necessarily envision how nuclear weapons are to be used when they start programs. Most group members agreed that it was unlikely that any existing nuclear powers would actually use the weapons that they develop. This suggests that perhaps discouraging proliferation is not the answer, but rather that permitting states to achieve parity will create a new, more stable status quo.

The group discussed several different states, both possessing nuclear weapons and not:

Pakistan. Nuclear proliferation is a symptom of states that are unable to effectively resolve disputes. Many states reason that once you have nuclear capability, you have a “trump card” that cannot be ignored. States will continue to resort to acquiring nuclear weapons to deal with conflicts. This may be the case in the relationship between India and Pakistan

Pakistan’s factors have changed over time. UN Security Council Resolution 1172 ordered India and Pakistan to abandon further nuclear testing, but this was largely ignored. Nuclear weapons can act as a “trump card,” or the “currency of the world.” Abandonment of the nuclear program also depends on parity. India is emerging as a great power, and is largely unrestrained. The group also mentioned the importance of trade relations and economic considerations for Pakistan. If its trade partners perceive Pakistan as a strong power, then it may be more willing to discontinue its nuclear weapons program.

Pakistan will likely not give up its weapons unless the Indian threat vanishes. If India were not a factor, then the cost of maintaining the nuclear program would probably lead to its end.

Iran. Nuclear weapons are attractive to Iran because they promote the regime’s goal of maintaining power and enhancing its status. Nuclear weapons also help the domestic perception of the regime, and in some ways, the process is cyclical because sanctions by the United States provide a scapegoat in domestic politics as the source of Iran’s economic problems. Interest in nuclear weapons in Iran has transcended regimes and nuclear proliferation has been a consistent priority.

Some experts argued that the United States’ actions in Libya undermined the global nonproliferation strategy. It sent a message that Libya’s agreement to give up its nuclear weapons program had made it more vulnerable to international intervention later. Some noted that this perception is consistent with the experience of Iraq. Because of these precedents, experts suggested that there is no sufficient incentive that the international community could offer Iran to convince it to abandon its interest in nuclear weapons. The current narrative works too well for the regime.

North Korea. North Korea always claims that its dependence on trade gives it no incentive to proliferate; yet it still pursues nuclear weapons. In North Korea, issues of prestige seem to trump countervailing pragmatic concerns, such as economic incentives.

Group members agreed that North Korea is less of a proliferation concern than Pakistan because North Korea has a much smaller weapons capacity. With the right policies, the international community could prevent North Korea from proliferating nuclear weapons. The wrong policies, however, will encourage it. Nonproliferation approaches to North Korea are a matter of trial-and-error since the international community does not really know what the state leadership is thinking.

The international community cannot predict how Kim Jong-eun will manage the Korean bureaucracy. Some group members were of the opinion that nuclear weapons are like another child in the Kim family, which they will never give up. However, North Korea must have had a reason for abandoning its nuclear weapons program previously. It is very challenging for observers to determine what that reason was. Unless North Korea sends clear signals, the United States will not be able to interpret them.

One participant asked, “What is the signal behind North Korea’s revealing its uranium enrichment program

last fall?” The group responded that it may either be that North Korea is seeking to attract attention and incite discourse, or it may be a genuine attempt to notify the international community that North Korea is actually developing nuclear weapons. Most experts felt that North Korea would be willing to agree to non-proliferation, but for a price. Some experts were concerned with how to engage North Korea without marginalizing South Korea. Some pointed out that the United States has been successful at getting North Korea to be more reasonable towards South Korea, though not recently, due to the emphasis on sanctions. Either way, South Korea is unlikely to be marginalized because it is too prevalent in the region. Also, the current South Korean government is conservative, but the new president will likely be more liberal. This suggests that South Korea may be more inclined to consider engagement policies.

The group concurred that those who discount any hope of nonproliferation in North Korea either do not understand North Korean politics or do not know the history of the state. To discount the possibility is to “throw the baby out with the bath water.” Just because North Korea may not agree to complete disarmament does not mean that the international community will be unable to convince North Korea to “dial back.”

Working Group III: States That Are Pursuing or May Pursue Nuclear Weapons

This breakout group agreed on very few issues. However, the participants concurred that nuclear weapons provide a high level of deterrence to prevent threats to a country’s sovereignty from outside forces. The threat of the use of nuclear weapons, however, must be real and credible to strike a sense of fear into would-be interveners. Conversely, some participants expressed the view that simply possessing the latent capability to produce nuclear weapons may act as a deterrent. The group agreed that in states with weak conventional military forces (such as Iran), the threat of nuclear weapons use may become real if those states feel cornered.

Although some nuclear-capable states look forward to a world free of WMDs, states will be unwilling to disarm unless all others do so as well. The need for nuclear energy, however, may create an inability to completely revert back to a world without a nuclear infrastructure and, thus, a potential precursor of nuclear weapons. Most participants agreed that the possession of nuclear weapons may be for political, not military, purposes.

The group also discussed alternative solutions to the current obligations set forth by the NPT and the implications for the maintenance of a P-5 (permanent five members of the UN Security Council) world order. First, the notion of a “limited proliferation” approach in which the slow proliferation of nuclear capabilities could lead to greater international stability (as proposed by Kenneth Waltz in his 1981 paper, “The Spread of Nuclear Weapons: More May Be Better”) was discussed. Few agreed that this would ultimately create greater stability but, rather, that it could cause chaos, particularly in areas such as the Middle East.

Others argued that the NPT may be an antiquated solution to stopping the spread of nuclear weapons. Because the NPT became effective on March 5, 1970 at the height of the Cold War, some argued that its provisions are designed around a bipolar world order that does not exist today. However, some believed that the NPT, although not perfect, coupled with the advisory function of the IAEA were and are instrumental in managing and reducing the numbers of states with nuclear weapons. Participants concluded that, in general, global arms agreements are severely difficult to create, as evidenced by the difficulties presented during the creation of the Comprehensive Nuclear Test-Ban Treaty.

The group also concluded that although the NPT system may be flawed, it has been relatively successful, with very few new nuclear powers emerging since its original drafting. Any new system may produce unknown results and would almost certainly disrupt the current P-5 world order.

Libya. The group generally agreed that if a state is not part of the nuclear club, it may potentially lose some of its sovereignty. This trend is visible from an analysis of the Libya model. In 2003, Qadhafi voluntarily

discontinued Libya's nuclear program, and less than ten years later, NATO forces intervened and assisted in ousting his regime. This may not have occurred if Libya had nuclear weapons. Other states learned a clear lesson from these events: a nuclear capability is the "only" guarantor of sovereignty.

Pakistan. With regard to the situation in Pakistan, the breakout session group agreed that the United States tolerates a high level of assertiveness from Pakistan, such as its support of anti-U.S./NATO insurgent groups, to include direct attacks on U.S. assets via the Haqqani network and others. Despite a lack of trust, the United States pours millions of dollars into Pakistan and treats it as a non-NATO ally in the Afghanistan war. Participants argued that this level of acquiescence to Pakistani aggressiveness may be due to Pakistan's nuclear capability (though the argument has also been made that the United States simply cannot afford to lose Pakistan's cooperation in the war in Afghanistan). The group also noted that a potential war between India and Pakistan could result in the use of tactical nuclear weapons.

North Korea. Similar parallels can be drawn between the United States and North Korea. Many would argue that North Korea's nuclear capability has allowed it to stage direct attacks against U.S. assets in and around the Korean Peninsula (as well as against its U.S.-allied neighbor South Korea). In this regard, U.S. policy towards North Korea has included many carrots, but few sticks.

There are plenty of reasons for the United States' complicated relationship with Pakistan and North Korea, but the group agreed that possessing and maintaining a nuclear arsenal brings foreign cooperation and deters intervention.

Saudi Arabia. The group also included in their analysis a number of states in the Middle East. Of particular importance to the discussion were Saudi Arabia and Iran, their interstate relations, their nuclear capabilities (or lack thereof), and perceptions of their roles in the region. The group established that while Israel continues to be the perceived enemy throughout the region, Saudi Arabia sees Israel more as an irritant and Iran as the most imminent threat. Also, due to NATO's recent intervention in Libya, Saudi Arabia views the United States with less trust as an ally. Because Saudi Arabia believes that it is unable to fully rely on the protection of the United States' "nuclear umbrella," its desire to obtain nuclear weapons has increased. If the Iranian nuclear threat is eliminated, however, Saudi Arabia may decide that nuclear weapons are not necessary.

Although Saudi Arabia does not have the capacity to build a nuclear weapon, there is a possibility of acquiring one from another state. Pakistan seems to be the most likely source for a weapons transfer, but some in the breakout group argued that transportation of the materials would be difficult, particularly because Pakistan is heavily sanctioned. Additionally, some in the group noted that the transfer of one bomb would only make a small impact on interstate relations, although others highlighted the psychological and political impact even a very limited arsenal could have. Today, nuclear deterrence is much more effective if a state possesses multiple weapons and/or the technology to create a weapon on its own.

Iran. At the time of this meeting, experts believed that Iran is one year away from possessing its own home-made operational nuclear weapon, if it chose to do so. While the latest European Union oil sanctions on Iran have increased discomfort and threaten the Iranian economy, the decision to pursue nuclear weapons is not related to economics. For Iran, the issue is one of regional hegemony and having a seat at the international table as a respected player. Economic strife helps to foster popular regime change, but Iran may continue to pursue nuclear weapons under any administration. Moreover, although the Iranian regime has fallen under heavy pressure by the international community through the use of stringent sanctions, India, China, and Russia continue to provide support to Iran through military assistance and the purchase of Iranian oil, and this support has allowed Iran to continue to strive for nuclear capability. Although none of these states wishes to see a nuclear Iran, their support of Iran allows the latter to gain some political advantage over the United States, Europe, and Israel in the region.

Iran's aspirations to become a nuclear power stem from a number of different desires and threats. First, Iran fears that the fall of the Asad regime could potentially eliminate Iranian influence in Syria and its leverage over the Hezbollah organization in Lebanon. Thus, regime change in Syria could result in Iran's losing one

of its few remaining allies. In this scenario, the group agreed that Iran would have a greater incentive to go nuclear. Foreign intervention in Syria could ultimately reinforce the lesson learned from Libya that the lack of nuclear technology equates to a lack of sovereignty.

Second, Iranians view a nuclear program as a means to increase its influence. Strong Persian pride is on the line to restore Iran's classical role as a regional power. The Iranians are looking to "export their revolution" to neighboring states, and nuclear weapons may be a key to doing so, by providing a deterrent against retaliation. Such considerations make it difficult to stop Iran's quest for nuclear weapons, especially when combined with the growing sentiment that nuclear weapons are the only way to protect sovereignty.

Third, in much the same way that Saudi Arabia views Israel and Iran, Iran considers Israel to be a distraction and Saudi Arabia as the real target. Nuclear weapons are essentially political weapons, but in order to be effective there must be a sufficient level of credibility in a country's willingness to actually use such weapons. Politically, there is no strategic end game in targeting Israel, as Israel has an overwhelming nuclear capability in comparison to that of Iran. Rather, Israel is more of an easy ideological straw man for Iran to justify its nuclear program. Saudi Arabia, however, is the real political target for Iran. Saudi Arabia has threatened to increase its output during the European Union embargo on Iranian oil, thus replacing Iran as an exporter. With nuclear weapons, Saudi oil fields and desalinization plants become vulnerable political targets. Presumably, Saudi Arabia would have to think more carefully about crossing a nuclear-capable Iran.

Fourth, as noted earlier, a state such as Iran, with a weak conventional military capability, the possession of nuclear weapons could create a dangerous situation. Iran has proven to be quite erratic and reckless recently, such as with the November 2011 attack on the British embassy in Tehran, and might be encouraged to behave even more rashly if it believed its nuclear weapons made it immune to retaliation.

Fifth, strident rhetoric with no immediate teeth from the United States and others has forced Iran to choose between continuing its nuclear development efforts or looking weak and submissive internally, regionally, and internationally. Iran has already shown defiance in the face of initial calls to cancel the nuclear program, and the Iranian leadership may be too far down the road to shut down the nuclear program now. The West has demonized Iran, and Iran has demonized the West. Iran may only stop its nuclear program if there is a credible threat of force or in a scenario that allows it to save face.

Iran perceived the United States to be a more credible military threat at the beginning of the Iraq War. However, once the military effort in Iraq showed signs of weakness, this leverage dissipated. It has been U.S. policy since then to avoid taking decisive action on the issue of the Iranian nuclear program, and U.S. policymakers have argued that they will take action against Iran if and when Iran begins making a weapon. However, it was the group's opinion that the United States is hoping that regime change will slow Iranian nuclear progress or stop it in its tracks.

The credibility of the threat posed by Israel has also been decreasing as a large amount of time has passed since its last air strikes in the region. Since the United States' weakened presence in Iraq, Iran has managed to plan and use force with few repercussions from the international community, aside from economic sanctions.

The breakout group suggested that positioning U.S. Air Force assets in an assertive posture around Iran might provide a credible deterrence, provided that the United States displays a credible willingness to bomb specific targets. Although Iranian nuclear sites are dispersed throughout the country and are positioned underground, even a limited strike could set progress back considerably.

However, if the United States is unable or unwilling to intervene, Israel may choose to do so unilaterally as it cannot tolerate a "weapon-ready" Iran. Possessing nuclear weapons will be a bigger burden on Iran than on anyone else. There have been a few examples of Iranian military leaders making significant decisions outside the chain of command, and many felt that there is not enough internal cohesiveness for Iran to manage nuclear weapons securely. This lack of command and control could very well be an internal deterrent, and a major reason why Iran has not gone nuclear already.

A “soft” solution to the Iran nuclear issue could include highlighting the internal risks, and convincing Iran that it cannot trust its own military (to take a lesson from Pakistan). However, this message would need to come from states such as China or Russia, as it may go unheeded if delivered from the United States, Europe, or Israel.

Relinquished Nuclear Powers: A Case Study of Libya

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Introduction

“Now the security of Libya does not come from the nuclear bomb, quite the contrary, the nuclear bomb represents a danger to the country ... [...] While in the past no one would have objected to Libya being attacked, today the whole world will defend Libya.”¹

“... [Qadhafi] was encouraged by the West and handed over the facilities like a child, who is glad to be given a chocolate. Well, the nation [Libya] sees all of this and the heart of the nation bleeds because of that. We can see this factor in all the countries, where people have staged rebellions.”²

In late 2003, Libyan officials announced their decision to abandon the pursuit of nuclear weapons, after seeking to acquire such weapons for nearly three decades. This decision has been described as “one of the most spectacular cases of successful, peaceful de-proliferation in history.”³ The 2011 Libyan popular uprising may make it possible to learn more about the causes of Libya’s nuclear rollback; it may also necessitate revising our understanding of the lessons that other states will draw from this example.

From the outset, the debate on Libya’s decision to abandon its pursuit of nuclear weapons was polarized. On the one hand, scholars argued that the Libyan regime had been persuaded to abandon its pursuit of nuclear weapons in an expansive trilateral negotiation process with the United States and the United Kingdom. On the other hand, others claimed that the Libyan leader, Colonel Muammar Qadhafi, was deterred from acquiring nuclear weapons by the conflict between Iraq and the international community during 2002-2003. Furthermore, states appeared to draw different policy implications from Libya’s nuclear rollback. While Washington and London were keen to present Libya as a lesson for other proliferating states, demonstrating that states would stand to gain from abandoning their nuclear weapons programs, other capitals reached the opposite conclusion. Finally, the status of the Libyan nuclear program has been described in conflicting terms. Some have argued that the Libyan program was only a few years away from developing nuclear weapons, while others have characterized this effort as a joke that was doomed to fail. Looking back, what conclusions can now be drawn about the Libyan nuclear program and 2003 roll-back decision?

This paper examines Libya’s nuclear rollback and how this has been interpreted by other states following the 2011 popular uprising. The long-term consequences and impact of the so-called Libyan model remain to be determined. I offer a preliminary analysis of how close Libya had come to a nuclear weapons capability by late 2003, and how their nuclear rollback may inform proliferation decisions elsewhere. I will argue that Libya’s nuclear program, as well as the decision to discontinue the pursuit of nuclear weapons as part of a negotiated settlement, is likely to remain an exceptional case. However, the Libya case offers important lessons for understanding how illicit nuclear suppliers can affect nuclear proliferation risks, and how a state can be persuaded to abandon the pursuit of nuclear weapons as part of a broader normalization process. Furthermore, the Libyan case could be seen as a cautionary tale demonstrating the importance of rewarding nuclear rollback decisions to enhance the appeal of this option for other states.

Qadhafi's Nuclear Ambition: 1969-2003

When Libya discontinued its nuclear weapons program, the international community was surprised at the scope of the technical infrastructure that was subsequently uncovered. While other states had long suspected that the Libyan regime had pursued nuclear weapons, it was widely assumed that Libya lacked the skills and infrastructure to mount an operational program.

In the years following Libya's nuclear rollback, assessments of the threat posed by the Libyan program have varied considerably. After the Libyan decision was announced, U.S. officials stated that the Libyan program was "much further advanced" than expected and included "all necessary components in making a nuclear bomb."⁴ Similarly, another administration official characterized the Libyan program as "robust" and "enormous."⁵ Only two years later, the U.S. Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction described Libya as "an inept bungler, the court jester among the band of nationalists seeking ... nuclear capabilities."⁶

What explains such widely divergent interpretations? In the following subsections, I will briefly examine the emergence of Libya's nuclear program between 1969 and 2003. I will show that the Libyan nuclear program was rapidly approaching the operational stage, but that the regime's ambivalent support for these efforts rendered the program a hedging strategy rather than a primary objective. While the Libyan regime may never have been entirely persuaded that nuclear weapons were necessary solutions to key strategic challenges, the Libyan case demonstrates that changing nuclear supply dynamics can rapidly intensify nuclear threats.

Qadhafi's Nuclear Ambitions

Almost immediately after seizing power in September 1969, the incumbent regime began to explore options for acquiring nuclear weapons. First, Muammar Qadhafi sought to purchase nuclear weapons from other states. In 1970, Qadhafi's second-in-command, Abdessalam Jalloud, approached China seeking to buy nuclear weapons. Similar approaches were reportedly made toward India.⁷ At the same time, Qadhafi approached a number of states (including Egypt) about potential collaboration with a view to develop nuclear weapons. During the 1980s, the Soviet Union became Libya's most important supplier state, providing a 10 megawatt research reactor under International Atomic Energy Agency (IAEA) safeguards.⁸ Nonetheless, Libya continued to court other states for nuclear technology and know-how. One such relationship was Libya's financial support for Pakistan's nuclear program during the mid-to-late 1970s. During this period, Libya only appears to have received limited support from the Pakistanis, such as training of Libyan staff. The oversight committee at Tajoura—the center of Libya's nuclear program—reportedly met every week, and Qadhafi promised to provide whatever resources were deemed necessary to facilitate this effort.⁹ However, his ambivalent attitude to the pursuit of such weapons—evident in his political statements on this issue—was reflected in the seemingly half-hearted nuclear program that emerged during the 1970s.

Curiously, despite Libya's pursuit of expensive nuclear technology and its hiring of foreign experts from states such as Egypt, the Libyan regime did not invest in developing a robust domestic knowledgebase to support its nuclear program. From the outset, then, the Libyan program relied on external assistance for manpower and technology. According to Egyptian experts working in Libya's nuclear research establishment at Tajoura during the 1970s, the Libyan regime had to be persuaded to send students abroad (notably to the United States and the United Kingdom) to study nuclear science and technology.¹⁰ These students returned to form a small, but highly capable, group with a clear understanding of what a nuclear weapons project would require. However, such a small group would not suffice to run an operational nuclear weapons program.

During the 1980s, Libyan officials continued to explore different routes to the bomb. Little is still known about the domestic calculations informing Libya's priorities and decisions during this period. What is known

is primarily based on information declared by Libyan officials to the IAEA and information from Libya's suppliers. This information suggests that the pace and orientation of the Libyan effort was largely determined by what Libya could obtain from the nuclear marketplace, and the extent to which these offers were suited for a country with such a limited domestic technical foundation. In 1980, the nascent Libyan nuclear establishment began to experiment with uranium enrichment using centrifuge technology.¹¹ The Libyans reprocessed and separated a small amount of plutonium during this initial exploration, but ultimately opted to pursue uranium enrichment. Between 1983 and 1989, Libya conducted further uranium enrichment experiments and unsuccessfully tried to acquire a conversion facility.¹²

A combination of controversial foreign policies and tightening regulation of the global nuclear market made it increasingly difficult for the Libyans to obtain the building blocks for a nuclear weapons program from foreign suppliers. As a result, the project was, in the words of Libyan officials, "dwindling" during the 1980s. In 1984, Pakistan's nuclear mastermind A.Q. Khan contacted the Libyans offering enrichment technology. His offer was turned down as the Libyans decided they were not yet able to utilize what he offered. Around the same time, Libya recruited a European expert to develop a gas centrifuge in Libya. This individual left Libya in 1991 or 1992, allegedly having failed to mount a single operational centrifuge.¹³ As other states noted Libya's fairly indiscrete attempts to acquire sensitive technologies, U.S.-led efforts to deny Libya sensitive technology intensified.¹⁴

Nuclear Hedging

In the mid-1990s, the Libyan regime made a strategic decision to reinvigorate its efforts to develop a nuclear weapons option. At the same time, the regime was increasingly torn about the direction of its foreign and security policies and whether the nuclear weapons project enhanced or detracted from its prospects of long-term domestic political survival.¹⁵

On the one hand, Libya had found a willing and able supplier of sensitive nuclear technology in Pakistan. By 1989, the A.Q. Khan network once again approached the Libyans. In early 1991, the two parties agreed that Khan would supply Libya with a centrifuge plant.¹⁶ The following year, the United Nations imposed sanctions on Libya after Tripoli refused to extradite two Libyan suspects for trial on the 1988 Pan Am bombing. These sanctions, which included a total ban on air travel and arms sales to Libya, prevented the Khan network from delivering the initial order.¹⁷ In 1995, the Qadhafi regime decided to intensify its efforts to acquire a uranium enrichment capability. Two years later, Matuq Muhammad Matuq, who was then in charge of the Libyan nuclear weapons project, and his colleague Karim, who was in charge of the gas centrifuge program, commissioned a gas centrifuge plant from the A.Q. Khan network.¹⁸ The Libyan order was essentially for a turn-key enrichment facility that would produce sufficient weapons-grade uranium for several nuclear weapons annually. The Libyans ordered 10,000 centrifuges and the associated equipment, for a price between \$100 to \$200 million.¹⁹ The order far outstripped any other deals made by the A.Q. Khan network, and remains one of the largest transfers of sensitive nuclear technology.

While the Libyan program had found a willing supplier in the A.Q. Khan network, the nuclear program did not progress in an even manner. During this period, increasingly influential reformist elements in the Qadhafi regime argued that it was necessary to fundamentally transform Libya's relations with the West to secure the regime's long-term prospects of survival. Towering economic problems had plagued the Libyan population since the mid-1980s. These problems, combined with the excesses of the regime's revolutionary movement both domestically and abroad, had led to widespread dissatisfaction in the population. In the early 1990s, this was reflected in several challenges to the regime, including military coup attempts, an Islamist uprising in the east, and an assassination attempt targeting Qadhafi. These developments strengthened the position of the so-called revisionist elements that favored economic liberalization and were skeptical of the role nuclear weapons could play in solving Libya's strategic challenges. Libya reached out to the United States on several occasions during the 1990s, as early as 1992 signaling its willingness to negotiate on a range of issues including the sensitive weapons programs. Both in 1992 and 1999, however, the United States refused to negotiate in other areas until the Lockerbie issue had been resolved.²⁰

As Libya sought to improve its international standing while simultaneously pursuing nuclear weapons as a hedging strategy, its grand strategy appeared increasingly conflicted. For example, in 1997—the same year that Libya ordered the large centrifuge plant from the A.Q. Khan network—Qadhafi signaled his willingness to strike a deal on the Lockerbie issue with Britain and the United States.²¹ In 1998, the Qadhafi regime started negotiations with the two countries, leading to a trial of the two Libyan suspects in The Hague. These negotiations established contact among the three governments and laid the foundation for a trilateral dialogue addressing a range of issues obstructing the normalization of diplomatic relations.

In the framework of these negotiations, Tripoli saw an opportunity to come in from the cold. Since the 1980s, diplomatic ties between Libya and the United States had been severed. During the Reagan administration, the United States attacked Libya in retribution for Libyan intelligence's alleged involvement in the 1986 bombing of the La Belle discotheque in Berlin and defined Libyan regime change as a policy objective. A nuclear weapons capability would not only elevate the regime's international standing, regionally and in relation to Western powers, it could also effectively deter other states from attacking Libya. Toward the late 1990s, however, the United States sent increasingly strong signals that it would revise its longstanding position on Libyan regime change. This would alleviate a key concern of the Qadhafi regime, as it was clear that the Libyan military was unable to defend or protect the capital against American air strikes. These developments led many in the Qadhafi regime to favor continued efforts to improve relations with the United States. However, hardliners in the regime—the so-called revolutionaries—and military leaders were skeptical. They feared that compromises with the West, particularly with regards to the nuclear weapons program, would make the regime more vulnerable in the long term.

The incompatibility of these two policies—pursuing nuclear weapons while simultaneously attempting to get closer to the Western powers—became evident to Qadhafi following the 11 September 2001 terrorist attacks. As the international community made its case against Iraq, and war was becoming an increasingly likely prospect, it became clear to the Libyan regime that it would be necessary to either abandon the nuclear weapons project or prepare to rapidly develop a nuclear weapons capability. According to Saif al-Islam Qadhafi, the son of the former Libyan leader, Qadhafi feared that abandoning the nuclear weapons project would make the Libyan regime vulnerable to Western efforts to achieve regime change. Saif al-Islam, along with elements in the regime who favored improving Libya's international standing, argued that abandoning the nuclear weapons program would make the regime safer than it had ever been.²²

In March 2003, shortly before the invasion of Iraq, the Libyan negotiation team once again raised the issue of the WMD programs to their U.S. and British counterparts. Within six months, the three parties had agreed on a process for verifiably dismantling Libya's unconventional weapons programs.²³ Musa Kusa, the former intelligence chief in the Qadhafi regime, approached British officials when Qadhafi made his rollback decision in late 2003.²⁴ In return for this move, the Qadhafi regime would obtain acceptance and a working relationship with the United States. Crucially, unilateral and multilateral sanctions would be lifted. This would enable the regime to benefit from oil sales and improve the dismal state of the economy.

The Libyan Nuclear Challenge

How far was Libya from the nuclear weapons threshold when Qadhafi made the decision to abandon the pursuit of such weapons? Was the program simply a bargaining chip, or did it constitute an intensifying threat? According to IAEA inspectors, in late 2003, Libya was about three to four years away from starting the centrifuge enrichment plant.²⁵ During this time, Libya would also have to obtain the sorely lacking manpower to operate this plant. The IAEA also verified Libya's statement that, despite receiving drawings and manuals for weapons design from A.Q. Khan in 2001 or 2002, it had not started weaponization work.²⁶ The Libyans also faced challenges in the front end of the nuclear fuel cycle which would have to be addressed to approach nuclear self-sufficiency. Libya's nuclear advances were uneven. The country faced a number of challenges and shortcomings—perhaps most acutely in terms of insufficient domestic expertise and lacking industrial development—that would have to be overcome in order to be able to become able to produce nuclear weapons indigenously. The A.Q. Khan network allegedly prepared to assist Libya in coping with

these shortcomings, including work on nuclear weapons designs.²⁷ While these challenges could be overcome—with the aid of the Khan network and perhaps North Korea—it would take time. Libya would have required several years—and much greater investment and commitment on the part of the regime—to reach nuclear latency.

The case of Libya demonstrates how a country with limited indigenous technical resources could nonetheless—with the help of others—acquire the ability to develop fissile material. This is often characterized as the main bottleneck facing nuclear aspirants. The fact that Libya was able to assemble infrastructure on this scale while largely evading the attention of the international community illustrates the severity of the challenge posed by illicit nuclear transfers.²⁸

Revisiting Libya's Nuclear Rollback

One of the key questions that surfaced in the wake of Libya's nuclear rollback was whether the Libyan regime would be more secure against domestic and external challenges. In interviews, Saif al-Islam Qadhafi echoed his father's public statements that the decision had made the regime safer.²⁹ Egyptian oppositional voices argued in December 2003 that the only thing the Libyan people had secured from the deal "is for the colonel to remain a crown of thorns on their heads."³⁰ Similarly, in January 2004, former Jordanian official, Adnan Abu Odeh, argued that the Libyan people were not protected against anything other than from American influence.³¹

Another important question was whether the decision to abandon WMD programs reflected a deeper transformation or reorientation of the Libyan regime's policies and relations with the outside world. Recent analyses have linked Libya's rollback decision to a broader reorientation of Libya's foreign and economic policies.³² While Libya had come in from the cold, it was unlikely that the Qadhafi regime would transform itself with regards to issues such as human rights, democratization, and economic reforms.³³ The Libyan officials who had defined the pragmatic *Realpolitik* that characterized Libyan foreign policy during the Lockerbie negotiations and the nuclear rollback deal lost their influence within the regime. In the spring of 2006, the reformist Prime Minister Shukri Ghanem was replaced by hawkish Baghdadi Ali Mahmudi. While there were many signs suggesting that even Qadhafi no longer believed that he could continue to govern Libya according to the idiosyncratic ideology he developed in the late 1970s, the regime would not—and perhaps could not—transform itself.

In the months following the rollback decision, Libyan and American officials presented a "Libyan model" that other states were encouraged to emulate: through negotiations, a state could be persuaded to abandon the pursuit of nuclear weapons.³⁴ Qadhafi described his motives for agreeing to this as a result of a changing global environment and that pursuing nuclear weapons would have been increasingly "dangerous."³⁵ The Libyan media characterized the decision as "an example that is both an inducement and a method for working for world peace."³⁶ Other Libyan commentators denied that Libya was acting out of fear, claiming that fear of US military force would have led Libya to retain its WMD programs, following North Korea's example.³⁷

Libyan Perspectives

Within a year, however, a different message was coming from Tripoli. Senior officials started to express disappointment with the way in which the international community—especially the United States and the United Kingdom—responded to the regime's decision. In December 2004, Qadhafi made the following statement:

Actually we were somewhat disappointed by the response from Europe, the United States, and Japan. They did not really repay Libya for its contribution to international peace. And

we are still waiting. If we are not repaid, other countries will not follow our example and dismantle their programmes in turn. When we spoke with North Korea and Iran, which are suspected of having nuclear programs, they said: “But what was the recompense in your case? What did you obtain from the international community? So why do you want us to dismantle our program?”³⁸

The former Libyan leader cited a number of benefits that Libya could have obtained in return for its decision. These included a security guarantee, civilian nuclear assistance, assurances that no country would use nonconventional weapons against his country under any circumstances, and access to conventional military equipment to bolster national defense.³⁹ In subsequent interviews, Qadhafi suggested that Libya had been promised more by the United States and the United Kingdom than the regime had received.⁴⁰ Other voices from the Libyan regime stressed that what Libya had acquired from the 2003 decision was an opportunity to facilitate development. Foreign Minister Abd al-Rahman Shalqam stated in 2004 that American weapons were not necessary and that Libya was not in a rush to acquire such weapons but was focusing its efforts on economic development.⁴¹

Following Libya’s reintegration into the international community, the regime was in a better position to pursue other suppliers of such goods and services. Libya’s European neighbours—notably Italy and France—were keen to strengthen mutual ties in terms of energy, trade, and security. In the nuclear arena, the Libyan program appeared to dwindle following the rollback decision. After late 2003, Libyan officials defended their investments in nuclear technology by referring to civilian applications of nuclear research that would continue to benefit the population.⁴² In 2007 and 2008, Libya and France agreed to develop a framework for civilian nuclear cooperation. While this agreement did not commit France to specific projects or investments, it was a sorely needed symbolic victory for Tripoli.

As time passed, Libyan officials voiced mounting disappointment that Libya had not received a prominent international position following the nuclear rollback. Furthermore, Qadhafi contrasted perceived slights—such as the way Western states did not permit certain states to acquire nuclear weapons, while quietly accepting Israel’s nuclear arsenal—as further undermining the Libyan model. This led to increasingly vocal statements and actions intended to signal the regime’s frustration to the international community. For example, in late 2009, the Libyan regime left 5.2 kg enriched uranium in seven transport casks and refused landing clearance to a Russian plane scheduled to collect this material. If this uranium was not moved within three months, it could cause the release of radioactive nuclear material into the atmosphere. This incident appears to have reflected Qadhafi’s irritation that he had not been permitted to pitch his tent outside the United Nations headquarters in New York.⁴³ Similar frustration was expressed by the Libyan leader after the United States did not invite Libya to the 2010 nuclear security summit. Qadhafi stated that it was a “blunder” not to invite the country that had most recently abandoned nuclear weapons and that this would make the Libyan example less attractive to states such as North Korea and Iran.⁴⁴

Regional Responses

Libya’s nuclear rollback was met with mixed responses in the Middle East. Initially, most commentators attributed the Libyan decision to the Bush administration’s harsh policies and Saddam Hussein’s fate following his capture in Iraq. Libya’s neighbours characterized the rollback decision as a victory for the Bush doctrine of pre-emption. Arab observers cited a number of factors as having caused this decision, “including Saddam Hussein’s capture, Iran’s signing of a protocol to the Nuclear Nonproliferation Treaty ... and revelations about the interception in Italy of a shipment of illicit material heading for Libya.”⁴⁵ Other commentators noted the pragmatist logic informing Libya’s decision. The editor of *Al-Sharq al-Awsat*, a leading pan-Arab newspaper, described the move as a “lesson in sane dealings with the political reality, the likes of which have been absent from the Arab rationality for long decades.”⁴⁶

Following the 2003 Libyan announcement, regional commentators pointed to the lack of pressure from European countries and the United States on Israel to abandon its nuclear weapons arsenal. While Western

analysts debated whether force or diplomacy had persuaded Qadhafi to abandon his pursuit of nuclear weapons, and whether Iran or North Korea would follow suit, Middle Eastern commentators noted that the political will of Western states to exert such pressure on Israel seemed non-existent.⁴⁷ In other words, analysts noted the unique overlap of interests that had produced the 2003 rollback agreement and expressed doubts that such an overlap was likely to emerge between the United States and other suspected proliferators.

Revisiting the Libyan Model

Following the 2011 popular uprising which led to Qadhafi's overthrow, the contested Libyan model is once more subject to reinterpretation. Several observers have noted that it would have been much more difficult to provide the critically important support for the Libyan resistance movement if Qadhafi had been able to develop nuclear weapons. The consensus, then, is that the Qadhafi regime's decision to abandon its nuclear weapons program ultimately contributed to its downfall. This has been taken to suggest that it is now less likely that other states suspected of pursuing a nuclear weapons option are keen to follow Libya's example.⁴⁸ This would be an unfortunate outcome, as the Libyan model was a rare success story of coercive diplomacy. It also demonstrated that former adversaries could come to agreement concerning difficult conflicts and reduce tensions for the benefit of global peace and stability.⁴⁹

It is not yet possible to discern the long-term implications of the overthrow of the Qadhafi regime for the appeal of negotiated nuclear disarmament along the lines of the so-called Libyan model. Meanwhile, even prior to 2011, it was clear that the Libyan model did not trigger similar acts of negotiated nuclear rollback elsewhere. In the years following Libya's rollback decision, the international community struggled to cope with the challenges posed by North Korea's nuclear tests and Iran's nuclear program. While the Libyan regime lamented that it had not been better compensated by the West, the North Korean regime appeared to be virtually unassailable. Although the stark contrast between the fate of these two regimes is likely to have been duly noted by nuclear aspirants elsewhere, the implications for future proliferation challenges are not necessarily straightforward.

Two important variables are likely to influence how states weigh the appeal of the Libyan model: how advanced their nuclear capabilities are, and the intensity of their demand for nuclear weapons. It is plausible that states with advanced nuclear capabilities are unlikely to be persuaded to abandon their capabilities in return for normalization of their international standing. Many now argue that it is too late to persuade North Korea to abandon its nuclear weapons capability, and a growing number of observers assess that Iran's nuclear program is entering a "zone of immunity" from foreign intervention. What has been the response from these states to the events in Libya in 2011? One notable view, expressed by Iranian leader Ayatollah Khamenei in March 2011, underlines the costs of compromising with regards to nuclear programs in terms of domestic politics and regime stability.⁵⁰ While this rhetoric is open to challenge on several grounds, it is a telling indication of the way in which leading Iranian figures characterize the consequences of Libya's negotiated nuclear rollback.

In a second example, on 22 March, North Korean media cited Foreign Ministry spokesmen characterizing lessons from the Libyan popular uprising as follows: "Libya's nuclear dismantlement much touted by the U.S. in the past turned out to be a mode of aggression ... It proved once again the truth of history that peace can be preserved only when one builds up one's own strength."⁵¹

Elsewhere, the Libyan case has been cited as an example of how nuclear rollback makes states vulnerable to domestic and foreign enemies. In Pakistan, A.Q. Khan stated: "[d]on't overlook the fact that no nuclear-capable country has been subjected to aggression or occupied, or had its borders redrawn. Had Iraq and Libya been nuclear powers, they wouldn't have been destroyed in the way we have seen recently."⁵² His sentiments echoed those of Indian officials after the 1991 Gulf War, when an Indian general stated that no country could challenge the United States unless it possessed nuclear weapons. Khan's statement reflected growing concerns in Pakistan about the vulnerability of its nuclear assets after American forces killed Osama bin Laden in Abbottabad two weeks earlier.⁵³ Khan, of course, had his own axe to grind with the Libyan

regime following the disclosure of the assistance provided by his network to the Libyan program.

Alternative Models?

Within a decade of Libya's negotiated nuclear rollback, the Libyan model appears unlikely to appeal to states with an advanced nuclear infrastructure and with a strong demand for a nuclear deterrent. Instead, the strategy of another state—North Korea—which made rather different choices in the nuclear arena following lengthy negotiations with the United States, may seem more appealing as a model for such states. If the Libyan model is a case of a negotiated nuclear rollback, the North Korean “model” could be seen as a strategy to agree to nuclear restraint, subject to the state in question considering the benefits of this arrangement to outweigh the costs. In the North Korean case, the regime agreed to nuclear restraint in return for substantial assistance from the United States in the 1994 Agreed Framework. In contrast to the Libyan decision to abandon all nuclear research and development, North Korea secretly expanded its enrichment program. Once Pyongyang was no longer satisfied with the terms offered by the United States, the regime withdrew from the Non-Proliferation Treaty (NPT) in 2003 and carried out nuclear tests two years later. Following the 2003 war in Iraq, North Korean officials reiterated the point that the possession of nuclear weapons would have saved the Iraqi regime—a belief that has been bolstered following the 2011 Libyan uprising.⁵⁴ In addition to serving as a deterrent against foreign intervention, nuclear weapons function as a key lever in relation to the international community. The domestic survival of the Pyongyang regime rests on the flow of aid from the outside world. Following the acquisition of nuclear weapons, North Korea has received far more aid than countries of similar size and level of economic development.⁵⁵

The contrasts between Libya and North Korea suggest two possible lessons for prospective proliferators. First, the North Korean “model” seems to underscore the value of maintaining a nuclear option while engaging in negotiations concerning restraint or rollback. Retaining the option of rapidly resuming the effort to develop or test nuclear explosives could be interpreted as an increasingly vital component of such negotiations for isolated regimes. This conclusion is unlikely to be missed by the various factions in Tehran. Second, the tendency to reach out to the United States offering nuclear restraint or rollback in return for a grand bargain—as seen in the cases of Iraq, Iran, Libya, and North Korea in the 1990s—could decline in the foreseeable future. States could turn to other emerging powers—notably China—in making decisions about nuclear power versus nuclear weapons. Looking to the future, decisionmaking in latent nuclear weapons states could be informed by more complex, and possibly conflicting, agendas.

Conclusion

Libya's decision to abandon its pursuit of nuclear weapons is likely to remain a unique case of negotiated nuclear rollback for two reasons: the unique characteristics of the Libyan program and the subsequent fate of the Qadhafi regime. This appeared to be the case even before the Arab Spring, due to the Qadhafi regime's vocal dissatisfaction with the compensation received for abandoning the nuclear weapons program.

For states standing at the threshold of a nuclear weapons option, the Libyan model appears anachronistic. Unilateral disarmament—abandoning nuclear latency—may seem irrational to regimes that fear foreign pressure and domestic unrest. For the Iranian regime, for example, the North Korean strategy may seem far more appealing. However, unlike North Korea, Iran lacks a patron to balance the pressure wielded by the United States and Israel. While Russian and Chinese influence can to some degree compensate for American and European efforts to impose strict economic sanctions, the absence of a countervailing patron confines Iran's options. While it seems highly unlikely that a state such as Iran will be tempted to adopt the Libyan model following the 2011 uprising, states with a less advanced nuclear capability could emulate aspects of the Libyan model if they intend to use this capability as a lever. We may be headed for a world with a growing number of latent nuclear weapons states reluctant to surrender their nuclear weapons option. This, ironically, could be the main lesson that states opt to draw from the Libyan case.

Notes:

¹ “Libya: Gaddafi Addresses General People’s Congress,” *Tripoli Great Jamahiriyah TV* (in Arabic), 2 March 2004, FBIS.

² Ayatollah Khamenei, Mashhad Nowruz Address 2011. Source: Vision of the Islamic Republic of Iran Khorasan Provincial TV, Mashhad, 21 March 2011, in BBC Monitoring, 23 March 2011. Accessed from www.iranalmanac.com.

³ Harald Müller, “The exceptional end to the extraordinary Libyan nuclear quest,” in Morten Bremer Mærli and Sverre Lodgaard (Editors), *Nuclear Proliferation and International Security*, (London: Routledge, 2007), p. 73.

⁴ “Bush official: Libya’s nuclear program a surprise,” CNN, 19 December 2003, http://articles.cnn.com/2003-12-19/world/libya.nuclear_1_british-inspectors-nuclear-program-libya?_s=PM:WORLD.

⁵ Ibid.

⁶ The U.S. Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, report to the President of the United States, March 31, 2005, quoted in Jacques E. C. Hymans, “Assessing North Korean Nuclear Intentions and Capacities: A New Approach,” *Journal of East Asian Studies*, May-August 2008, Vol. 8, No. 2, p. 289.

⁷ Etel Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*, (Princeton: Princeton University Press, 2007) p. 213.

⁸ Ibid.

⁹ “Libya,” Interview with Muhammad Abd al-Aziz, *Al-Majallah*, 1-7 February 2004, p. 26—29, FBIS.

¹⁰ Ibid.

¹¹ Solingen, *Nuclear Logics*, p. 217.

¹² Müller, “The exceptional end to the extraordinary Libyan nuclear quest,” p. 79.

¹³ David Albright, *Peddling Peril: How the Secret Nuclear Trade Arms America’s Enemies*, (New York: Free Press, 2010), p. 116.

¹⁴ Dirk J. Vandewalle, *Libya Since Independence: Oil and State-Building*, (New York: Cornell University Press, 1998) p. 183.

¹⁵ See Målfrid Braut-Hegghammer, “Libya’s Nuclear Turnaround: Perspectives from Tripoli,” *The Middle East Journal*, Vol. 62, No. 1, Winter 2008, p. 55-72.

¹⁶ Albright, *Peddling Peril*, p. 117.

¹⁷ Ibid., p. 119.

¹⁸ Ibid., p. 120.

¹⁹ Ibid., p. 122.

²⁰ Martin Indyk, “Iraq did not force Gaddafi’s hand,” *Washington Post*, 9 March 2004; Müller, “The exceptional end to the extraordinary Libyan nuclear quest,” p. 77.

²¹ Albright, *Peddling Peril*, p. 121.

²² See Braut-Hegghammer, “Libya’s Nuclear Turnaround,” p.71.

- ²³ Müller, “The exceptional end to the extraordinary Libyan nuclear quest,” p. 77.
- ²⁴ Bill Gertz, “Inside the Ring,” *The Washington Times*, 24 February 2011, p. 7.
- ²⁵ Albright, *Peddling Peril*, p. 149.
- ²⁶ *Ibid.*, p. 149.
- ²⁷ *Ibid.*, p. 151.
- ²⁸ See also Chaim Braun and Christopher F. Chyba, “Proliferation rings: New challenges to the nuclear nonproliferation regime,” *International Security*, Fall 2004, Vol. 29, No. 2, p. 5-49.
- ²⁹ See Braut-Hegghammer, “Libya’s Nuclear Turnaround,” p.71.
- ³⁰ Yassir al-Zaatirah, *Al-Dustour*, 23 December 2003, cited in Peter Valenti, “The Libyan Surprise,” *World Press Review*, Middle East/North Africa, Vol. 51, No. 3, March 2004, www.worldpress.org/mideast/1787.cfm#down.
- ³¹ Adnan Abu Odeh in *Daily Star*, 6 January 2004, cited in Valenti, “The Libyan Surprise.”
- ³² Solingen, *Nuclear Logics*, 2007; Braut-Hegghammer, “Libya’s Nuclear Turnaround.”
- ³³ Alison Pargeter, “Libya: Reforming the Impossible?” *Review of African Political Economy*, No. 108, 2006, p. 219—235.
- ³⁴ See, for example, “Libya: Al-Qadhafi addresses General People’s Congress,” *Tripoli Great Jamahiriya TV* (in Arabic), 2 March 2004, FBIS.
- ³⁵ Mouammar Kadhafi, “Que fait l’armée française en Afrique ?” *Le Figaro*, 24 November 2004, access via <http://www.voltairenet.org/article15599.html>; “Kadhafi’s son says world must give NKorea incentives to reach nuclear deal,” *Agence France Presse*, 5 April 2005, Lexis-Nexis.
- ³⁶ Abd al-Hafiz al-Adl, *Al-Jamahiriya*, Editorial, 22 December 2003, cited in Valenti, “The Libyan Surprise.”
- ³⁷ Lead editorial in *Azzahf al-Akhdar*, 1 January 2004, cited in Valenti, “The Libyan Surprise.”
- ³⁸ “Libyan leader laments no ‘concrete’ reward for giving up WMD,” *Rome RAI Tre Television Network* (in Italian), 17 December 2004, FBIS.
- ³⁹ *Ibid.*
- ⁴⁰ *Ibid.*; “Israelis brace for Libya visit. Tripoli envoy here on secret mission, ‘Post’ learns,” *The Jerusalem Post*, 3 March 2005, Lexis-Nexis.
- ⁴¹ “Libya’s Shalqam Comments on Libyan-US Ties, Upcoming Talks with Powell,” *Al-Jazeera*, 23 September 2004.
- ⁴² *Ibid.*
- ⁴³ “Libya’s nuclear scare Gaddafi risked ‘disaster’,” *Sunday Herald Sun* (Australia), 5 December 2010, p. 44, Lexis-Nexis.
- ⁴⁴ Matthew Lee, “Gadhafi: US nuclear snub of Libya hurts peace,” *The Associated Press*, 26 April 2010.
- ⁴⁵ Valenti, “The Libyan Surprise.”
- ⁴⁶ Abd al-Rahman al-Rashid, *Al-Sharq al-Awsat*, editorial, 22 December 2003, cited in Valenti, “The Libyan Surprise.”
- ⁴⁷ *Ibid.*; and lead editorial in *Al-Quds al-Arabi*, 23 December 2003, cited in Valenti, “The Libyan Surprise.”

⁴⁸ Norman Cigar, "Libya's Nuclear Disarmament: Lessons and Implications for Nuclear Proliferation," *Middle East Studies Monographs*, No. 2, Marine Corps University, Quantico, January 2012.

⁴⁹ For further details, see Bruce W. Jentleson and Christopher A. Whytock, "Who 'Won' Libya? The Force-Diplomacy Debate and Its Implications for Theory and Policy," *International Security*, Vol. 30, No. 3, Winter 2005, p. 47-86; Braut-Hegghammer, "Libya's Nuclear Turnaround."

⁵⁰ Ayatollah Khamenei, Mashhad Nowruz Address 2011, Vision of the Islamic Republic of Iran Khorasan Provincial TV, Mashhad, 21 March 2011, BBC Monitoring, 23 March 2011, www.iranalmanac.com.

⁵¹ Jonathan Gurwitz, "Libya's nuclear lesson," *San Antonio Express-News*, 3 April 2011, p. 9B, Lexis-Nexis.

⁵² "Pakistan: Nuclear scientist says bomb saved Pakistan," *Right Vision News*, 17 May 2011, Lexis-Nexis.

⁵³ *Ibid.*

⁵⁴ Andrei Lankov, "North Korea's Choice: Collapse or Reform," *Foreign Affairs*, 19 December 2011, <http://www.foreignaffairs.com/articles/136966/andrei-lankov/north-koreas-choice-collapse-or-reform?page=show>.

⁵⁵ *Ibid.*

Pakistan's Motivations for Possessing Nuclear Weapons and Challenges to the "Unitary Rational Actor" Model for Managing Deterrence

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States' motivations for acquiring and retaining nuclear weapons change over time. The threats and interests that lead states to seek nuclear weapons in the first place may subsequently morph. States may then identify other threats and interests to retain the weapons. For example, the United States began the Manhattan Project to meet the threat of an assumed Nazi nuclear-weapon program. Germany was defeated in May 1945, but the U.S. continued the Manhattan Project and three months later dropped two atomic weapons on Japan. After Japan surrendered, the U.S. cited the emerging threat of the Soviet Union to justify continuing its build up of nuclear weapons. After the collapse of the Soviet Union, U.S. strategists and officials have justified retention of a large, sophisticated nuclear arsenal to deter post-Soviet Russia, China, "rogue states," and, more vaguely, nuclear terrorism, and to hedge against unforeseen developments.

Pakistan has been relatively constant in defining the threats that require its possession of a growing nuclear arsenal. Pakistan's President Zulfikar Ali Bhutto initiated a crash program to produce nuclear weapons in January 1972, one month after the country's ignominious defeat in war with India, which resulted in the eastern half of Pakistan becoming the new independent country of Bangladesh. Nuclear weapons would ensure Pakistan that it "never again" would be humiliated and defeated by India. Its existence and territorial integrity could be guaranteed regardless of India's disproportionate size and resource advantages.¹ Bhutto also saw the nuclear weapon program as a means by which he, as a civilian leader, could balance the internal power of the Pakistan Army. The Army had ruled the country since 1958 and was clearly the dominant center of power within it. But if Bhutto could preside over a successful nuclear weapon program and retain authority over the weapons it produced, he could stand on a more equal footing with the Army.

Of course, things change. Bhutto was displaced in a military coup in 1977 and hanged in 1979. The Army took over the state and the nuclear weapon program and has remained the dominant institution in the country. In contrast with India, whose nuclear weapon program has been directed and closely managed by successive prime ministers and a coterie of top civilian scientists, Pakistan's nuclear program has been military in its management, purpose, and ambition. Pakistan's arsenal is dedicated to deterring India from taking advantage of its greater power and resources to invade Pakistan or dictate its policy choices, particularly regarding strategic objectives such as Kashmir and, more recently, Afghanistan. To the extent that India could be tempted to mobilize its superior resources to produce and deploy conventional military power that conceivably could defeat the Pakistani Army, Air Force and Navy in war, Pakistan's military has developed nuclear doctrines and capabilities to wield and use nuclear weapons against India's conventional forces, as well as to retain the capacity to hold India's major population centers at risk. The Pakistani military projects a multi-variant role for its nuclear deterrent, at the tactical, operational, and strategic levels.

In addition to deterring India from threatening Pakistan's territorial integrity and sovereign autonomy, nuclear weapons also are a symbol of national prowess. Indeed, after the nuclear tests of 1998, it was not uncommon to meet Pakistani military officers and high-ranking civilians who proclaimed that nuclear weapons were the country's one unmistakably great achievement. More speculatively, and ironically, given Bhutto's original intention to balance the Army's power internally, the Army's control over the nuclear

weapons program means that if civilians ever gain real predominance over the country's governance and distribution of resources, the Army will have the upper hand in negotiating the terms by which it would hand over real control over the nuclear program and arsenal.

With that brief background, I now discuss two related challenges that Pakistan poses to deterrence stability in South Asia, and to the broader model of deterrence that has predominated international thinking since the 1960s. These challenges are unprecedented and related, and therefore deserve dedicated analysis not only in Pakistan and India, but also in the U.S. One is the spectrum of violence that occurs between India and Pakistan and therefore affects their management of nuclear deterrence. The deterrence model that grew up around the U.S.-Soviet contest concentrated on balancing nuclear doctrines and forces in ways that deterred initiation of nuclear war, including “bolts from the blue,” and also the escalation of large-scale conventional war into nuclear war. In South Asia today, by contrast, India and Pakistan must contend with the potential of subconventional aggression (terrorism) to escalate to conventional war and then nuclear war. This broader threat spectrum would be inherently more difficult to manage than the Cold War environment. The difficulty is compounded further by a second challenge, the possibility that Pakistan is not the sort of “unified rational actor” assumed by deterrence models.

Theories of nuclear deterrence rely on the assumption that nuclear competitors are “unitary rational actors.” Bruce Bueno de Mesquita and William H. Riker concisely express this assumption: “national decisions of such magnitude as acquiring a nuclear capability or using such a capability in a war are made by a single, dominant leader who is an expected utility maximizer.”² Among other things, this assumption extrapolates to the nuclear domain the key feature of a modern state as defined by Max Weber, that a state exercises a monopoly on the legitimate use of force in and from its territory.

To the extent that analysts and policymakers have worried about instances when the unitary rational actor model might not pertain, they have tended to focus on the problem of non-rationality. Terrorists are presumed to be undeterrable because they do not conform to the dominant model of rationality. States led by madmen, religious zealots, or neo-Hitlerites also are deemed to violate the model. More broadly, as Lawrence Freedman has noted, the unitary rational actor model does not account for “a whole range of psychological and sociological factors—such as mental quirks, lack of awareness, domestic political pressures, value-conflicts or sheer errors of judgment.”³ Irrationality is a real problem and it may not be limited to terrorists and militant states, as historical examples from the Cold War suggest. But, the first adjective in the “unitary rational actor” model—unitariness—is also highly problematic and less often considered.

When unity exists—defined as the top state leadership's clear control over the instruments of violence emanating from the state—deterrence can operate as it is supposed to. The highest authorities of the state effectively maintain a monopoly on the instruments of violence and the transmission of signals internally as well as to competitors. The problem is when unity does not exist in fact or in the perception of competitors. Disunity produces dangerous confusion and ambiguity that interfere in the management of deterrence. Who is sending signals through violence that is perceived to be emanating from the state and/or its territory? What is being signaled? To whom does the victim of aggression address counter-signals and actions? How does one calculate the interests of the attacker if the putative leaders of the state are not the authors of the perpetrated violence, or are pretending not to be? If states and their leaders are presumed to be rational and to highly value the preservation of their state, but disunity exists and other actors who may not place a high value on preservation of the state are conducting aggression and may be able to gain control over nuclear assets, how does one manage deterrence and escalation processes in such a situation? In this latter scenario, disunity erodes the rationality on which deterrence is predicated.

The outcomes of confusion prompted by violence whose authorization is ambiguous could be either stabilizing or destabilizing. If, for example, authorities in India believe that authority in Pakistan is splintered, New Delhi may choose to refrain from counter-attack, which could reinforce stability and escalation control. On the other hand, they could respond with force, risking unintended escalation. However, because leaders of adversarial states must put any immediate conflict in the context of longer-term

relations, they must think how their action or inaction today could raise or lower the risk of inviting more violence from the adversary in the future. Thus, forbearing counter-attack in one crisis can be seen to weaken deterrence of future violence. With each additional crisis that is not met with a counter-attack, the pressure mounts to act more forcefully the next time in order to restore deterrence.

Pakistan illustrates the unity problem. Early in its history, Pakistan's military leadership saw the potential value in mobilizing "irregular" forces to augment the regular Army in pursuing the state's objectives vis-à-vis India. These objectives most famously have included wresting the Kashmir Valley from Indian control, and/or raising the costs of India's ongoing occupation of the Valley and diverting Indian forces to the occupation. War initiated by Pakistan in 1947 was said by Pakistani authorities to be carried out by irregulars outside of state control. In 1971, the Pakistan Army mobilized proxy forces in East Pakistan to combat the Bengali separatist insurgency, which was backed by India.⁴ These proxies, who were mostly Urdu-speaking Biharis and activists from the Jamaat-e-Islami party, massacred large numbers of Bengalis. In the 1980s, Pakistan and the United States (with help from Saudi Arabia and others) famously mobilized irregular "freedom fighters" to drive the Soviet Army from Afghanistan. After that successful mission, the Pakistani military and intelligence services shifted these forces to Kashmir, exploiting the opening created by India's rigging of state elections there in 1989. Pakistan nurtured and abetted the growth of jihadi organizations to carry on the struggle with India. Over time, these groups proliferated. There is room to debate the degree to which Pakistani authorities controlled the growth and operations of these groups, but through the present era these authorities have not stifled them decisively.

By instructive comparison, the United States and the Soviet Union during the Cold War used proxies in violent struggles in the Third World but did not extend violence directly into each other's homeland. There are several reasons for this, but one of them was recognition of the danger that attacks in the Soviet or U.S. homeland could escalate to nuclear war. To preserve nuclear deterrence and avoid nuclear war, the two antagonists eschewed the projection of violence into each other's territory. Noting this form of restraint does not imply that the U.S. or the Soviet Union were acting from virtue; their proxy wars killed many more people than would have been killed if they had held back. Rather, the point is that the projection of violent actors by Pakistan into India or vice versa poses unprecedented risks of deterrence instability.

The unity problem posed by Pakistan has not eased since it and India made their nuclear deterrence relationship overt when they tested nuclear weapons in 1998. In early May 1999, the Pakistani military, directed by Chief of Staff General Pervez Musharraf, instigated infiltration by Army forces dressed as civilians into high points of the Kargil region of Kashmir which were then under nominal Indian control. After India belatedly learned of this infiltration, what became known as the Kargil conflict ensued. Pakistan at first claimed that the insurgents were aggrieved local freedom fighters, not under Army control. As the conflict gained steam and insurgents were killed, Indian forces discovered identity cards and other evidence that demonstrated that the fighters were Pakistani servicemen. On 31 May, Pakistani Foreign Secretary Shamshad Ahmed said that escalation could lead to use of "any weapon" in the Pakistani arsenal. The Pakistani Senate declared that "the purpose of developing weapons becomes meaningless if they are not used when they are needed." The role of nuclear threats and deterrence in the conflict remains subject to scholarly debate, and it is possible that the nuclear shadow inspired caution and helped prevent escalation of the conflict. However, this benign effect would be difficult to sustain if similar forms of aggression were repeated because India would be pressed to seek options to deter such repetition.

That conflict ended in weeks. India reported that 527 of its servicemen had been killed and 1,363 others wounded. Pakistani sources differ on casualty figures, ranging from 423 killed to 3,000. Pakistan was compelled by international opinion and diplomatic pressure, spearheaded by the United States, to acknowledge its fault and to accept an end to the conflict without gain. In the following years, Indian military leaders, strategic analysts, and politicians concluded that Pakistan now dangerously believed that nuclear deterrence could give it a shield behind which to conduct low-intensity—sub-conventional—war against India, believing that India would not escalate in retaliation for fear of triggering nuclear war that would not be worth the loss of small chunks of disputed territory in Kashmir. This is an example of the stability/instability paradox conceptualized by Jack Snyder decades ago. Out of frustration, and to deter Pakistan from

waging aggression at any level on the threat spectrum, Indian security analysts and military officers struggled to develop doctrine and capabilities to fight Pakistan at all levels of violence while dominating the escalatory process. Of course, this is easier said than done.

Two years after the Kargil conflict, on 1 October 2001, terrorists linked to Pakistan attacked the Jammu and Kashmir legislative assembly complex in Srinagar, killing 38 people. Two months later, on 13 December, a handful of militants attacked the Indian parliament building in New Delhi. India asserted that the attackers were linked to Pakistan, in particular the Jaish-e-Mohammed and Lashkar-e-Taiba organizations which were known to recruit and train in Pakistan. Pakistani authorities denied any role in the attacks. There was and is much evidence to indicate that these groups had grown up with the support of Pakistan's Inter-Service Intelligence (ISI), and even if Pakistani authorities disputed the ISI's direct control over these groups, it was clear that the authorities did not act decisively to demobilize them.

Following the two attacks, India mobilized massive forces toward the Indo-Pakistan border. This force eventually totaled 800,000 troops, backed by naval deployments to potentially conduct a blockade of Pakistan. A stand-off ensued for more than six months, with real concerns in the region and internationally that major warfare could erupt. Eventually, with the assistance of concerted behind-the-scenes diplomacy by the U.S. and others, India stood down.

By 2004, India and Pakistan had undertaken back-channel negotiations with each other to temper their relationship and seek a framework for ending the Kashmir conflict. However, this promising diplomacy was not brought to completion due to internal developments in both countries.

In November 2008, another major terrorist attack was conducted by agents of Lashkar-e-Taiba, this time against the Taj Mahal hotel and other facilities in Mumbai. The attacks killed 164 people and wounded more than 300. Perhaps mindful of the Kargil and 2001-02 crises, the two states, again pressed by the U.S., largely avoided repeating the cycle of recriminations and mobilization of large conventional forces that had occurred before. Nevertheless, there was at least one "scare" when Pakistani President Asif Ali Zardari received a phone call from a man claiming to be Indian Foreign Minister Pranab Mukherjee, warning that India would launch a war on Pakistan the next day. Such a threat would naturally prompt the Pakistani military to increase its readiness, if not to launch pre-emptive operations. As a recent report by the Henry L. Stimson Center documents, American officials learned of the alleged call and ascertained that it was fraudulent, that Mukherjee had not placed it. The U.S. was thus able to calm the situation.

The deterrence implications of subconventional aggression and ambiguous state control over its perpetrators are profound and have not been adequately addressed by Pakistan, by India, nor by international strategic analysts. The absence of state control over all organized perpetrators of cross-border violence would shake the morale, identity, and standing of the Pakistani Army if its leaders or the public were to recognize that this is the reality suggested by the use of force by Pakistani citizens or agents against India when Pakistani authorities deny that these actors or actions have been ordered by the state. In some ways, the operation by ostensibly uncontrolled violent groups acting from Pakistani territory is a violation of Pakistani sovereignty, much like Osama bin Laden's long presence in Pakistan was. In the latter case, the Pakistani security establishment chose to focus on the United States' violation of Pakistani sovereignty in raiding Osama's compound, but in subsequent debates increasing numbers of Pakistanis acknowledge that Bin Laden's presence also was an embarrassment.

Pakistani security officials naturally are loathe to admit this implication out of pride and fear that the military's standing and competence would be called into question. Yet, the risks that subconventional uses of force could escalate to conventional and perhaps nuclear war deny Pakistanis, Indians, and the international community the luxury of acting as if the disunity of the chain of command is not a fundamental strategic problem. The lack of coherence of authority in Pakistan—and of the state's monopoly on the legitimate use of force—is a fundamental strategic problem.

The disunity problem is more worrisome if in fact Pakistani authorities do exert influence or control over organizations that have conducted terrorist operations in India—and elsewhere—and are merely denying it

for tactical reasons. In this case, Pakistani authorities can be treated fairly as the authors of the signals that are sent by these actors in the military competition with India. India can then seek to manage pre-conflict and intra-conflict deterrence according to the traditional model, while still facing severe challenges of escalation control. The challenge certainly is complicated by the ambiguity that Pakistan would be seeking to create by denying responsibility for future subconventional operations; deterrence stability would be weaker than in “normal” scenarios. But if India were correct in acting on the belief that Pakistani authorities were culpable for such operations, the burden of having stepped first on the escalation ladder would be on Pakistan, and the defender’s advantage in deterrence would accrue to India.

The graver problem arises if and when Pakistani leaders are not in control of the perpetrators of violence emanating from Pakistani territory. In that case, when faced with an attack, India would conclude that deterrence had failed or was inapplicable, but that if India did not retaliate it would encourage further attacks and do nothing to compel Pakistani leaders to assert control over violent actors. But if India did retaliate, Pakistani leaders, feeling that they had not authorized aggression against India, would feel that India was initiating war. It is widely recognized that victims of aggression—defenders—are more highly motivated to retaliate because they have suffered an injustice. Victims of aggression tend to have a higher commitment to defend than perpetrators do to escalate, and outside powers tend to side with defenders. The combination of greater commitment and international support gives defenders’ deterrent threats weight. Knowing this, Pakistani defenders would feel that their threats to escalate in response to an Indian attack would be more credible than if they had been the initiators of the conflict. Indians, of course, would feel that this logic rewards Pakistani authorities for not exercising a monopoly on the legitimate use of force emanating from their territory, precisely the situation they want Pakistan to correct.

Perhaps because the classical model of nuclear deterrence was developed in the context of the bipolar U.S.-Soviet competition in which neither state deployed proxies to commit terrorist or sub-conventional attacks on the other’s homeland, the model is relatively silent on how such low-intensity aggression could or should be deterred. The literature’s silence on this problem, and Pakistan’s self-interested belief that nuclear deterrence should be applied only to the conventional-nuclear threat spectrum, further distract analysts and policy-makers from wrestling with the problems that sub-conventional violence poses to deterrence stability. Yet, as psychologist Steven Pinker has elaborated in his masterly book, *The Better Angels of Our Nature*, “the necessity of vengeful punishment as a deterrent...has been demonstrated repeatedly in mathematical and computer models of the evolution of cooperation.”⁵ Retaliation “is necessary for cooperation, for preventing a nice guy from being exploited.” If one does not retaliate, it may invite further aggression. Of course, if competitors merely engage in a cycle of action and retaliation, both end up losing over time. Survival and betterment require moves to break the cycle. The victim of aggression may retaliate and at the same time signal an interest in returning to cooperation in which both sides refrain from further violence. Psychological experiments and computer modeling indicate that the cycle can be broken by “random” grants of forgiveness of an aggression and an invitation to cooperate. To make this strategy work over time, of course, the actor who has been forgiven a transgression should display contrition for the transgressive act. Otherwise, the forgiver can be perceived embarrassingly as a sucker, which can trigger powerful emotions of vengefulness.

This dynamic has been on display in the post-Mumbai relationship between India and Pakistan. India suffered the attack, but Prime Minister Manmohau Singh resisted pressures to retaliate and, in essence, forgave Pakistan in order to avoid an escalatory cycle of retaliation. Pakistani leaders, half-heartedly and ambiguously, signaled regret for the terrorist attacks—while denying direct responsibility for them. The opportunity has been created for cooperation to stabilize the situation. No matter how justified Pakistanis might feel the acts of jihadis operating in India are, and how much they feel India should “get over it,” they would be wise to recognize that India’s interests in reinforcing deterrence, in not looking like suckers, and in satisfying emotional impulses for revenge make the situation quite precarious in the event of another terrorist attack emanating from Pakistan.

It is beyond the scope of this paper to specify how Pakistan, India and interested outside parties could or should redress the challenges to deterrence stability discussed above. The safest way to defuse this

unstable competition and reinforce deterrence stability, of course, is for Pakistan to make unambiguous efforts to restore the monopoly on the legitimate use of force that is central to modern statehood. The onus for this lies within Pakistan, of course, but India and the U.S. would be wise to concentrate their policy formulation and execution with this in mind. More broadly, policy-makers and analysts interested in nuclear deterrence would be wise to recognize that the unitary rational actor model that has for so long shaped thinking and policy may not always apply. Pakistan is a case that indicates some of the implications of this observation. Given that deterrence in nuclearized environments will be an ongoing challenge, it behooves analytical communities in the U.S. and elsewhere to treat the Indo-Pakistan deterrence challenge as a laboratory for diagnosis and development of potential remediating approaches.

Notes:

¹ The fixation on the threat that India could weaken or dismember Pakistan underestimates the reality that the East Pakistan crisis stemmed from West Pakistan's maltreatment of East Pakistan. The gravest threats to Pakistani unity today also are caused by internal injustices and misgovernance, including in Balochistan, which some in Pakistan fear could go the way of East Pakistan.

² Bruce Bueno de Mesquita and William H. Riker, "An Assessment of the Merits of Selective Nuclear Proliferation," *Journal of Conflict Resolution*, Vol. 26, No. 2 (June 1982), p. 292.

³ Lawrence Freedman, *The Evolution of Nuclear Strategy* (Palgrave Macmillan, New York, 3rd edition, 2003), p. 173.

⁴ Ahmed Rashid, *Pakistan on the Brink* (New York: Viking, 2012), p. 47.

⁵ Steven Pinker, *The Better Angels of Our Nature* (New York: Viking, 2011), p. 532.

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Middle East Studies

at the Marine Corps University

To Join or Not to Join the Nuclear Club: How Nations Think about Nuclear Weapons: Lessons from and for the Middle East

The current debate revolving around Iranian and North Korean nuclear programs highlights the need to foster a more complete understanding of the multidimensionality of states' decision-making process on whether to acquire and retain nuclear weapons. Case studies from the greater Middle East region offer the opportunity to examine the factors such states take into consideration when determining which path to follow. Such factors include threat perceptions, the interpretation of lessons learned from the experience of other countries, the calculus of perceived costs and benefits for national security, the envisioned modes of employment of nuclear weapons (political and military), and the legal/ethical considerations—all from the perspective of regional actors. Furthermore, a country's specific political decisionmaking process and its institutions are also key factors in understanding how actual and potential regional nuclear powers make decisions on the nuclear issue. As such, an understanding of the motivations and of the perceived utility of nuclear weapons from the perspective of recent and potential nuclear powers can help senior leaders craft more effective U.S. and multilateral nonproliferation, counterproliferation, and deterrence strategies. This issue is a revised and expanded version of the fourth issue of the MES Monograph Series and includes a forward by former Minerva Chair Dr. Norman Cigar and his research assistant Stephanie Kramer, as well as rapporteur notes prepared by the Public International Law & Policy Group.



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