

Foreign Policy
at BROOKINGS

The Iran Nuclear Deal: Prelude to Proliferation in the Middle East?

Robert Einhorn

Richard Nephew

ACKNOWLEDGEMENTS

WE WANT TO EXPRESS OUR DEEP GRATITUDE to the senior officials and experts from several Middle East countries who shared their time and expertise to inform the writing of this monograph. We would like to thank Derek Chollet of the German Marshall Fund and our Brookings colleague Steven Pifer, who took time to review drafts of this paper and provided valuable comments and insights. We also thank Gail Chalef and her colleagues at Brookings for their assistance in the editing and production of this paper. And we would like to extend our special thanks to Research Assistant James Tyson for his invaluable support in the researching and editing of this monograph and ensuring that it found its way into print.

The contents and recommendations are the authors' own.

Support for this publication was generously provided by the John D. and Catherine T. MacArthur Foundation, the Ploughshares Fund, and the Carnegie Corporation of New York.

The Brookings Institution is a nonprofit organization devoted to independent research and policy solutions. Its mission is to conduct high-quality, independent research and, based on that research, to provide innovative, practical recommendations for policymakers and the public. The conclusions and recommendations of any Brookings publication are solely those of its author(s), and do not reflect the views of the Institution, its management, or its other scholars.

Brookings recognizes that the value it provides is in its absolute commitment to quality, independence, and impact. Activities supported by its donors reflect this commitment.

TABLE OF CONTENTS

GLOSSARY	iii
ON SOURCING	iv
EXECUTIVE SUMMARY.....	v
CHAPTER 1: A CASCADE OF PROLIFERATION IN THE MIDDLE EAST?	1
CHAPTER 2: THE JOINT COMPREHENSIVE PLAN OF ACTION	6
CHAPTER 3: CHALLENGES TO THE JCPOA.....	13
CHAPTER 4: REACTIONS IN THE MIDDLE EAST TO THE JCPOA	19
CHAPTER 5: PROSPECTS FOR PROLIFERATION IN THE WAKE OF THE JCPOA.....	27
CHAPTER 6: POLICY RECOMMENDATIONS.....	47
ABOUT THE AUTHORS	63
ABOUT THE BROOKINGS ARMS CONTROL AND NON-PROLIFERATION INITIATIVE.....	64

GLOSSARY

123 agreement	An agreement for peaceful nuclear cooperation between the U.S. and other nations, as required by section 123 of the U.S. Atomic Energy Act
ACRS	Arms Control and Regional Security Working Group
AKP	Justice and Development Party, Turkey
AUMF	Authorization to Use Military Force
CENTO	Central Treaty Organization
E3	France, Germany, UK
EU	European Union
GCC	Gulf Cooperation Council
HEU	Highly enriched uranium
IAEA	International Atomic Energy Agency
IMF	International Monetary Fund
IR-1	Iran's first generation centrifuge
IRGC	Islamic Revolutionary Guard Corps
ISIS	Islamic State in Iraq and Syria
JCPOA	Joint Comprehensive Plan of Action
JPOA	Joint Plan of Action
KACARE	King Abdullah City for Atomic and Renewable Energy
KAERI	Korea Atomic Energy Research Institute (South Korea)
KEPCO	Korea Electric Power Corporation
Majlis	Iran's parliament
MEWMDFZ	Middle East Weapons of Mass Destruction Free Zone
MNNA	Major non-NATO ally
NATO	North Atlantic Treaty Organization
NIE	National Intelligence Estimate
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
OSCE	Organization for Security and Cooperation in Europe
P5+1	P5 (China, France, Russia, UK, U.S.), plus Germany
SMART	System-integrated Modular Advanced Reactor
SWU	Separative work unit, a measure of centrifuge efficiency, as in "SWUs/year"
TRIGA	Training, Research, Isotopes, General Atomics reactor
UNSC	U.N. Security Council
UNSCR	U.N. Security Council Resolution
URENCO	European centrifuge enrichment consortium
WMD	Weapon of mass destruction

ON SOURCING

IN THIS MONOGRAPH, the authors make reference to a variety of sources, including official government statements, media reports, and technical assessments performed by non-government experts. The authors have also provided information—and, occasionally, direct quotes—obtained from an extensive series of interviews and conversations they conducted with a variety of senior government officials, military leaders, and academics from the Middle East. These discussions took place from May 2015 through November 2015 in a variety of locales, including Istanbul, Cairo, Abu Dhabi, Riyadh, and Washington D.C. The authors agreed to hold many of these conversations without attribution in order to permit the freest possible exchange, particularly with current government officials. The views expressed in these conversations have been buttressed, however, with on-the-record public statements, commentary, and written material where possible.

EXECUTIVE SUMMARY

THE GLOBAL NUCLEAR NONPROLIFERATION REGIME has been remarkably resilient, with no new entrants to the nuclear club in the last 25 years. But observers believe that could change and that we may be heading toward a “cascade of proliferation,” especially in the Middle East. The presumed trigger for a possible Middle East nuclear weapons competition is Iran, which has violated nonproliferation obligations, conducted activities relevant to the development of nuclear weapons, and pursued sensitive dual-use nuclear technologies without a persuasive peaceful justification. Tehran’s nuclear program—combined with provocative behavior widely believed to support a goal of establishing regional hegemony—has raised acute concerns among Iran’s neighbors and could prompt some of them to respond by seeking nuclear weapons capabilities of their own.

THE IRAN NUCLEAR DEAL

Conscious of the risks that Iran’s nuclear program posed to the international and regional security order, the United States has sought to head off its further development until confidence could be built regarding Iranian intentions. In July 2015, negotiations aimed at preventing Iran from acquiring nuclear weapons and heading off a regional nuclear arms competition resulted in the Joint Comprehensive Plan of Action (JCPOA) between Iran and the P5+1 countries (China, France, Germany, Russia, the United Kingdom, and the United States). The JCPOA provides for deep reductions in Iran’s existing uranium enrichment capacity and the re-design of its planned plutonium-production reactor, which together effectively eliminate its capability to produce fissile materials for nuclear weapons for at least ten to fifteen years. It also calls for highly intrusive International Atomic Energy Agency (IAEA) monitoring measures, many of which are unlimited in duration, capable of providing confidence in Iranian compliance. In exchange, the JCPOA requires the suspension and

eventual termination of U.S., European Union (EU), and Security Council nuclear-related sanctions against Iran.

The JCPOA survived contentious reviews in the U.S. Congress and Iranian Majlis (parliament); key nuclear reduction and sanctions relief milestones have been reached; and implementation to date has gone relatively smoothly, although Iran’s return to the global economy has been more halting than Iran’s leaders would have preferred. But despite the promising start, the nuclear deal remains highly controversial in both Tehran and Washington as well as in several Middle East capitals. The potential for Iranian and American critics to undermine the JCPOA—together with the complex compliance issues likely to arise and the uncertainties surrounding leadership transitions in the United States and Iran—raise questions about the long-term sustainability of the deal, questions that will be on the minds of leaders of Middle East countries as they consider how best to ensure their security in the years ahead.

REACTIONS TO THE DEAL IN THE MIDDLE EAST

Reactions to the JCPOA in the region have been mixed. Israel, in particular Prime Minister Benjamin Netanyahu, has been the most vocally negative, although Israeli officials were consulted during the negotiations and are now working constructively with the United States to promote vigorous enforcement of Iranian compliance. Turkey and Egypt have been generally positive, relieved by the peaceful resolution of the long-standing Iran nuclear issue and—unlike Israel, some Gulf Arab states, and American opponents of the deal—comfortable that the JCPOA permits Iran to retain an enrichment program. Perhaps reluctant to break ranks with their American security partner, the members of the Gulf Cooperation Council (GCC) have publicly en-

dorsed the nuclear deal, including at the April 2016 U.S.-GCC summit meeting in Riyadh.

However, despite public expressions of support, several states of the region, especially the Sunni Arabs of the Gulf, have serious reservations about the nuclear agreement. Their concerns fall into three areas:

- **The deal will only delay and not prevent a nuclear-armed Iran.** Key restrictions on enriched uranium- and plutonium-production expire after 10 and 15 years, permitting Iran to expand its nuclear capacities and greatly reduce the time it would need to produce nuclear weapons, if it chose to do so in the future. While U.S. supporters of the JCPOA believe that Iran can be deterred from seeking nuclear weapons after 15 years, Iran's rivals, particularly the Saudis and Emiratis, are convinced that Iran remains determined to possess nuclear weapons and will bide its time, use the 15 years to develop more advanced centrifuges and missile delivery systems, and emerge after 15 years with a strengthened economy and in a better position than today to quickly expand its infrastructure and go for nuclear weapons.
- **The deal does not impede Iran's destabilizing regional behavior and will even worsen the problem.** Some of Iran's neighbors accuse Tehran of meddling in the internal affairs of its neighbors, using proxies such as Hezbollah and the Houthis to advance its goals, intervening directly in the Syrian and Yemeni civil wars, and in general seeking to sow instability, undermine rival governments, and become the dominant power in the region. While they recognize that the JCPOA could not be expected to resolve their concerns about Iran's behavior, they feel the deal could actually exacerbate them—by releasing to Iran tens of billions of dollars in frozen assets, ending Tehran's international isolation, and strengthening its economic capacity to upgrade its military and expand its regional influence.

- **The deal is part of a regional realignment unfavorable to America's traditional partners.** Based significantly on suspicions and distorted perceptions of events and trends, some Middle East governments, especially among the Sunni Arabs, see the JCPOA as an indication that the United States is withdrawing from or at least reducing its military presence in the region. They fear that the U.S. may accept a prominent and even central role for Iran, and shift its allegiance from an exclusive focus on its traditional Arab partners to an approach balanced between those partners and Iran in which Iran would become a U.S. partner in promoting stability and resolving conflicts. Although the Obama Administration has made a major effort to dispel these concerns, they persist to a significant degree.

WILL KEY REGIONAL STATES SEEK TO ACQUIRE NUCLEAR WEAPONS?

U.S. supporters of the JCPOA argue that the removal of the near-term risk of a nuclear-armed Iran will sharply reduce the incentive for regional states to acquire their own fissile material production capabilities or nuclear weapons. Opponents claim that, by legitimizing Iran's enrichment program, permitting Iran to ramp up its nuclear infrastructure after 10-15 years, and facilitating an economic recovery that will enable Iran to greatly boost the resources devoted to its nuclear program, the JCPOA itself will be the catalyst for proliferation in the region.

Whether states in the region eventually opt for nuclear weapons will depend on a range of factors, some related to the JCPOA and some not. Among the key factors will be their perceptions of Iran's future nuclear capabilities and intentions, their assessment of Iran's regional behavior, their view of the evolving conventional military balance with Iran, their confidence in the United States as a security partner, their evaluation of how the United States and other countries would react to their pursuit of nuclear weapons or a latent nuclear weapons capability, and, not least, the feasibility—in terms of

their technical expertise, physical infrastructure, and financial resources—of succeeding in the effort to acquire fuel cycle facilities or nuclear weapons.

In assessing the probability of proliferation in the Middle East, it is necessary to focus on how these various factors may affect nuclear decision-making in individual countries, especially in the countries often cited as the most likely to go for a latent or actual nuclear weapons capability: Saudi Arabia, the United Arab Emirates (UAE), Egypt, and Turkey.

Saudi Arabia

Saudi Arabia is widely considered to be the most likely regional state to pursue the nuclear option, an impression reinforced by occasional remarks by prominent Saudis that the Kingdom will match whatever nuclear capability Iran attains. The Saudis regard Iran as an implacable foe, not just an external threat determined to achieve regional hegemony but also an existential threat intent on undermining the Saudi monarchy. Moreover, while their concerns about Iran have grown, their confidence in the U.S. commitment to the security of its regional partners has been shaken. They cite what they regard as evidence of Washington's unreliability, such as not preventing former Egyptian President Mubarak's ouster, failing to enforce the red line against Syria's use of chemical weapons, giving lukewarm support to Syrian rebels, and accepting a greater Iranian regional role.

Animated by what they see as a waning U.S. commitment to Gulf security, the Saudis have beefed up their conventional defense capabilities, explored cooperation with Russia and other potential partners, and adopted a more assertive, independent role in regional conflicts, most dramatically in waging their aggressive military campaign in Yemen. Still, senior Saudis maintain that they have no choice but to rely heavily on the United States for their security.

While confident that they can handle the current conventional military threat from Iran, the Saudis worry about the military implications of a post-sanctions Iranian economic recovery, and they regard a future Iranian nuclear weapons capability as a game-chang-

er. These concerns, together with their uncertainty about the future U.S. role, may motivate the Saudis to consider their own nuclear options.

But while the Saudis appear to be motivated to acquire nuclear weapons, their ability to do so is very much in doubt, at least for the foreseeable future. While they clearly have the necessary financial resources, the Saudis lack the human and physical infrastructure and have had to postpone their ambitious nuclear power plans for eight years while they train the required personnel. Although Riyadh is not willing to formally renounce the acquisition of an enrichment capability, Saudi nuclear energy officials state they have no plans for enrichment and do not anticipate pursuing an enrichment program for at least 25 years.

Given the Kingdom's difficulty in developing an indigenous nuclear weapons capability, speculation has turned to the possibility of the Kingdom receiving support from a foreign power, usually Pakistan, which received generous financial support from Saudi Arabia in acquiring its own nuclear arsenal. But while rumors abound about a Pakistani commitment to help Saudi obtain nuclear weapons, the truth is hard to pin down. Senior Saudis and Pakistanis deny such an understanding exists. If it does exist, it was probably a vague, unwritten assurance long ago between a Pakistani leader and Saudi king, without operational details or the circumstances in which it would be activated. In any event, the Saudis would find it hard to rely on such an assurance now, especially in the wake of Islamabad's rejection of the Saudi request to take part in the Yemen campaign. Pakistan is highly unlikely to become the Saudis' nuclear accomplice.

So Saudi Arabia may be motivated to make a run at nuclear weapons, but its prospects for success are very limited.

United Arab Emirates

Like the Saudis, the Emiratis believe Iran poses a severe threat to regional security, has increased its aggressiveness since the completion of the JCPOA, is still trying to export revolution, and will resume its quest for nuclear weapons when JCPOA restrictions

expire. Also like Riyadh, Abu Dhabi has lost considerable confidence in the reliability of the United States as a security partner, has explored defense cooperation with other outside powers, and has played an increasingly assertive, independent military role in the region, especially in the Yemen campaign. But like Saudi Arabia, it knows it has no real choice but to rely heavily on the United States for its security.

Moreover, perhaps because of traditionally strong economic ties between the UAE and Iran, the Emiratis take a more pragmatic approach to Tehran than do the Saudis. While the Saudis tend to see the struggle with Iran as irreconcilable, the Emiratis tend to believe that if Iran's regional designs can be countered and a regional balance established, a *modus vivendi* with Iran can eventually be achieved.

The ambitious UAE nuclear energy program—including a project well underway by a South Korea-led consortium to build four power reactors—is the best indication that Abu Dhabi has no current intention to pursue an independent nuclear path. In negotiations on a U.S.-UAE civil nuclear agreement required for the project, the Emiratis accepted a legally binding renunciation of enrichment and reprocessing (the so-called “gold standard”), effectively precluding the pursuit of nuclear weapons. Although the UAE subsequently indicated that it might seek to renegotiate the gold standard in light of the JCPOA's acceptance of enrichment in Iran, Emirati officials indicate that, while their acceptance of the gold standard received criticism at home and from other Arab governments, the Iran deal has not produced any change in their nuclear energy plans, and they still have no intention to pursue enrichment or reprocessing.

Egypt

Although Egypt flirted with nuclear weapons development in the 1950s and 1960s and failed to report to the IAEA on some sensitive nuclear experiments it carried out between 1990 and 2003, Cairo today appears to lack both the inclination and the wherewithal to make a push for nuclear weapons.

Although Tehran and Cairo have occasionally sparred on regional issues and Iran is actively sup-

porting causes that undermine the interests of Egypt's main Arab allies and benefactors, Egypt does not see Iran as a direct military threat. Its principal security concern is the turbulent regional security environment—extremist ideology, the fragmentation of Syria and Iraq, and instability in Libya—and its adverse impact on internal security. Unlike the Gulf Arabs, the Egyptians are supportive of the JCPOA and believe a U.S.-Iranian rapprochement could have a positive effect on regional stability.

Although Russia is committed to work with Egypt on its first power reactor, Cairo's nuclear energy's plans have experienced many false starts before, and there is little reason to believe the outcome will be different this time around, especially given the severe economic challenges currently faced by the Egyptian government. Moreover, although Egypt trained a substantial number of nuclear scientists in the 1950s and 1960s, its human nuclear infrastructure atrophied when ambitious nuclear energy plans never materialized.

So, given its preoccupation with nearby security challenges and low-tech threats such as insurgencies and terrorism and given its shortage of technical expertise and financial resources, it is unlikely that Egypt will reconsider its current non-nuclear status.

Turkey

Because of its emergence in the last decade as a rising power, its large and growing scientific and industrial base, and its ambition to be an influential regional player, Turkey is usually included on a short list of countries that may decide, in the wake of the Iran nuclear deal, to pursue a latent or actual nuclear weapons capability. But its pursuit of nuclear weapons is highly improbable.

Turkey has maintained reasonably good relations with Iran, and it resisted efforts to restrict its engagement with Tehran even at the height of the global sanctions campaign. Although Turkey and Iran have taken opposing sides in the Syrian war, most Turks do not see Iran as a direct military threat. Instead, Ankara sees instability and terrorism emanating from that conflict

and from within Turkey's borders as their principal security threats, concerns that cannot be addressed by the possession of nuclear weapons.

Tensions with Moscow over Turkey's shoot-down of a Russian fighter jet in December 2015 are a source of concern in Ankara. But the best means of addressing that concern is reliance on the security guarantees Turkey enjoys as a member of NATO. While Turkish confidence in NATO has waxed and waned in recent decades, most Turks, especially in the military, believe they can count on NATO in a crisis, and would be reluctant to put their NATO ties in jeopardy by pursuing nuclear weapons.

Turkey has plans for nuclear power to meet energy shortages, including by purchasing nuclear reactors from Russia and Japan. Moreover, although Turkish energy officials say they have no current plans for enrichment, they are unwilling to rule it out. Still, especially in light of current political difficulties with Russia, Turkish experts are skeptical that Ankara's civil nuclear plans will proceed in a timely manner, if at all.

Other cases

Although Saudi Arabia, UAE, Egypt, and Turkey are most often mentioned as potential aspirants to the nuclear club, three other regional countries merit observation, given their past interest in nuclear weapons: Iraq, Syria, and Libya. But none of them are likely to revive their nuclear weapons ambitions in the foreseeable future.

Iraq's nuclear infrastructure was decimated by two wars and a decade of sanctions, and it is severely constrained by its conflict with ISIS, its internal political and religious differences, and an economy struggling to grow in the face of low oil prices. Israeli's destruction of **Syria's** al-Kibar reactor in 2007 effectively ended Damascus's nuclear weapons program. Moreover, consumed by civil war and its survival as a unitary state very much in question, Syria lacks the basic attributes needed to pursue a successful nuclear weapons

program, including human and physical infrastructure, financial resources, and a disciplined leadership. With most of the sensitive equipment acquired through Pakistani scientist A.Q. Khan's black market network shipped out of the country in 2004, the absence of sufficient indigenous technical expertise, and the country in a state of disarray, the likelihood of **Libya** embarking on a renewed nuclear weapons effort in the foreseeable future is remote.

In February 2016, Israeli Defense Minister Moshe Ya'alon stated publicly that "we see signs that countries in the Arab world are preparing to acquire nuclear weapons, that they are not willing to sit quietly with Iran on the brink of a nuclear or atomic bomb."¹ Ya'alon did not offer any evidence for his statement. It is, of course, possible that Israel has access to information unavailable to the authors (or even to the U.S. government). But the current study has not found indications that any of Iran's neighbors are making preparations to acquire nuclear weapons. Indeed, our research and analysis suggest that none of them are likely to pursue nuclear weapons or succeed if they do.

POLICIES TO REDUCE THE LIKELIHOOD OF A PROLIFERATION CASCADE IN THE MIDDLE EAST

Still, even if prospects for proliferation seem remote today, predicting future developments with confidence—especially given the unpredictability of the recent past and continued turmoil in region—seems imprudent. Whatever the likelihood that Middle East states may opt to acquire nuclear weapons in the future, it is incumbent on policymakers, especially U.S. policymakers, to do what they can to reduce those prospects further. The following are policies recommended for the Obama administration and future U.S. administrations.

- 1. Ensure that the JCPOA is rigorously monitored, strictly enforced, and faithfully implemented.** Confidence by regional states

¹ Raf Sanchez, "Arab states are seeking nuclear weapons to counter Iran, Israel warns," *The Telegraph*, February 14, 2016, <http://www.telegraph.co.uk/news/worldnews/middleeast/israel/12156598/Arab-states-are-seeking-nuclear-weapons-to-counter-Iran-Israel-warns.html>

that the JCPOA is working effectively as a barrier to an Iranian nuclear weapons capability will reinforce their inclination to remain non-nuclear, whereas a JCPOA of uncertain sustainability with a checkered compliance record will increase their incentives to hedge their bets. Effective and sustained implementation will mean not only pressing for strict Iranian compliance but also ensuring that Iran realizes the benefits of sanctions relief that it is entitled to, including by making modest adjustments in sanctions policy if it is found that previously unidentified and unintended technical problems are impeding sanctions relief.

2. **Strengthen U.S. intelligence collection on Iranian proliferation-related activities and enhance intelligence-sharing on those activities with key partners.** Uncertainty about nuclear developments in Iran will feed concerns about the future and create incentives for regional states to keep their nuclear options open. Washington should increase its investment in national intelligence capabilities to monitor Iran's nuclear activities and create mechanisms for better sharing such intelligence with regional partners.
3. **Deter a future Iranian decision to produce nuclear weapons.** Incentives for acquiring a latent or actual nuclear weapons capability will increase if regional states believe Iran can successfully break out and produce nuclear weapons. President Obama and his successors should declare that it is U.S. policy to prevent Iran from acquiring nuclear weapons and that the United States is prepared to use military force, if necessary, to stop Iran from breaking out and producing nuclear weapons. To demonstrate national unity and strengthen the deterrent effect, Congress should adopt a standing Authorization to Use Military Force (AUMF) in the event the president determines and provides evidence to Congress that Iran is breaking out and moving toward nuclear weapons.
4. **Seek to incorporate key JCPOA moni-**

toring provisions into routine IAEA safeguards applied elsewhere in the Middle East and in the global nonproliferation regime. Making some of the innovative features of the JCPOA's monitoring systems the new normal for IAEA safeguards could enhance confidence that Iran's neighbors are not pursuing nuclear weapons as well as ensure that Iran will remain bound by them indefinitely. Consideration should be given to widening the application of online enrichment-level monitoring and continuous surveillance of key elements of the enrichment supply chain, such as centrifuge production workshops. Explicitly banning activities related to the development of nuclear weapons, and verification of such a "weaponization" ban, should also be universalized.

5. **Pursue civil nuclear cooperation with Middle East governments on terms that are realistic and serve U.S. nonproliferation interests.** To avoid continuing deadlock with Middle East countries (particularly Saudi Arabia and Jordan) on bilateral civil nuclear cooperation agreements—which would exclude the United States from nuclear commerce in the region and leave the field to nuclear suppliers less interested in discouraging enrichment and reprocessing—the United States should be prepared, if necessary, to relax its insistence on a legally binding renunciation of enrichment and reprocessing, while still pressing for the strongest possible constraints on such capabilities.
6. **Promote regional arrangements that restrain fuel cycle developments.** Developing region-wide or sub-regional arrangements (involving several states) could head off competitive fuel cycle developments as restrictions on Iran's programs expire in 2025-2030. Some measures could apply equally to all participants, such as a ban on reprocessing, agreement to rely on foreign-supplied fuel for all power reactors and to ship all spent fuel out of the country, and agreement that all new research and power reactors would be light-water moderated and use uranium fuel

enriched to below five percent. Some other measures might not apply equally to all participants, such as agreement by some Arab governments to forgo enrichment and agreement by Iran to postpone the expiration of key JCPOA restrictions or accept limits on its enrichment capacity after 15 years.

7. **Strengthen security assurances to U.S. partners in the Middle East.** Concerns about the credibility and effectiveness of U.S. commitments to their security are the principal reason that Gulf Arab countries, especially Saudi Arabia, might decide to pursue latent or actual nuclear weapons capabilities. At the U.S.-GCC summit meetings of May 2015 and April 2016, the United States issued strong statements of support for the security of its Gulf partners. Among other steps, the leaders called for stepping up maritime security cooperation, expediting the implementation of an integrated missile defense early system, training Special Operations Forces units from each GCC country, and expanding cooperation on cyber security. Building on those steps, the United States should explore with its GCC partners the development of a more closely integrated regional security framework, with strong operational and institutional ties.
8. **Promote a stable regional security environment.** In a Middle East less racked by conflict, incentives for acquiring nuclear weapons, both by Iran and other states of the region, would be significantly reduced. The United States should pursue a dual-track approach. On the one hand, it should instill confidence in its partners that the United States is committed to their security, will prevent any country from achieving regional hegemony, and will maintain a formidable military and diplomatic presence in the region. On the other, it should promote the resolution of regional conflicts, especially in Syria and Yemen, and encourage Iran and Saudi Arabia to find ways to tamp down their disputes and eventually reach an ac-

commodation. In the longer run, Washington should encourage the creation of an inclusive regional security forum.

A proliferation cascade? Unlikely, at least for now

By sharply diminishing Iran's capacity to produce fissile material for nuclear weapons for at least 10-15 years, the JCPOA has reduced incentives for neighboring states to acquire nuclear weapons or at least a hedging fuel cycle capability. But it has not eliminated those incentives.

For years to come, regional states will remain uncertain about several factors affecting their security—how well the JCPOA will deter and detect any Iranian non-compliance; whether the agreement will survive compliance disputes, challenges by opponents, and leadership transitions; and whether Iran will opt for nuclear weapons when key restrictions expire after 15 years. They will also be uncertain about other factors that could motivate them to reconsider their nuclear options, especially Iran's future behavior in the region and America's future regional role. These uncertainties will keep concerns about proliferation alive.

But this study suggests that, at least for now, those concerns have been subdued, even if not permanently set to rest. None of the Middle East's "likely suspects" appears both inclined and able in the foreseeable future to acquire an indigenous nuclear weapons capability.

In the years preceding the JCPOA, it had practically become the conventional wisdom that, given Iran's nuclear program, several additional nuclear-armed states would inevitably emerge in the Middle East. That conventional wisdom has largely been discredited. But there is a risk that a more complacent conventional wisdom will take its place—that we no longer have to worry about a regional nuclear arms competition.

It will be essential for the United States and other interested countries—pursuing policies along the lines recommended here—to make sure that the earlier predictions of a Middle East proliferation cascade do not yet come to pass.

CHAPTER 1

A CASCADE OF PROLIFERATION IN THE MIDDLE EAST?

The global nuclear nonproliferation regime has been remarkably resilient. From time to time, there have been dire predictions about the number of countries that will acquire nuclear weapons. In a secret memorandum in February 1963, then U.S. Secretary of Defense Robert McNamara wrote that eight additional countries might acquire nuclear weapons by 1973.² McNamara's study was the basis for President John F. Kennedy's frequently-cited prediction one month later that 15 to 25 states might obtain the bomb by the 1970s. In December 2004, a United Nations High-level Panel warned "We are approaching a point at which the erosion of the non-proliferation regime could become irreversible and result in a cascade of proliferation."³

Such pessimistic projections have not materialized, at least not yet. The nuclear landscape has remained remarkably stable with no new entrants to the nuclear club in the last 25 years and potential nuclear-armed states from Latin America to the former Soviet Union to the Middle East having been persuaded or compelled to abandon their nuclear weapons projects or capabilities.

Nonetheless, proliferation pessimism is again on the rise. Among the reasons are the diffusion of sensitive, dual-use technologies; increased worldwide interest in nuclear energy (although not as great as before the Fukushima disaster); the desire of a number of states to keep open the option to produce their own reactor fuel rather than rely on the market; challenges to regional stability by Russia, China, North Korea,

and Iran; and a growing perception that the United States may be scaling back its overseas security commitments.

PROLIFERATION PESSIMISM FOR THE MIDDLE EAST

Heightened concern about the future of the nonproliferation regime has focused heavily on the Middle East. This is not surprising, not only because of the turmoil and insecurity prevailing throughout the region today, but also because, historically, a significant number of Middle East countries have pursued nuclear weapons programs.

Fortunately, most of those programs never resulted in the production of nuclear weapons. Egypt flirted with nuclear weapons under President Nasser but abandoned the effort under his successors. Saddam Hussein's Iraq advanced quite far in its pursuit of the bomb, but its quest was halted by the first Gulf War and the United Nations inspections regime that followed. Colonel Gaddafi's nuclear aspirations were supported by Pakistani scientist A.Q. Khan's black market network, but his program made little progress before the United States and United Kingdom confronted the Libyan dictator and pressured him to call it quits. Syria surprised the world by constructing a plutonium-production reactor with North Korea's assistance, but its hopes were dashed by an Israeli bombing raid in 2007.

² Peter Lavoy, "Predicting Nuclear Proliferation: A Declassified Documentary Record," *Strategic Insights*, vol. III, 1 (January 2004), p. 1.

³ High-level Panel on Threats, Challenges and Change, "A More Secure World, Our Shared Responsibility," *United Nations*, December 2, 2004, p. 39.

To date, the one exception to these aborted efforts is Israel, which is believed to have acquired nuclear weapons a half century ago but has not acknowledged its possession of them and insists on using the enigmatic formulation that it will not be the first to introduce nuclear weapons in the region.

In the last 10 to 15 years, concerns about nuclear proliferation in the Middle East have centered on Iran. The international community's deep suspicions about Tehran's nuclear intentions were based on many factors, including the 2002 public disclosure by an Iranian dissident group of two previously secret nuclear facilities capable of producing fissile material for nuclear weapons; the absence of a convincing peaceful rationale for constructing and operating sensitive fuel-cycle facilities; the IAEA's discovery of many Iranian violations of its safeguards obligations starting in 1981 and continuing through the 2000s; and the IAEA's assessment—offered initially in 2011 on the basis of over five years of investigations and recently strengthened in December 2015—that, before 2003 and as late as 2009, Iran engaged in activities relevant to the development of nuclear weapons.

The prospect of a nuclear-armed Iran has been viewed in the Middle East and more widely as an acute threat to regional and international security. Many in Israel, which has been repeatedly threatened with annihilation by Iran's leaders, and in Saudi Arabia and the UAE, which are engaged in intense proxy, religious, and ideological struggles with Iran, fear that Tehran might actually use nuclear weapons against them. But even if Iran would be deterred from initiating nuclear war, many in the region are convinced that it would use the umbrella provided by a nuclear weapons capability to interfere more aggressively in the affairs of its neighbors and engage in other destabilizing activities to advance its goal of regional hegemony.

Aside from these direct threats posed by Iran's nuclear program, the United States and many other

countries have been concerned that Iran's acquisition of nuclear weapons would prompt other states in the Middle East, and beyond, to pursue their own nuclear capabilities. This concern was heightened in June 2011, when Prince Turki al Faisal, Saudi Arabia's former intelligence chief and ambassador to the United States, hinted that the Kingdom would seek to match Iran's nuclear capability: "It is in our interest that Iran does not develop a nuclear weapon, for their doing so would compel Saudi Arabia, whose foreign relations are now so fully measured and well assessed, to pursue policies that could lead to untold and possibly dramatic consequences."⁴

Reflecting what had become the conventional wisdom, President Obama told *The Atlantic's* Jeffrey Goldberg in March 2012 that, if Iran gets nuclear weapons, "it is almost certain that other players in the region would feel it necessary to get their own nuclear weapons. So now you have the prospect of a nuclear arms race in the most volatile region in the world."⁵

NEGOTIATIONS TO PREVENT A NUCLEAR-ARMED IRAN

Averting a Middle East nuclear weapons competition was a major motivation for pursuing negotiations to prevent Iran's acquisition of nuclear weapons. Those negotiations spanned a period of over 12 years. Between 2003 and 2005, the E3 (France, Germany, and the United Kingdom) failed to persuade Iran to give up its uranium enrichment program. Under President George W. Bush, the United States joined the P5+1 group of countries (the five Permanent Members of the U.N. Security Council plus Germany), but little headway was made with Iran, which was building up its enrichment capability. The first four years of the Obama administration's engagement with Iran, including a continuation of the P5+1 process and secret bilateral U.S.-Iran talks in Oman in 2012-2013, also saw little progress, and

⁴ Jay Solomon, "Saudi Suggests Squeezing Iran on Nuclear Ambitions," *The Wall Street Journal*, June 22, 2011, <http://www.wsj.com/articles/SB10001424052702304887904576400083811644642>

⁵ Jeffrey Goldberg, "Obama to Iran and Israel: 'As President of the United States, I Don't Bluff,'" *The Atlantic*, March 2, 2012, www.theatlantic.com/international/archive/2012/03/obama-to-iran-and-israel-as-president-of-the-united-states-i-dont-bluff/253875/

the growth of Iran's enrichment capacity shortened to about two to three months the time it would take to produce enough highly enriched uranium for a single nuclear weapon.

A turning point came in the summer of 2013. Sanctions, especially financial and crude oil sanctions, were having a devastating impact on Iran's economy. Hassan Rouhani was elected Iran's president in June 2013 on a platform of ending sanctions and rebuilding the economy, and he and his supporters recognized that this would require reaching agreement with the P5+1. With a new Iranian negotiating team in place, the negotiations—consisting of secret bilateral talks and the multilateral P5+1 process proceeding in parallel—made rapid progress. In November 2013, agreement was reached on an interim arrangement—called the Joint Plan of Action—which essentially froze Iran's nuclear program, gave Iran modest sanctions relief, and provided time and space to work out a final, comprehensive deal.

After arduous negotiations over the next year and a half, often carried out at the level of foreign ministers, agreement was reached on July 14, 2015 on a Joint Comprehensive Plan of Action (JCPOA). The JCPOA provided for deep reductions in Iran's enrichment capacity and the re-design of its Arak reactor, which together would effectively eliminate its capability to produce fissile materials for nuclear weapons for at least ten to fifteen years. It also called for highly intrusive IAEA monitoring measures, many of unlimited duration, capable of providing confidence in Iranian compliance. In exchange, nuclear-related sanctions against Iran would be suspended and eventually terminated.

In the highly contentious U.S. congressional debate that followed, critics raised strong objections: Iran's enrichment capability should be eliminated or at least more sharply reduced; restrictions on enrichment and reprocessing should last indefinitely or at least much longer; IAEA inspectors should have "anywhere, anytime"⁶ access to suspect facilities;

sanctions relief should be doled out more gradually, if at all; Iran's regional behavior and other provocative non-nuclear activities such as missile tests should be addressed as part of the JCPOA; and so on.

In the end, the Obama administration was able to muster the support of enough Senate Democrats to avoid a vote on a Congressional resolution of disapproval. The decisive factor was that opponents were unable to make a credible case that, after rejecting a deal supported by all of its P5+1 partners, the United States could build international support for strengthening sanctions dramatically in the hope of forcing Iran to make major new concessions. With the JCPOA surviving the congressional review intact—and the failure of Iranian opponents to de-rail it in the Majlis (Iran's parliament)—the nuclear deal took effect on October 18, 2015, so-called Adoption Day.

Throughout the negotiations, some close U.S. friends in the Middle East, especially Israel and Saudi Arabia, had expressed major reservations about the emerging deal. They wanted enrichment to be banned in perpetuity, not just limited for a finite period. They doubted that any monitoring system would deter Iranian cheating. And they believed the deal would empower Iran to pursue a more aggressive regional agenda.

Now that the JCPOA has survived domestic reviews in Washington and Tehran and has successfully passed the crucial milestone of Implementation Day—when Iran fulfilled key nuclear commitments and the United States, EU, and the U.N. Security Council suspended nuclear-related sanctions—U.S. partners in the Middle East, even Israel, have tended to tone down their criticisms. But they remain wary of the deal's implications for their security. They will be watching closely to see whether the deal is serving as a reliable barrier to Iran's acquisition of nuclear weapons. They will want to know that compliance is being strictly enforced, that the international community is prepared to re-impose sanctions in

⁶ Louis Jacobsen, "Marco Rubio says Iran deal breaks 'anytime, anywhere' inspection promise by Barack Obama," *PolitiFact*, July 9, 2015, www.politifact.com/truth-o-meter/statements/2015/jul/19/marco-rubio/rubio-iran-deal-breaks-anytime-anywhere-inspection/

the event of Iranian non-compliance, and that the United States and other key states are determined to push back against provocative Iranian activities not covered by the deal.

PREVENT OR ONLY DELAY?

However, even if key regional states are satisfied that Iran is living up to its JCPOA commitments and that the deal can be effective in preventing Tehran from acquiring nuclear weapons for at least 10 to 15 years, they will remain concerned by what they (and American critics) see as one of the deal's major flaws—that its restrictions on enrichment and reprocessing will eventually expire, some after 10 years and others after 15. Once those restrictions lapse, Iran would be legally entitled under the JCPOA to ramp up its enrichment capacity to “industrial scale” and reduce to a matter of weeks the time it would need to produce enough highly enriched uranium for a single nuclear weapon. It would also be free to develop the capability to separate plutonium from spent reactor fuel.

JCPOA critics in Washington and elsewhere cite the expiration of key enrichment and reprocessing restrictions to claim that the nuclear deal merely defers but does not prevent Iran's acquisition of nuclear weapons. They argue that the deal's termination of sanctions will greatly strengthen the Iranian economy and provide the resources needed to aggressively pursue nuclear weapons and missile delivery systems when the restrictions expire. In his address to the Congress in March 2015, Israeli Prime Minister Netanyahu asserted that the nuclear deal—which was not yet final at the time and its contents not publicly known—would not block Iran's path to nuclear weapons but would rather “pave the way” and “all but guarantee” that Iran will eventually acquire them.⁷

Supporters of the deal respond that, even after key restrictions expire, Iran will remain bound by the Treaty on the Non-Proliferation of Nuclear Weapons

(NPT) and JCPOA not to acquire nuclear weapons, will still be subject to rigorous monitoring measures that would provide warning of an Iranian effort to produce fissile material, and will continue to face the threat of a strong international response, including renewed sanctions and the use of military force, if it attempted to break out and build nuclear weapons.

As long as the Iranian regime remains the same, this debate over whether Iran will opt for nuclear weapons when key restrictions expire is unlikely to be resolved conclusively in the minds of Tehran's Middle East neighbors. For the foreseeable future, they will remain uncertain of what Iran will do beyond 15 years.

But this is not the only uncertainty about the deal that they will have to cope with. Although implementation has been smooth so far, compliance disputes may emerge that could call the future of the deal into question. Continued opposition to the deal in Tehran and Washington, including by individuals and organizations in a position to take steps to impede implementation, poses another significant threat to the longevity of the agreement. And transitions in the leadership of the United States, Iran, and perhaps other countries—as early as the 2016 U.S. presidential election as well as subsequent transitions likely to take place during the life of the JCPOA, including in the position of Supreme Leader—could introduce additional uncertainty about its sustainability. The unraveling of the nuclear deal, for any reason, would allow Iran to build up its nuclear capabilities sharply even before years 10 and 15, alarming neighboring states.

STILL UNCERTAIN ABOUT IRAN'S NUCLEAR INTENTIONS

So while the JCPOA may have reduced concerns in the Middle East about the possibility of a nuclear-armed Iran, at least in the near term, it has not put those concerns to rest. The states of the region will face considerable uncertainty going forward—

⁷ “The complete transcript of Netanyahu's address to Congress,” *Washington Post*, March 3, 2015, <https://www.washingtonpost.com/news/post-politics/wp/2015/03/03/full-text-netanyahus-address-to-congress/>

about how well the deal will work in restraining Iran, how long it will remain in force, and what Iran will do after key restrictions expire.

Notwithstanding these uncertainties, the states of the region will have to make plans for promoting their security in the period ahead. Their planning will be influenced by such factors as Iran's behavior in the region and the perceived reliability of assurances by the United States to its security partners. Some regional states may not feel particularly threatened or worried about the uncertainty surrounding Iran's future nuclear plans. Others may feel they need to take action to bolster their security, whether enhancing their own defense capabilities, strengthening security ties with the United States or other outside powers, pursuing "peaceful" enrichment or reprocessing capabilities as a hedging strategy, or even embarking on their own nuclear weapons program. Because several such actions could take many years to realize (e.g., building an enrichment facility), states may wish to get started now, long before Iran's future nuclear intentions become clear.

The United States and its P5+1 partners intended the JCPOA not only to prevent Iran from acquiring nuclear weapons for the indefinite future but also, as a result, to head off a nuclear arms race in the Middle East. It is far too early to conclude whether they have succeeded on either count.

This study examines how, in the wake of the JCPOA, key countries of the Middle East will seek to ensure their security in the face of uncertainty about

Iran's future nuclear plans. In particular, it focuses on whether certain countries of the region are likely to seek their own nuclear weapons capabilities—or at least enrichment or reprocessing capabilities as a hedge—and assesses whether those countries can succeed in such an endeavor. It also recommends policies that the United States and the international community in general can pursue to reduce the probability that additional Middle East states will seek or achieve a nuclear weapons capability, as well as to address the lingering question of what will happen with Iran's nuclear program after 10-15 years.

Chapter two outlines the key features of the JCPOA and analyses the impact of the JCPOA on Iran's timeline for producing nuclear weapons.

Chapter three evaluates the implementation of the JCPOA to date and describes key challenges to the smooth and sustained implementation of the JCPOA.

Chapter four describes reactions to the JCPOA of countries in the Middle East.

Chapter five delves into what these countries may choose to do in order to manage their security interests in the face of uncertainty about Iran's nuclear intentions.

Chapter six examines possible U.S. responses to these countries' decisions and offers recommendations on how to ensure that a cascade of proliferation is prevented.

CHAPTER 2

THE JCPOA

Much of the controversy surrounding the JCPOA centers on the concern that, although it may deal effectively with the near-term threat of Iran acquiring nuclear weapons, it leaves long-term strategic issues unresolved—including Iran’s future intentions regarding nuclear weapons and its drive to expand its regional influence. Among the critical unanswered questions: what will Iran do when the deal’s key restrictions on its nuclear program are gone and how will it behave in the meantime?

These questions and preconceived notions about the answers are a major reason why much of the reaction to the JCPOA in the Middle East has been unfavorable. Countries throughout the region—including Israel and Gulf Arab states—have now tempered their criticism of the JCPOA, largely out of recognition that it is a done deal, but their initial impression was decidedly negative. This criticism often had less to do with the contents of the deal than with the concern that Iran’s nuclear ambitions have only been paused and that its regional ambitions have even been given a boost. But such broad-brush analysis minimizes the diversity of reactions held by audiences even within countries in the region, much less between countries.

KEY FEATURES OF THE JCPOA

In its simplest rendering, the JCPOA imposes constraints on Iran’s nuclear program and requires intrusive monitoring in exchange for relief from international sanctions against Iran and for civil nuclear cooperation with Iran. Within this broad framework

are dozens of specific actions to be taken at various times over the course of 25 years as well as some Iranian commitments that will last for the life of Iran’s nuclear program.

The JCPOA specifies that Implementation Day—a key milestone in the operation of the nuclear deal—would be reached when the IAEA confirms that Iran has fulfilled key nuclear commitments. That, in turn, would trigger the suspension or termination of nuclear-related sanctions against Iran by the United States, the EU, and the U.N. Security Council.

Implementation Day came on January 16, 2016, when the IAEA Director General reported to the IAEA Board of Governors and the U.N. Security Council that Iran had taken all the actions it was required to take under the JCPOA to receive sanctions relief. Iran had:

- Reduced its total number of installed centrifuges to a little more than 6,100, of which no more than 5,060 first-generation centrifuges will enrich uranium for the next 10 years, and committed not to exceed an enrichment level of 3.67 percent for 15 years;
- Exported or diluted its enriched uranium stockpile in excess of 300 kilograms, and committed to keeping its stockpile at or below that level for the next 15 years;
- Limited its uranium enrichment research and development (R&D) work, according to a research plan that will remain in effect for the next 13 years;

- Halted its production of new centrifuges and parts for them, which will persist for eight years and then restart under constrained parameters for the five years thereafter;
- Removed the core (precisely, the calandria) from the Arak reactor, rendering the calandria permanently damaged and the reactor itself unusable for the time being. Iran and the members of the P5+1 have agreed to an approach for the modification of the Arak reactor using design parameters that make it physically incapable of producing enough weapons-grade plutonium for one nuclear weapon in anything less than four years;
- Committed not to construct new heavy water reactors or accumulate heavy water in excess of its agreed needs for 15 years;
- Committed not to engage in any spent fuel reprocessing for 15 years, with a stated intention not to pursue reprocessing thereafter;
- Accepted intrusive transparency and monitoring requirements, including the full implementation of Iran's safeguards agreement with the IAEA and the Additional Protocol (in perpetuity). It will implement new measures that go beyond these standard safeguards arrangements for at least 20 years, including continuous monitoring of excess centrifuges in storage, centrifuge manufacturing facilities, and other aspects of the fuel cycle. Iran has also accepted monitoring of its uranium production for 25 years;
- Committed not to engage in a variety of activities that are associated with nuclear weapons development, including acquiring technologies or equipment that could assist with such work. This commitment does not expire; and,
- Agreed to only procure items for its civil nuclear program through the channel established by the JCPOA and the UNSC in resolution 2231, which will remain effective for 10 years.

Even after Implementation Day, the operation of the JCPOA will require constant activity by the parties. Among other tasks, the Arak reactor will be modified; the Fordow enrichment facility will be converted to a nuclear research center; Iran will keep enriched uranium stocks under the 300-kilogram ceiling; the procurement channel will evaluate applications for civil nuclear imports; and the Joint Commission will meet to address compliance issues. In addition, the Iranians will need to cooperate actively with the IAEA's monitoring and inspection efforts and assist the agency in the completion of the necessary declarations under the Additional Protocol (as well as update any previous declarations that contain omissions or errors) in order to achieve a "Broader Conclusion" concerning the nature of its nuclear program. But barring mutually agreed changes to the JCPOA in the out-years, the key constraints on Iran's nuclear capacity are already in place. The strategically relevant parameters of its nuclear program will remain largely static for the next eight years, with some restrictions dropping off at years 10, 13, and 15. The bulk of the transparency steps required beyond routine IAEA inspections would persist until year 20.

With the suspension or termination of most nuclear-related U.S., EU, and UN Security Council sanctions on Implementation Day, the main commitments on the P5+1's side of the ledger with respect to sanctions have largely been fulfilled.

The Security Council's adoption of resolution 2231 in July 2015 created the framework within which previous UN Security Council (UNSC) sanctions were relaxed. UNSC resolution (UNSCR) 2231 is now effective, having terminated resolutions 1737, 1747, 1803, and 1929 on Implementation Day and replaced them with its own provisions. UNSCR 2231 largely reapplies key elements of these previous resolutions, particularly regarding conventional arms and missiles, but with new language that permits certain transactions with Iran only so long as they are explicitly authorized by the UNSC. Moreover, Iran is "called upon," rather than obligated (as in previous resolutions), not to engage in cer-

tain missile activities, including launches of ballistic missiles designed to be capable of delivering nuclear weapons. Among the elements of previous resolutions that have not been reapplied are hortatory provisions that called upon states to exercise vigilance over transactions with Iran and the sanctioning of a few Iranian individuals and entities. Certain provisions of 2231 will be removed over time:

- The prohibitions on the transfer of conventional arms to and from Iran will be removed in October 2020 or when the IAEA reaches its Broader Conclusion, if that happens first;
- The restrictions on missile-related activities and provisions on asset freezes will be removed in October 2023 or when the IAEA reaches its Broader Conclusion, if that happens first; and,
- The Security Council's remaining sanctions, including its ban on nuclear trade outside the agreed procurement channel, will be removed in October 2025 or when the IAEA reaches its Broader Conclusion, if that happens first.

The United States has effectively suspended its most significant economic sanctions against Iran through a combination of waivers, exceptions, and the elimination of certain executive orders. The waivers and exceptions are time-limited, meaning that throughout the JCPOA period, the U.S. administration in office will regularly need to decide whether to extend the relief or not. Assuming that the JCPOA survives until 2023 or the IAEA reaches its Broader Conclusion, the United States will, at that time, seek legislative action to terminate those sanctions suspended on Implementation Day, terminate any associated Executive Orders still in place, and remove those individuals and entities still on the Treasury Department's nuclear-related designation list.

The EU has also effectively suspended its most significant economic sanctions against Iran, but through a more direct procedure. The governing regulations for the Iran sanctions regime have been extensively amended, meaning that the legal termination of

those sanctions has been placed in abeyance. At the same time, the EU reserved the right to re-impose these sanctions in the event of significant nonperformance by Iran of its obligations. Absent this step, the EU is required to terminate its residual nuclear-related sanctions in October 2023 or if the IAEA reaches its Broader Conclusion.

The civil nuclear cooperation provided for in the JCPOA will involve a much more fluid set of arrangements, largely dependent on the national legal requirements of the countries involved and their own policies on whether to cooperate with Iran.

The United States will likely not cooperate with Iran except in very restrictive situations, such as the modification of the Arak reactor (which advances the U.S. objective of eliminating Iran's ability to produce weapons-usable plutonium) or perhaps as relates to safety or nuclear security. This is because most U.S. nuclear cooperation of any great significance requires a formal civil nuclear cooperation agreement, governed by Section 123 of the Atomic Energy Act. Any 123 agreement with Iran would almost certainly be voted down by Congress—and by wide margins—and therefore will not likely be attempted either in the Obama administration or any subsequent administration for quite some time.

The European members of the P5+1 will likely engage in more civil nuclear cooperation with Iran. The JCPOA's Annex III outlines a range of specific projects, including nuclear safeguards, safety, security, proliferation-resistant reactor design, and the humanitarian application of nuclear science. Russia will cooperate with Iran on stable isotope separation at Fordow, which could permit Iran to produce a variety of industrial, agricultural and medical isotopes. And China will take the lead in working with Iran on the modification of the Arak reactor from its original design to the new, agreed-upon design.

It is also likely that Iran will buy new power reactors from abroad rather than seek to build one on its own until it has more experience in reactor design and construction. Prior to the conclusion of the JCPOA, potential vendors for Iran were limited essentially to

Russia's Rosatom. On the basis of negotiations begun before the JCPOA was concluded, Russia will build two additional reactors at the Bushehr site.⁸ But now that the JCPOA opens the possibility of cooperation with other suppliers—and especially given indications that Iran was frustrated with slow Russian performance on the first Bushehr reactor—it is likely that Tehran will seek to broaden its partners in the nuclear power field. Discussions with China are well advanced for the purchase of one or more power reactors,⁹ and Iran and South Korea are talking about cooperation on small modular reactors.¹⁰ No doubt other Western vendors will be interested in working with Iran, depending on the terms available.

IMPACT ON IRANIAN NUCLEAR WEAPON TIMELINES

If the JCPOA is implemented faithfully, it is reasonable to conclude that Iran's ability to develop a nuclear weapon will be severely hampered for the next 10-15 years, and impaired for some time thereafter. This is for several reasons:

1. The provisions of the JCPOA limit Iran's nuclear infrastructure to a degree that—absent an already-existing clandestine nuclear program—it would be very difficult for Iran to produce enough highly enriched uranium (HEU) for a nuclear weapon in less than one year. The exceedingly small size of Iran's permitted enriched uranium stockpile, its reduced number of installed centrifuges, and other limitations make it mathematically difficult for Iran to build up its nuclear program fast enough to reduce this lag. And such a buildup would be immediately noticeable to IAEA inspectors, who will have continuous, online surveillance of large parts of Iran's enrichment program.

2. Similarly, Iran's ability to produce weapons-grade plutonium will be eroded indefinitely by modifications to the Arak reactor, the prohibition on the construction of any new heavy water reactors in Iran for 15 years, the shipment of spent fuel out of the country, and the 15-year ban on reprocessing or even an active R&D program on reprocessing. Iran has not demonstrated any proficiency in reprocessing to date nor made any discernable investment in a significant reprocessing capability. It does not have any reprocessing facilities nor, based on the IAEA's reports going back to 2003, has its reprocessing-related activities gone beyond the initial stages of development. The JCPOA's commitments lock Iran into this rudimentary position.
3. Tight limits on centrifuge development and manufacture will impede the introduction of advanced centrifuges. Iran's centrifuge component manufacturing base will be weakened by inactivity over the course of the next eight years, as the JCPOA prohibits the manufacture of new centrifuges or their parts so long as there remains a store of existing IR-1 centrifuges. This prohibition will be lifted gradually starting in eight years, with Iran permitted to manufacture a limited number of advanced centrifuges and their components in stages until year 13, after which manufacturing will be unrestricted. Similarly, Iran's research and development for advanced centrifuges will be limited to single machines and very small cascades for eight years and to somewhat larger cascades for the next five years. This means that Iran will have to do additional developmental work and testing after the restrictions are lifted, perhaps learning that what worked in single and small-centrifuge configurations does not work when scaled

⁸ "Russia to start building Iran nuclear reactors," *Al Jazeera*, December 23, 2015, www.aljazeera.com/news/2015/12/russia-start-building-iran-nuclear-reactors-151222131134565.html

⁹ "Official in China to Discuss Arak Reactor Redesign," *Kayhan*, August 26, 2015, kayhan.ir/en/news/17617/official-in-china-to-discuss-arak-reactor-redesign

¹⁰ "Iran Eyes Nuclear Cooperation with South Korea," *Tasnim News*, January 27, 2016, www.tasnimnews.com/en/news/2016/01/27/983107/iran-eyes-nuclear-cooperation-with-south-korea

up. In short, while Iran will learn something from the R&D permitted under the JCPOA, its forward momentum will be significantly slowed, and it will take Iran time beyond the expiration of the JCPOA's R&D restrictions to build this momentum back up. And, of course, through the monitoring provisions of the JCPOA, the international community will have awareness of the progress of Iranian centrifuge R&D.

4. Iran has committed not to engage in a variety of specific activities that could help it design and build a nuclear warhead. This includes:
 - a. Designing and modeling nuclear explosive devices (which the IAEA's December 2 report on Iran's past nuclear weapons work identified as activities in which Iran had engaged);¹¹ and,
 - b. Designing, developing, fabricating, acquiring or using essential equipment for the design and testing of a nuclear device, such as multi-point explosive detonation systems, explosive diagnostic systems, and explosively driven neutron sources.

These JCPOA prohibitions on nuclear “weaponization” activities go beyond the restrictions contained in the Nonproliferation Treaty.

An uncertainty affecting Iran's nuclear weapon timeline is how close it got to a workable nuclear device as a result of past activities, especially prior to 2003 when it is believed to have halted most weaponization work. The December 2 IAEA report on the “possible military dimensions” of Iran's nuclear program assesses that, prior to 2003 and—to a lesser degree, until 2009—Iran engaged in activities relevant to the development of a nuclear explosive device. It further judged that “these activities did not advance beyond feasibility and scientific studies, and the

acquisition of certain relevant technical competencies and capabilities.” The IAEA came to these conclusions in the absence of a full and honest disclosure of past activities by Iran, which mainly stonewalled the agency's investigation of its past nuclear work.

We do not know now nor may we ever know how close Iran actually got to developing the design of a nuclear weapon. In fact, a key criticism of the JCPOA is that it did not compel Iran to offer a complete picture of its past nuclear weapons-related work. But the very argument that critics use to demand full disclosure—that Iran lied to us about its past work—is part of the reason why it would have been hard to believe any Iranian confession made during the JCPOA negotiations. Questions would have remained as to whether Iran had made significant progress toward a workable nuclear weapon but failed to disclose it.

In the end, it is prudent, in the absence of detailed and verifiable knowledge of the past, to make the assumption that Iran had made considerable progress on weaponization and would not require a great amount of time, in a breakout scenario, to proceed from the production of fissile material to the fabrication of a nuclear weapon. Even though building a workable device would add to the breakout timeline, we cannot count on it adding very much. Computations of nuclear weapons breakout have tended to focus primarily on nuclear material production, the closest proxy to warhead production that can be ascertained by independent IAEA reporting. This will continue to be the case during and after the JCPOA. And so we assume that the main factors hampering Iran's ability to produce nuclear weapons will be the JCPOA's restrictions on Iran's capability to produce enriched uranium and plutonium.

EXPIRATION OF KEY RESTRICTIONS

A major concern among critics of the JCPOA, both in the United States and Middle East, is that those

¹¹ “Final Assessment on Past and Present Outstanding Issues regarding Iran's Nuclear Programme,” *International Atomic Energy Agency*, p. 15, <https://www.iaea.org/sites/default/files/gov-2015-68.pdf>

restrictions will begin to expire after eight years and will be gone after 15 years. The primary restrictions of interest here are those that limit the size of Iran's centrifuge program and the types of centrifuges that can be used in it. These restrictions will begin to erode starting at year eight, with limited additional centrifuge R&D, but become significantly less burdensome for Iran at year ten, at which point Iran can theoretically begin to expand its centrifuge program in size. The JCPOA indicates that Iran will abide by an R&D plan that will limit the size of its centrifuge fleet until year 13 but, at year 15, all centrifuge-focused restrictions will have eased (though monitoring will continue) and Iran will also be able to retain more than 300 kilograms of enriched uranium in the country at any one time.

This means that Iran will eventually be free to build the industrial-scale enrichment capability it says it needs for its nuclear energy plans. If it decides to do so, it will sharply shrink the time required to produce enough HEU for a single bomb—from the one year that will prevail through at least the first 10 years of the JCPOA to a matter of a few weeks. Depending on how quickly Iran chooses to ramp up its capability and the efficiency of the advanced centrifuges it deploys, breakout time could be reduced to a few weeks as early as year 13 but more likely several years later.

The ability to produce enough plutonium for nuclear weapons, once restrictions on the plutonium path expire, would take longer to achieve. As noted above, Iran has not engaged in significant reprocessing-related work and, consequently, it is starting far behind where it would need to be in order to achieve a viable plutonium-based bomb path. After year 15, Iran could theoretically elect to construct new heavy water reactors as well as research reprocessing techniques. With respect to a potential timeline, it is difficult to estimate how long it would take Iran to master reprocessing sufficiently to field a plutonium-based bomb, given that Iran's baseline knowledge appears to be rudimentary. In the Manhattan

Project, the United States developed a spent fuel reprocessing capability—and the reactors to fuel it—in three years. But other countries have taken longer to do so and modern surveillance measures—which will not be eased with respect to Iran—would detect such a crash program.

ONLY A DELAY?

With the expiration of key restrictions and the ability of Iran to reduce breakout times dramatically, many critics argue that the JCPOA merely delays but does not prevent¹² a nuclear-armed Iran. But this argument ignores some key factors. Under the JCPOA, and indeed under the NPT, Iran is bound not to acquire nuclear weapons. In addition, the intrusive monitoring arrangements that will give the international community intimate knowledge of Iran's nuclear activities will remain in place well beyond 15 years and, in the case of the Additional Protocol, indefinitely. That close and continuous scrutiny will alert the United States and other interested countries to any future Iranian attempt to suddenly break out and produce nuclear weapons, giving those countries the opportunity to intervene to stop the breakout attempt, including with the use of military force.

Moreover, the argument that the JCPOA only delays Iran's acquisition of nuclear weapons for around 15 years assumes that Iran will inevitably pursue the bomb once it has rebuilt the necessary fissile material production capacity. However, the U.S. intelligence community has repeatedly judged that, while Iran has insisted on keeping open the option to acquire nuclear weapons, it has essentially deferred a decision on whether to do so. This is not to say that Iran will not opt to acquire nuclear weapons in the future—only that it has not yet made that decision. And if that is the case, such a decision could be influenced by a range of factors, including Tehran's perceptions of its security environment, whether Iranian leaders believed their goals could be achieved

¹² "Obama admits Iran nuclear deal only delays inevitable, leaves problem for future presidents," *Fox News*, April 7, 2015, <http://www.foxnews.com/politics/2015/04/06/obama-claims-tying-iran-deal-to-recognition-israel-would-be-fundamental.html>

without nuclear weapons, their estimate of international reactions to their pursuit of nuclear weapons (including the risk of military preemption), and the balance of political power within Iran.

But even if an eventual Iranian effort to become a nuclear-armed state is not a foregone conclusion,

Iran's ability after 15 years or so to obtain the physical and technological capacity to do so—and to do so legally under the JCPOA—is undeniable. And that is one of the most controversial features of the nuclear deal, and one that worries U.S. partners in the Middle East.

CHAPTER 3

CHALLENGES TO THE JCPOA

Implementation of the JCPOA to date has been relatively seamless. U.S. officials and other observers had predicted that Iran could not complete all the requirements for Implementation Day until the spring or summer of 2016. But motivated by the desire to get sanctions relief before the Majlis elections in late February, the Iranians fulfilled their nuclear commitments with great urgency and efficiency and received the IAEA's certification to proceed with Implementation Day on January 16.

In the several months preceding Implementation Day, the P5+1 parties and Iran managed to agree on a large number of implementation issues that had been left unresolved at the time the JCPOA was concluded in July 2015. The Iranians initially took positions that would lighten their implementation burden or otherwise favor their interests, but they relatively quickly came around to pragmatic solutions. On technically complex and politically difficult issues that might have produced a stalemate and postponed Implementation Day—including the amount of centrifuge infrastructure to be dismantled, the disposition of 20 percent enriched uranium “scraps,”¹³ and agreement on the characteristics of advanced centrifuges¹⁴—the parties found mutually acceptable solutions that established a promising foundation for implementation going forward.

In his February 26 report to the IAEA Board, his first following Implementation Day, IAEA Director

General Yukiya Amano stated that Iran was in compliance with its nuclear commitments. The report indicated that Iran had temporarily exceeded the permitted ceiling on heavy water stocks but promptly corrected that infraction. The February 26 report contained significantly less information about Iran's nuclear program than previous reports, which the Director General said was consistent with the IAEA's altered mandate under the new UNSC resolution. The United States and other Board members urged the Director General, in the interest of transparency, to provide more detailed information in subsequent reports.

CHALLENGES TO SMOOTH AND SUSTAINED IMPLEMENTATION

So the JCPOA is off to a good start. But the challenges to effective and sustained implementation of the JCPOA are formidable.

Even if all parties intend to abide by their JCPOA commitments, compliance issues are bound to arise. Despite the detailed implementation provisions nailed down in the JCPOA and subsequently worked out in the run-up to Implementation Day, the parties will inevitably encounter ambiguities and differences of interpretation going forward. With each party seeking the most favorable outcome from its perspective and feeling domestic pressure not to

¹³ David Albright and Serena Kelleher-Vergantini, “Taking Stock of Iran's Near 20 Percent LEU,” *Institute for Science and International Security*, December 14, 2015, p. 2, <http://isis-online.org/isis-reports/detail/taking-stock-of-irans-near-20-percent-leu/>

¹⁴ Ollie Heinonen, Simon Henderson, “How to Make Sure Iran's One-Year Nuclear Breakout Time Does Not Shrink,” *Washington Institute for Near-East Policy*, June 17, 2015, <http://www.washingtoninstitute.org/policy-analysis/view/how-to-make-sure-irans-one-year-nuclear-breakout-time-does-not-shrink>

give ground, there is a risk that even minor implementation matters will become magnified in importance and become major sources of contention.

For some provisions, there may be practical difficulties in complying strictly and consistently over the long haul. For example, complying with the limitation on Iran's stockpile of enriched uranium is dependent on regular shipments of nuclear material out of the country or the timely and regular dilution of it. Iran could quickly breach this 300 kilogram limit should a flight be delayed for weather or any other reason. Similarly, Iran is limited to quantities of heavy water that match its operational needs, but could exceed those amounts due to production or inventory errors. Or Iran may enrich uranium above the 3.67 percent mark identified in the JCPOA by a miscalculation of uranium gas flows, which is not uncommon.

Such violations may not themselves be a cause for alarm, as reasonable explanations can often be offered for them. But a pattern of such breaches would probably raise concerns among JCPOA participants and throughout the region. It will be important to identify and correct even minor infractions at the earliest possible stage to prevent them from growing into major implementation problems.

Some aspects of the nuclear deal may lend themselves to questions of compliance. For example, the deal requires Iran to seek authorization to procure sensitive items for its JCPOA-approved civil nuclear program. But some items useful in civil nuclear programs, such as high-grade aluminum, are also useful in the manufacture of ballistic missiles (as well as other aerospace applications). Because Iran rejects U.N. Security Council restrictions on ballistic missiles and will not submit missile-related transactions to international scrutiny, it will not go through the JCPOA's procurement channel to import high-grade aluminum if it is intended for its missile program. If and when the United States discovers such an illicit transaction, it might be difficult to know whether it was intended for a missile application (in which case it would be a violation of UNSC restrictions) or intended for a clandestine nuclear weapons program

(which would be a major breach of the JCPOA). Depending on the particular circumstances of the transaction, a missile-related use might be credible, and the United States would presumably pursue the matter as a violation of the Council's missile restrictions. But if the end-use was difficult to discern, and especially if the transaction was part of a recurring pattern of illicit shipments of high-grade aluminum, suspicions about a clandestine nuclear weapons program would arise and the matter could well escalate into a major compliance dispute.

CHALLENGES POSED BY OPPOSITION IN CAPITALS

In addition to the challenges posed to the smooth operation of the JCPOA by the many complex compliance issues likely to arise in the course of its implementation, the long-term viability of the deal may be threatened by continuing opposition to the agreement in both Iran and the United States. But there is a difference between the domestic debates in Tehran and Washington. While the U.S. debate reflects a combination of sharp substantive differences, institutional rivalry between the executive and legislative branches, and intense partisanship in an election year—a vigorous debate on a highly consequential foreign policy issue, but hardly an existential matter—the internal debate in Iran reflects a fundamental struggle for the future of the country.

The groups in Iran that appear unreconciled to the deal range from senior Iranian Revolutionary Guard Corps (IRGC) officers to some employees of the Atomic Energy Organization to hardline members of the Majlis, media, and clergy. The IRGC may feel that the suspension of sanctions and re-integration of Iran into the world economy would threaten the dominant position it has enjoyed in Iran's economic life under the sanctions regime. Iranian hardliners fear that the end of Iran's international isolation could open the country to Western influences (which they term "infiltration") that could threaten the ideological pillars of the Islamic Republic. And domestic opponents of President Rouhani are concerned that the economic benefits of the JCPOA

could strengthen Iranian moderates and produce a long-term shift in the internal balance of power.

The endorsement of the JCPOA by Iran's Supreme Leader Ali Khamenei and the desire to proceed without delay to Implementation Day and sanctions relief have, for the time being, kept hardline attacks on the agreement largely in check. But Khamenei has compensated for his endorsement by aligning himself with hardline positions, including by railing against Western infiltration, opposing bilateral engagement with the United States except on the nuclear issue, and advocating no change in Iran's regional policies.

In addition, Khamenei has adopted positions on JCPOA implementation that could spell trouble for the future of the agreement. For example, although the JCPOA does not preclude the imposition of new sanctions for non-nuclear reasons (e.g., support for terrorism, human rights abuses, missile activities), he has declared that any new U.S. sanctions, for whatever reason, would be a violation of the JCPOA and would justify Iran not fulfilling its JCPOA commitments. The United States fully intends to impose new non-nuclear sanctions whenever warranted. If Iran responds by following through on its stated intention to curtail its implementation of the deal, the agreement will not last very long.

The Obama administration's January 17 imposition of sanctions against eleven entities and individuals for procuring items for Iran's ballistic missile program was the first test case. Iran condemned the sanctions as "unlawful"¹⁵ and threatened to respond proportionally and accelerate its missile programs. But it stopped short of accusing Washington of violating the JCPOA or indicating that Iran's performance under the JCPOA would be affected. To some extent, this experience mirrors the history of the JPOA period, when the United States was careful to impose sanctions that were permitted under the JPOA and, though Iran complained, it accepted the U.S. interpretation each time.

That said, Iranian opponents of the nuclear deal can be expected to seek any pretext to accuse the United States of violating its JCPOA commitments. JCPOA opponents and supporters alike suspect that the United States will—in violation of its JCPOA commitment “to prevent interference with the realization of full benefit by Iran of sanctions lifting”—attempt to discourage international banks and businesses from engaging with Iran. Reflecting this widespread concern, Iranian officials strongly protested to senior U.S. officials about the Visa Waiver Program Improvement and Terrorist Travel Prevention Act of 2015, which requires individuals previously eligible for the U.S. Visa Waiver Program to apply for a U.S. visa if they had visited Syria, Iraq, and Iran (and other countries on the U.S. list of state sponsors of terrorism) in the last five years. Although the legislation was intended as a measure to facilitate screening of potential terrorists, it was widely seen by Iranians as aimed at discouraging Western businessmen from going to their country.

In a letter¹⁶ dated December 19, 2015, U.S. Secretary of State John Kerry assured Iran's Foreign Minister Javad Zarif that the Obama administration had the tools necessary to implement the change in visa requirements “so as not to interfere with legitimate business interests of Iran.” Iranian authorities seemed satisfied with Kerry's assurance, but Iranian hardliners continued to charge that the law violated U.S. JCPOA commitments. Should economic recovery in Iran fall short of expectations, it is possible the Iranians will blame the visa law (and any other similar laws) and a serious implementation crisis could erupt.

A major challenge to the JCPOA could come if sanctions relief does not produce the economic recovery the Iranian public expects. In the wake of Implementation Day, there has been a surge of commercial activity between the international business community and Iran, including major deals announced during President Hassan Rouhani's January

¹⁵ “U.S. sanctions illegal as American arms used against Palestinians, Yemenis - Iranian FM,” *RT*, January 18, 2016, <https://www.rt.com/news/329268-tehran-us-sanction-illegal/>

¹⁶ Mohammad Ali Shabani, “US, Iran move to avert firestorm over visa waiver program changes,” *Al-Monitor*, December 20, 2015, <http://www.al-monitor.com/pulse/originals/2015/12/visa-waiver-program-changes-zarif-kerry-letter.html>

trade-and-investment promotion trip to Italy and France.¹⁷ But many international banks and businesses remain cautious about engaging with Iran, not due to any U.S. effort to impede economic recovery, but because of well-known difficulties of doing business in Iran and uncertainty about whether the deal will collapse and sanctions will be re-imposed. If this hesitation continues and if factors such as low oil prices and persistent structural problems hold back economic recovery, Iranian opponents will be quick to pin the blame on the JCPOA and its Iranian champions, and calls for withdrawing from the deal will increase.

A disturbing sign in that regard came on March 20 at the Imam Reza Shrine at Mashhad, when Supreme Leader Khamenei blamed “the Americans” for impeding banking transactions: “On paper, they have lifted the sanctions, but in practice, they take steps to prevent the sanctions from being truly lifted.”¹⁸

Another challenge is that some Iranian opponents of the deal may be in a position to interfere directly with implementation of the JCPOA, either by refusing to take steps that are required, such as granting IAEA access to military facilities, or by taking actions that are inconsistent with its terms, such as continuing to use illicit procurement networks for nuclear imports. Whether or not such actions are taken by individuals or by elements of the regime opposed to the deal, their intent would be to undermine the JCPOA. It is not clear whether Rouhani or his allies have sufficient control over the IRGC or other hardliners to prevent them from taking steps on their own to impede or sabotage the nuclear deal.

CHALLENGES IN WASHINGTON

The principal challenge to the JCPOA on the U.S. side comes from uncertainty about whether the deal will continue to command sufficient domestic

support—in particular, whether American opponents can succeed in adopting legislation designed to impede or derail the deal and whether a future U.S. administration will decide to withdraw from it.

The Obama administration and supporters of the JCPOA on Capitol Hill (most Democrats) won the first round last September when opponents (all of the Republicans) failed to muster sufficient support to force a vote on a joint congressional resolution to disapprove the nuclear deal. As a result, the JCPOA took effect for the United States on October 18. But opposition to the deal did not fade away. After a temporary lull following the congressional review period, the debate resumed.

Supporters of the agreement have been encouraged that, in the run-up to Implementation Day, the Iranians fulfilled their nuclear commitments conscientiously and took reasonable positions in working out implementation ground-rules for the future. Domestic support for the nuclear deal was also given a boost by the release on January 16 of five Americans detained by Iran. The release was criticized in certain quarters because it was accompanied by the release of a larger number of Iranians found guilty of illicitly procuring sensitive items for Iran. But even though this “prisoner exchange” was not part of the JCPOA negotiations, it was widely seen as a dividend of the nuclear deal and, as such, lent support to the Obama administration’s argument that the deal was working.

Although Iran’s compliance to date, especially the dramatic reduction in its capacity to produce weapons-usable nuclear materials, has tended to mute criticism of the JCPOA itself, Iran’s provocative behavior outside the deal has contributed to renewed domestic efforts to undermine it. Since the JCPOA was finalized last summer, Iran has stepped up its direct military involvement in Syria,¹⁹ continued its support of other regional proxies, conducted long-

¹⁷ Jim Boulden, “Iranian president does big business in Europe,” *CNN Money*, January 26, 2016, <http://money.cnn.com/2016/01/26/news/companies/iran-europe-deals-italy-france/>

¹⁸ Mohammad Ali Shabani, “Banking sanctions take center stage as Iranian rhetoric toughens,” *Al-Monitor*, March 23, 2016, <http://www.al-monitor.com/pulse/originals/2016/03/iran-sanctions-jcpoa-banking-khamenei-nowruz-speech.html>

¹⁹ Dugald McConnell, Brian Todd, Holly Yan, “Iran to go to Syria peace talks while boosting its military power there,” *CNN*, October 28, 2015, <http://www.cnn.com/2015/10/28/middleeast/iran-russia-syria-civil-war/>

range ballistic missile tests in violation of Security Council resolutions,²⁰ carried out live-fire military exercises in close proximity to U.S. naval vessels,²¹ and cracked down on domestic reformers.

None of these activities violated the JCPOA, which focused exclusively on the nuclear issue at the insistence of both Iran and the United States. But if the nuclear deal is viewed as facilitating troublesome Iranian behavior—including by releasing billions of dollars in restricted assets that Iran can use to fund its proxies or otherwise support an aggressive regional agenda—public and congressional support for the nuclear deal could sharply erode and domestic efforts to undermine it could gain momentum.

The Obama administration has pledged, both to domestic audiences and to regional partners critical of the deal, that it would firmly counter Iran's destabilizing regional activities and impose sanctions for objectionable Iranian behavior not covered by the JCPOA, such as support for terrorism, human rights abuses, and missile activities. But it has opposed congressional action that it believes would jeopardize the nuclear deal, such as sanctions not narrowly targeted on such areas but aimed instead at denying Iran the benefits of JCPOA sanctions relief, which would give Tehran an excuse for curtailing its implementation of the deal.

So far, legislative efforts to disrupt the JCPOA have not made much progress. New legislative bills have been put forward that would do various things, ranging from renewing the Iran Sanctions Act (which is largely suspended as a result of the JCPOA but formally sunsets at the end of December 2016) to prohibiting the United States from purchasing the heavy water Iran produces in excess of its JCPOA threshold to recreating the entirety of the now suspended U.S. secondary sanctions structure in order to penalize Iran for its ballistic missile tests and human rights violations.

Supporters of new legislation on Iran are not confined to those who would like to kill the JCPOA. There are Democrats who want the nuclear deal to succeed but believe the administration should push back harder against certain Iranian activities not covered by the deal. Several Democrats in Congress, including JCPOA supporters, joined Republicans in rebuking the Obama administration for allegedly having second thoughts about sanctioning Iran for its ballistic missile tests in October and November 2015, which violated U.N. Security Council resolutions (although not the JCPOA). As it turned out, the Obama administration was only delaying the imposition of sanctions to avoid jeopardizing the January 16 release of the five detained Americans. The missile sanctions were imposed the day after the detainees were released, which at least temporarily reduced interest in new missile sanctions, at least among Democrats.

But many members of Congress remain determined to adopt new Iran-related legislation,²² some who genuinely favor the JCPOA and want to penalize Iranian activities not covered by it and others who oppose the JCPOA and believe that strong new sanctions could provoke a harsh Iranian reaction that would put the agreement's future at risk.

Whatever the outcome of these legislative efforts, vocal domestic opposition to the deal is unlikely to abate, especially if Iranian leaders continue to pursue aggressive external and repressive internal policies. The U.S. presidential and congressional campaigns will ensure that strong opposition to the nuclear deal, especially among Republican candidates, will be heard throughout 2016.

LEADERSHIP TRANSITIONS INTRODUCE ADDITIONAL UNCERTAINTY

The upcoming U.S. presidential election—and future presidential transitions during the planned

²⁰ Louis Charbonneau, "Exclusive: Iran missile tests were 'in defiance of' U.N. resolution - U.S., allies," *Reuters*, March 30, 2016, <http://www.reuters.com/article/us-iran-missiles-idUSKCN0WV2HE>

²¹ Jim Miklaszewski, Courtney Kube, Ali Arouzi, Alastair Jamieson, "U.S. Carrier Harry S. Truman Has Close Call With Iranian Rockets," *NBC News*, December 30, 2015, <http://www.nbcnews.com/news/world/u-s-carrier-harry-s-truman-has-close-call-iranian-n487536>

²² "Kirk, Rubio Introduce Bill to Prohibit Iranian Access to U.S. Dollars," *Mark Kirk, U.S. Senator for Illinois*, April 6, 2016, http://www.kirk.senate.gov/?p=press_release&id=1705

lifetime of the JCPOA—introduces an additional measure of uncertainty about the durability of the nuclear deal. Because the JCPOA is a political commitment and not a legally binding undertaking, a future U.S. president could decide to walk away from the agreement. But campaign rhetoric is often an unreliable indicator of positions taken by newly elected leaders. A future American president, confronted with all the other foreign policy challenges facing the United States today, would have to consider whether she or he also wants to deal with the probable Iranian response to a U.S. withdrawal decision—the expansion of its nuclear program, a reduction of breakout time, and the end of enhanced transparency and monitoring.

A critical factor would be his or her judgment of how much international support Washington would have for its Iran policy in the wake of the JCPOA's demise, especially how much support there would be for re-imposing powerful sanctions. In the absence of Iranian violations of the JCPOA or highly provocative Iranian behavior outside the deal, there would likely be little international support, even among European P5+1 partners, for U.S. withdrawal or for ramping up sanctions. The risks of withdrawal are likely to appear substantial, even to a president who has previously voiced strong opposition. Such a stance could provide Iran a convenient excuse to withdraw from its own commitments and paint the United States as the noncompliant party. Still, a more hawkish president could have a lower bar than a less hawkish one for ending the deal, and until a new U.S. president chooses her or his course of action, the future of the nuclear deal will remain uncertain.

Future transitions in Iran could also affect the longevity of the nuclear deal. The new Majlis elected in February 2016 will be more balanced between moderate/reformist-leaning, centrist conservative, and hardline conservative members than its predecessor, which had a more conservative complexion. As a result, it is possible that Rouhani and the JCPOA will receive less criticism than in the old Majlis. But the labels assigned to these parliamentary groups are relative and misleading, as the Iranian system worked to ensure that truly reform-leaning politicians were ineligible to compete for Majlis seats. Moreover, the Majlis has comparatively little political power in the Iranian government in any event, and unelected hardline elements of the regime may continue to make the JCPOA a target, especially in the run-up to Rouhani's re-election bid in 2017.

Also complicating the picture, sooner or later, but almost surely before critical provisions of the JCPOA expire, 76 year-old Ali Khamenei will pass from the scene and a new supreme leader will become the crucial Iranian voice on the future of the nuclear deal. At this stage, speculation is futile as to whether Iran's new supreme leader will be more or less committed to the JCPOA or more or less intent on possessing nuclear weapons. But this inevitable transition is another reason why the long-term operation of the JCPOA cannot be taken for granted.

In sum, the JCPOA thus far has been implemented as well as could be expected, but its future is uncertain. This uncertainty—and the implications of that uncertainty for the region—will be on the minds of the leaders of Middle East countries as they consider how best to ensure their security in the years ahead.

CHAPTER 4

REACTIONS IN THE MIDDLE EAST TO THE JCPOA

American critics of the JCPOA claim that countries in the Middle East oppose the nuclear deal. In the case of Israel, that is largely true. While security professionals in Israel generally have not attacked the JCPOA and at least some have seen it as a net positive for Israeli security,²³ the government of Prime Minister Netanyahu continues to regard the JCPOA as a bad deal, arguing both that it will fail to prevent a nuclear-armed Iran and that it will increase the non-nuclear threat to Israel from Iran and its regional proxies. Israel has nonetheless chosen to work with the United States on implementing the agreement, hoping, as it sees it, to stiffen Washington's resolve to take a rigorous approach toward enforcing Iranian compliance. Israeli public criticism of the deal has therefore subsided, although strong reservations persist.

Other public reactions in the region to the JCPOA have been neither uniform nor overwhelmingly negative. In fact, a survey of public statements by governments in the region indicates that there is support for the JCPOA, even if in certain cases it is more grudging and tepid than Washington would have preferred. Qatar's Foreign Minister Khalid al-Attiyah summed up the Gulf Cooperation Council's reaction in a statement on August 3, 2015:²⁴ "[The JCPOA] was the best option among other options."

He went on to say that "[the GCC states] are confident that what they undertook makes this region safer and more stable."²⁵

Commentators have suggested that this endorsement of the JCPOA represents less a full-throated indication of support and more a calculated maneuver to maintain good relations with the Obama administration. In this telling, Gulf Arabs concluded that, since the JCPOA was going to be implemented in any event, it made little sense to waste political capital trying to undermine it. Rather, they could seek to take advantage of the situation to gain access to advanced U.S. military hardware and cooperation with the United States on other regional priorities.²⁶ There is probably something to this theory, as indicated by U.S. approval of expanded arms packages to Gulf Arab partners as well as its endorsement of—among other things—the Saudi-led military operation in Yemen.

Moreover, beyond a somewhat cynical read of the GCC endorsement, there is also considerable logic to the calculation by the Gulf Arab states that, although the JCPOA may not have been the deal they desired, it was the deal they had and that breaking ranks publicly with their American security partner was not in their interest. In this, the Gulf Arab states had to contend with the reality that, while the

²³ Leore Ben-Chorin, "Netanyahu and IDF Are Split on the Iran Nuclear Deal," *The National Interest*, March 2, 2016, <http://nationalinterest.org/feature/netanyahu-idf-are-split-the-iran-nuclear-deal-15368>

²⁴ "Press Availability With Qatari Foreign Minister Khalid Bin Mohammed al-Attiyah," *U.S. Department of State*, August 3, 2015, <http://www.state.gov/secretary/remarks/2015/08/245610.htm>

²⁵ Michael Gordon, "John Kerry Wins Gulf States' Cautious Support for Iran Deal," *The New York Times*, August 3, 2015, <http://www.nytimes.com/2015/08/04/world/middleeast/gulf-states-cautiously-support-iran-nuclear-deal.html?>

²⁶ Ilan Goldberg, Melissa Dalton, "Bridging the Gulf: How to Fix U.S. Relations With the GCC," *Foreign Affairs*, November/December 2015, <https://www.foreignaffairs.com/articles/middle-east/bridging-gulf>

Israelis have sufficient political and cultural connections with the United States to weather a period of discord (at least in the short-term), Gulf Arab countries do not. They could ill afford a sharp break with the Obama Administration.

There was also an economic rationale for supporting the deal, particularly in the case of the UAE and Turkey. The UAE's economic interest stems from its long-standing trading ties with Iran. The Emiratis suffered significant business losses as a result of U.S. sanctions imposed after 2011; the IMF estimated that the removal of Iran sanctions could add approximately one percent of GDP to the UAE economy.²⁷ Turkish officials also expressed their delight with the removal of sanctions promised in the JCPOA; Turkish Finance Minister Mehmet Şimşek tweeted on the day the deal was concluded that the JCPOA was "great news for the Turkish economy." This perspective was echoed by Turkish Foreign Minister Çavuşoğlu, who stated, "Annulment of the sanctions imposed against Iran in this deal will benefit regional economy and will directly leave positive effects on Turkey's economy."²⁸

Many of the public statements made by regional states in support of the JCPOA—whether or not fully or truly reflective of private thinking—focused on the strategic and nonproliferation value of the JCPOA itself. Especially noteworthy were comments by Saudi Arabia, given frequent reports during the negotiations of private Saudi misgivings. Following a meeting between King Salman and President Obama in September 2015, Saudi Foreign Minister Adel al-Jubeir stated that "we believe this agreement will contribute to security and stability in the region by preventing Iran from acquiring a nuclear capability." He added, "Now we have one less problem to deal with, with regard to Iran, and we

can now focus more on their nefarious activities in the region,"²⁹ echoing a line of argument the Obama administration had been making since the deal was concluded in mid-July.

Other neighbors also publicly supported the JCPOA on the basis of its constraint on Iran's potential acquisition of nuclear weapons. Egypt's foreign ministry commented on the deal's potential for precluding future nuclear proliferation in the region, expressing the "hope that the deal...prevents an arms race in the Middle East, as well as ensuring the region is free of all weapons of mass destruction, including nuclear weapons."³⁰ Turkey maintained that the JCPOA's full implementation "is of vital importance for peace, security, and stability in the region." Iraq, Kuwait, Oman, and Qatar expressed similar support for the potential security benefits of the nuclear agreement.

Private conversations with former and current government officials in Egypt, as well as non-governmental experts in Turkey, suggested that, at least in those countries, the JCPOA's treatment of enrichment was consistent with their interpretation of the NPT.³¹ Although some in the West and other parts of the Middle East lamented the lack of a permanent prohibition on enrichment in Iran, these individuals believed that it was important to reassure states not currently enriching that they retain at least the option to develop their own enrichment programs in the future. For them, allowing enrichment was a positive element of the deal; they would have been concerned with a JCPOA that foreclosed that option.

However, under the polite and positive veneer of many public statements, there are serious concerns about the JCPOA within the region. Principally, these concerns fall into three baskets:

²⁷ "IMF Country Report: United Arab Emirates," *International Monetary Fund*, August 2015, p. 10, <http://www.imf.org/external/pubs/ft/scr/2015/cr15219.pdf>

²⁸ "The Final Deal: The Region Reacts," *United States Institute of Peace*, July 15, 2015, <http://iranprimer.usip.org/blog/2015/jul/15/final-deal-region-reacts>

²⁹ Peter Baker, "Obama and Saudi King Sidestep Dispute Over Iran Nuclear Deal," *The New York Times*, September 4, 2015, <http://www.nytimes.com/2015/09/05/world/middleeast/obama-and-saudi-king-sidestep-dispute-over-iran-nuclear-deal.html>

³⁰ Clark Mindock, "Iran Nuclear Deal Reactions: Egypt Hopes Agreement Will Avoid Middle East Arms Race," *International Business Times*, July 14, 2015, <http://www.ibtimes.com/iran-nuclear-deal-reactions-egypt-hopes-agreement-will-avoid-middle-east-arms-race-2008562>

³¹ *Ibid.*

1. The nonproliferation benefits are temporary, and Iran will emerge after 10-15 years with an enhanced capability to pursue nuclear weapons;
2. Failure to address broader concerns about Iran's behavior—combined with the boost to Iran's economy provided by extensive sanctions relief—will facilitate more aggressive Iranian policies in the region than at present; and,
3. The deal is a first step toward a broader reordering of the Middle East, with the United States aligning itself with Iran at the expense of its traditional partners and significantly reducing its military and diplomatic presence in the region.

Although these concerns are, to a significant extent, unwarranted and, in any event, can be effectively addressed by resolute U.S. policies toward JCPOA implementation and the region, they are deeply held by regional actors and will play a role in how regional states respond in the long term to the JCPOA.

ONLY A DEFERRAL OF IRAN'S NUCLEAR AMBITIONS

There is a widespread belief in the region that Iran's acceptance of the JCPOA reflects only a willingness to delay and not to abandon its ambition to become a nuclear weapon state. It is practically taken as a given—especially in Israel, Saudi Arabia, and the UAE—that Iran's nuclear objectives have not changed, and that it wishes to acquire nuclear weapons as part of a broader attempt to achieve regional hegemony.

Many interlocutors suggested that Iran was perfectly willing to accept a short-term delay of its nuclear ambitions because, when key restrictions on its nuclear activities expire at years 10 and 15, the JCPOA will give Tehran a blank check to build nuclear facilities that are far larger than it possesses at present and to devote

those facilities to the production of nuclear weapons at a time of its choosing. U.S. supporters of the nuclear deal regard 15 years not just as a long-term, initial constraint on any Iranian nuclear aspirations but also as an opportunity to pursue policies that can discourage and deter Tehran from opting for nuclear arms indefinitely.

Many observers in the region, however, take little comfort from a 10- or even 15-year hiatus. Prince Turki al-Faisal, former Saudi intelligence chief and ambassador to the United States, is convinced that Iran intends to resume its nuclear weapons effort and regards 10 or even 15 years as “a mere second” that is “going to pass very quickly.”³² Regional contacts tend to dismiss as overly optimistic the assertion by some JCPOA supporters that, in the course of 15 years, there may be a positive evolution in Iranian thinking on the nuclear issue or a fundamental change in its internal power structure.

By and large, this pessimistic view of Iran's future nuclear intentions was not backed up with any evidence. Rather, most of our contacts asserted their confident belief in Iran's continued determination to possess nuclear weapons on the basis of Iran's traditional desire to control the region—going back to the Persian Empire—and religious sectarianism. They also maintained that, having invested so much time and resources in its quest for nuclear weapons and having paid such a steep price in terms of international sanctions, Iran would not abandon its goal, now or in the future.

To Iran's rivals in the region, it was seen as common knowledge, almost self-evident, that Iran, if presented with the opportunity, would acquire nuclear weapons. A senior Saudi Foreign Ministry official maintained that after 13-15 years, when constraints on capability will be gone and Tehran will only have to make a political decision; there will be an “open door” for Iran to build nuclear weapons.³³ A ministerial-level Emirati official³⁴ held that Iran's commitment to become a nuclear power will persist: “When it sees it has a window, it will jump through it.”

³² Dan Drollette Jr., “The feud with Iran: A Saudi view,” *Bulletin of the Atomic Scientists*, January 5, 2016, <http://thebulletin.org/feud-iran-saudi-view9033>

³³ Interview conducted by the authors on November 3, 2015, in Saudi Arabia.

³⁴ Interview conducted by the authors on November 4, 2015, in the UAE.

Regional interlocutors did not suggest that Iran's nuclear program was solely military in purpose. Nor was there any suggestion that Iran's fossil fuel riches undermined the Iranian claim that it needed civil nuclear power. Rather, Tehran's desire for civil nuclear energy was seen as legitimate and unobjectionable. But Iran's neighbors assumed that its original and primary motivation for pursuing enrichment facilities and a heavy-water reactor was to support a nuclear weapons program, and they believed that the only way to have confidence in thwarting Iran's nuclear weapons ambitions was to ensure that there was no nuclear fuel cycle in the country—no enrichment or reprocessing facilities. By allowing Iran to retain its enrichment program and shedding restrictions on fuel cycle activities after 15 years, the JCPOA was seen as far too generous to Iran. Even officials in Egypt (which generally supported the deal and believed that all NPT states have the right to possess and use enrichment technology) had concerns that Iran's intentions were inherently negative and believed it would have been preferable to restrain Iran longer.³⁵

To those in the region most skeptical about the nuclear deal, the terms of the JCPOA are consistent with a strategy by Iran of biding its time and deferring its goal of acquiring nuclear weapons. Under such a strategy, Iran would use the 15-year period of restrictions to develop and test more advanced centrifuges, continue to advance its missile delivery programs, build up its conventional military capabilities, and greatly strengthen its economy—so that, by the end of 15 years, it would be in a much better position than it is today to quickly expand its nuclear infrastructure and go for nuclear weapons.³⁶

Some regional actors are concerned not only that Iran will pursue nuclear weapons after 15 years but that other Middle East states, anticipating an eventual Iranian breakout, will also decide to seek nuclear weapons. This competitive strategic dynamic could

greatly increase instability in the region even if none of the countries actually developed nuclear weapons. Interestingly, however, none of the interlocutors we interviewed asserted that their country would itself pursue a nuclear weapons option.³⁷ Rather, our contacts suggested that other countries in the region would do so. So it was argued in Egypt that Saudi Arabia and perhaps Turkey would respond to the JCPOA with their own nuclear fuel cycles. In Riyadh, Turkey and Egypt were named. This form of finger-pointing seemed to be based less on clear evidence of an emerging nuclear proliferation cascade and more on uncertainty throughout the region and an expectation that the situation is more likely to grow worse than better in the coming years.

REGIONAL CHALLENGES: UNRESOLVED AND EVEN HEIGHTENED

More troubling for regional interlocutors than the JCPOA's failure to ban enrichment or to impose longer-duration restrictions on enrichment was its failure to curb what they regarded as Iran's destabilizing behavior in the region. They accuse Iran of meddling in the internal affairs of its neighbors, using proxies such as Hezbollah and the Houthis to advance its goals, intervening directly and militarily in the Syrian and Yemeni civil wars, and in general seeking to sow instability, undermine rival governments, and become the dominant power in the region.

Concerns about Iranian behavior were often seen through the prism of the region's sectarian divide. Iran was viewed by Sunni government officials as motivated by a desire to establish a "Shiite crescent"³⁸ extending from Tehran through Iraq, Bahrain, and Syria to Lebanon. Interlocutors in the UAE and Saudi Arabia cited attributes associated with the Shiite community, such as a reverence for martyrdom and readiness to absorb pain, as evidence why Iran would not desist from its regional goals or be bound by international

³⁵ Interviews conducted by the authors on May 30 and 31, 2015, in Egypt.

³⁶ Laurence Norman, "Nuclear Deal Allows Iran Significantly to Boost Centrifuges After 10 Years," *Wall Street Journal*, April 4, 2015, <http://www.wsj.com/articles/nuclear-deal-would-allow-iran-to-boost-centrifuges-after-10-years-1428170903>

³⁷ Interviews conducted by the authors in May/June and October/November 2015, in Egypt, Turkey, Saudi Arabia, and the UAE.

³⁸ "The Shia crescendo: Shia militias are proliferating in the Middle East," *The Economist*, March 28, 2015, <http://www.economist.com/news/middle-east-and-africa/21647367-shia-militias-are-proliferating-middle-east-shia-crescendo>

agreements. While welcoming the JCPOA, Turkish Foreign Minister Mevlüt Çavuşoğlu called on Iran to abandon its “sectarian politics.”³⁹ The hope expressed by some Western supporters of the JCPOA that the nuclear deal would produce a positive evolution in Iranian strategic thought and a moderation of Iran’s regional behavior was widely dismissed as improbable, given the ideological pillars of the Islamic Republic, which were seen as impeding such an evolution.

The Gulf Arab states, in particular, believe the United States was far too focused on securing an agreement on the nuclear issue at the expense of addressing deep-rooted regional problems that preoccupy them. A senior Saudi foreign ministry official held that the JCPOA should have included a commitment by Iran not to interfere in the affairs of its neighbors and not to engage in sectarian conflict.⁴⁰ Criticism that the nuclear deal should have constrained Iran’s regional behavior is somewhat unfair, considering that during the nuclear negotiations the Gulf Arabs strongly urged the United States and its P5+1 partners not to address regional issues without the full participation of regional governments. Moreover, the odds of reaching a broad regional accord while simultaneously resolving the nuclear issue would have been exceptionally long, and the United States feared that linking the two would not only greatly complicate and perhaps doom the negotiations but would also enable the Iranians to hold U.S. requirements on the nuclear issue hostage to U.S. concessions on regional issues, or vice versa.

In the end, U.S. regional partners generally accepted the logic of dealing only with nuclear issues in the JCPOA negotiations and of countering objectionable Iranian regional behavior separately. They also understood, even if they were not entirely comfortable with, the Obama administration’s argument for giving priority to the nuclear issue—that Iran’s regional behavior, as disturbing as it is, would be

vastly more threatening if Iran had nuclear weapons. However, while recognizing that the JCPOA could not be expected to resolve regional problems, key regional states are concerned that the nuclear deal actually exacerbates them. They are especially concerned by how Tehran will use the roughly \$100 billion in previously restricted oil revenues that were released to Iran on Implementation Day. They know that, because of outstanding debts, only about half that total is available to Iranian authorities and that the lion’s share of available funds will be devoted to meeting pressing economic needs. But they fear that even a small share of those funds can increase the Iranian regional threat if devoted to supporting proxies or financing Iran’s direct military involvement in regional conflicts. Foreign Minister Adel Al-Jubeir expressed Saudi worries about the released assets: “I think most countries of the world are concerned that Iran will use these funds in order to fund its nefarious activities rather than use them to improve the living standards of its people.”⁴¹ The Israelis share Arab concerns in that regard, and are especially worried that sanctions relief could find its way to terrorist groups targeting Israel.

Regional states are concerned that the nuclear deal will greatly elevate Iran’s international standing. For years, Iran’s political isolation and economic distress put the Gulf Arabs in a comparatively strong position relative to their regional adversary. By ending the Iranian regime’s isolation and enhancing its legitimacy, the nuclear deal has removed much of that advantage. The Gulf states believe the Iranians already feel empowered to play a more assertive regional role, and they see Iran’s inclusion in multilateral diplomatic efforts to resolve the Syrian civil war as evidence that the major powers, including the United States, are prepared to accept a major role for Tehran. They find it unnerving that Secretary Kerry and Foreign Minister Zarif stay in regular touch by phone, email, and in person.

³⁹ “Turkish FM welcomes nuke deal but calls on Iran to revise regional policies,” *Hurriyet Daily News*, July 14, 2015, <http://www.hurriyetdailynews.com/turkish-fm-welcomes-nuke-deal-but-calls-on-iran-to-revise-regional-policies.aspx?pageID=238&nID=85441&NewsCatID=510>

⁴⁰ Interview conducted by the authors on November 3, 2015, in Saudi Arabia.

⁴¹ “Saudi Arabia Minister Avoids Questions On Acquiring Nukes From Pakistan,” *NDTV*, January 21, 2016, <http://www.ndtv.com/world-news/saudi-arabia-minister-avoids-questions-on-acquiring-nukes-from-pakistan-1268358>

Iran's neighbors are also concerned that, over time, the sanctions relief provided by the JCPOA will significantly strengthen the Iranian economy and give Tehran the resources to upgrade its military capabilities and expand its regional influence. They see companies from Europe and elsewhere eager to do business with Iran and are worried that, once the international business community becomes heavily engaged with Iran, there will be a reluctance to pressure Tehran to stop provocative regional activities and an unwillingness to re-impose sanctions in the event of Iranian non-compliance with its JCPOA commitments. An Egyptian official, noting that the Egyptian government did not support the imposition of unilateral sanctions on Iran, nonetheless lamented their passing because the international community's leverage on Iran would be substantially reduced.

Some individuals interviewed for this report argued that aggressive Iranian behavior in the wake of the nuclear deal could trigger reactions by other regional states that could heighten regional instability. In Egypt, for example, some of our contacts expressed a concern that the Gulf Arab countries' opposition to Iranian regional behavior could spur them to take unwise actions to counter the perceived threat and rebalance the scales.⁴² A similar concern was expressed by contacts in the UAE and Turkey.⁴³ For example, more than one person interviewed suggested that Saudi Arabia's intervention into Yemen was, in effect, the result of a trap created by Iran to sap Saudi strength and sow discord in the region.⁴⁴ Very few of our interlocutors in the region—outside of Saudi Arabia—believed the campaign in Yemen would damage Iran to any significant degree and, by contrast, many expressed the concern that, by dragging in Gulf Arab states, the Iranians may have achieved a strategic victory. As a contact in Egypt put it, Iran's goal in the Middle East is instability itself, rather than regional dominance, and reckless actions by Arabs can further that Iranian goal.

REALIGNMENT IN THE MIDDLE EAST

One of the most troublesome arguments by regional states against the JCPOA—which is especially difficult to address because it is largely based on suspicions about intentions and predictions about future behavior rather than on demonstrable facts—is that the nuclear deal was intended only to be the first step toward a broad realignment of the Middle East. In this realignment, Iran would play a more prominent, even central, regional role. The United States would accept and even encourage Tehran to assume such a role, and would look to Iran as a partner in promoting stability and ending conflicts in the region. U.S. allegiances would return to a pre-1979 era, shifting from an exclusive focus on traditional regional partners to an approach balanced between those partners and Iran, perhaps even leaning toward the latter. In most versions of this putative realignment, the U.S. role in the region, especially its military presence, would be greatly reduced.

Concerns about realignment are held more in Arab countries than in Israel, which is worried more about U.S. fatigue after over a decade of military operations in the Middle East than about a realignment in the region.

To substantiate their concerns, Arab interlocutors point to a mix of current and historical factors, including both actions and inactions:

- The U.S.-Iranian bilateral relationship was more or less positive until the revolution. The two countries share cultural ties that are hard to sever, notwithstanding the more recent bad patch. To paraphrase one contact's interpretation, 'Iran is your wife and the Arabs are your mistress. You've decided to go back to your wife.'
- The United States permitted Iran to obtain dominion over Iraq, despite total control of

⁴² Interviews conducted by the authors on May 30 and 31, 2015, in Egypt.

⁴³ Interviews conducted by the authors on May 29 and June 1-3, 2015, in Turkey and the UAE.

⁴⁴ Hugh Naylor, "Yemen is turning into Saudi Arabia's Vietnam," *The Washington Post*, November 13, 2015, <http://www.thestar.com/news/world/2015/11/13/saudi-arabia-trapped-in-messy-yemen-war.html>

the country after the 2003 invasion, and allowed a Shiite majority to push Iraqi Sunnis out of political relevance.

- The United States has turned a blind eye to Iranian activities in countries around the region, including Syria, Bahrain, Yemen, and Saudi Arabia's eastern provinces. Only when forced did the United States take steps to counter Iran in these areas. And, in many cases, U.S. support has been grudging, insufficient, and unnecessarily critical of its Sunni Arab allies.
- The United States announced its pivot to Asia, which involves turning away from the Middle East.
- The United States is weary of military involvement in the Middle East and is looking to scale back its military presence in the region.
- The United States is now attaining energy independence so that it no longer needs to worry about the supply of oil moving through the Gulf (the name of which, itself, remains a sore point for Arab governments, as the official U.S. designation is 'Persian Gulf').
- The United States' response to the "Arab Spring"—especially the widespread perception that it helped push Egyptian President Hosni Mubarak out of office in 2011, and then was willing to work with a new government led by the Muslim Brotherhood—planted seeds of doubt in many Arab capitals about Washington's reliability.

To an American reader, this list may seem like an exaggerated and unconnected version of events by a conspiracy-minded Arab audience to support a theory of realignment. Yet it reflects the perception of many in the Middle East that the JCPOA demonstrates that the United States is finishing up its business in the Middle East before handing the keys over to Iran.

This criticism is not directed specifically at the JCPOA or its key elements. Rather it reflects frustration with what is widely seen as the inability of U.S. policymakers over the last two presidential administrations to settle on a balanced, prudent middle path between excessive action and excessive inaction. Contacts throughout the region expressed the view that the United States had tilted unpredictably from an unwise use of force against Iraq in 2003 to a refusal to appropriately use force against Syria today.

Accompanying expressions of concern about realignment were appeals for the U.S. to repair relations with traditional partners in order to confront Iran as well as warnings that the Gulf Arabs, abandoned by their U.S. security guarantor, may have to fend for themselves. As an Emirati official noted, "we cannot run away from the region" and therefore must contend with a rising Iran.⁴⁵ But even on issues where disquiet was expressed with respect to the degree of U.S. commitment (such as in Syria or Yemen), there was an acknowledgement that U.S. support has been invaluable and exceeded anything provided by other countries outside the region.

The May 2015 U.S.-GCC summit at Camp David—and the April 2016 follow-up summit in Riyadh—was intended by the Obama administration to allay the concerns of the Gulf Arab leaders and gain their support for the nuclear deal then nearing completion. According to some observers, including Brookings expert Kenneth Pollack, the effort did not succeed: "What the Obama administration offered the Gulf states at Camp David failed to allay their fears or reassure them that . . . a nuclear deal with Iran would not mean abandonment of the region."⁴⁶ However, all of the interlocutors we spoke with about these summits indicated that, although many questions and concerns remained, the meetings were successful in repairing some of the damage done over the past several years of U.S. policy.

Notwithstanding their concerns about a possible regional alignment, most of the people with whom

⁴⁵ Interview conducted by the authors on June 2, 2015, in the UAE.

⁴⁶ Kenneth Pollack, "Regional Implications of a Nuclear Agreement with Iran," *Committee on Foreign Affairs The United States Senate*, July 9, 2015, p. 8, <http://docs.house.gov/meetings/FA/FA00/20150709/103727/HHRG-114-FA00-Wstate-PollackK-20150709.pdf>

we spoke expressed the hope that, drawing on the lessons of the past 20 years, the United States would maintain and even strengthen its regional presence and its relationships with Gulf Arab states.

CHAPTER 5

PROSPECTS FOR PROLIFERATION IN THE WAKE OF THE JCPOA

In the preceding chapter, we described reactions throughout the region to the JCPOA. In this chapter, we will consider one of the most troubling questions prompted by the JCPOA: whether countries in the region will pursue their own nuclear fuel cycles or nuclear weapons in response to the nuclear deal.

The Obama administration and other supporters of the JCPOA have argued strongly that the removal of a near-term risk of Iranian nuclear weapons will sharply reduce the incentive for regional states to acquire their own fissile material production capabilities or nuclear weapons. These observers note that it is paradoxical to claim that the JCPOA, with all its restraints on Iran's nuclear program, will create greater incentives for proliferation than existed from 2005 to 2013, when Iran's nuclear program was practically uninhibited.

Others claim that, by legitimizing Iran's enrichment program, permitting Iran to ramp up its nuclear infrastructure after 10-15 years, and facilitating an economic recovery that will enable Iran to greatly boost the resources devoted to its nuclear program, the JCPOA itself will be the catalyst for additional proliferation. They contend that, while Iran may have been expanding its nuclear capabilities prior to the JCPOA, the international community considered Iran's nuclear program at the time to be illegal and sanctionable, and regional states had some hope that a deal would be struck that would terminate the program and end the nuclear threat. Now, according to this view, regional states have concluded that the deal actually reached is not capable of alleviating their concerns,

and they may feel compelled to pursue their own capabilities to prepare for the time when Iran's nuclear program emerges from its restrictions in 2025-2030.

Whether states of the region eventually opt for their own nuclear fuel cycle or nuclear weapons capabilities will depend on several factors, some related to the JCPOA and some not. After discussing these factors, we will address the considerations likely to affect the calculations of individual states, focusing most of our attention on those regional states most often regarded as nuclear aspirants: Saudi Arabia, UAE, Turkey, and Egypt.

MAJOR CONSIDERATIONS FOR REGIONAL STATES

Deciding to acquire nuclear fuel cycle capabilities (i.e., uranium enrichment or plutonium reprocessing facilities)—let alone nuclear weapons—is one of the most consequential decisions a country can make. Unlike in the past, when the acquisition of fuel cycle capabilities was mainly seen as motivated by civil nuclear energy needs, pursuing the nuclear fuel cycle is now often assumed to be linked to an intention to obtain at least a latent nuclear weapons capability. That is the case because, given the widespread availability in today's international market of reasonably-priced nuclear fuel for nuclear energy and other civil applications, there is little justification, in terms of reliable or affordable access to fuel supplies, to pursue indigenous enrichment or reprocessing capabilities, particularly in the case of relatively small nuclear power programs.

In light of security concerns in the region about Iran's future nuclear plans, countries in the Middle East are particularly vulnerable to the assumption that a fuel cycle program betrays an intention to acquire nuclear weapons or at least a hedging capability. This is especially the case when economic or fossil-fuel conservation rationales for nuclear energy programs are accompanied by hints, which are occasionally heard in the region, that those programs can also bring security benefits.

Iran's neighbors are therefore aware that any decision by them to embark on enrichment or reprocessing programs would be viewed with considerable suspicion by the international community. Whether they are weighing the acquisition of nuclear weapons or "only" the pursuit of a fuel cycle capability, they will proceed with the knowledge that their decision will have major implications for them and for the region.

The following are among the factors that countries in the Middle East are likely to consider in deciding whether to embark upon a nuclear fuel cycle or nuclear weapons program:

Perceptions of Iran's future nuclear capabilities and intentions

First and foremost, countries will look to see what Iran intends to do with its nuclear fuel cycle. It is a given that Iran will continue to have a domestic uranium enrichment capacity. Throughout the operation of the JCPOA, regional states will be looking for clues about what capabilities Iran will pursue as restrictions on fuel cycle programs expire.

Beyond seeking intelligence on Iranian leadership views and decision-making, countries of the region will be listening carefully to what Iranian officials are saying about their evolving nuclear energy plans. Are they still talking about an "industrial-scale" capacity

and in what timeframe? Are they still optimistic about the development of advanced centrifuges? Do they still want to manufacture fuel for their nuclear power reactors? Do they still say they have no intention to pursue a reprocessing capability? As key restrictions expire, are they manufacturing and deploying advanced centrifuges as rapidly as permitted? Are they continuing to restrict production of enriched uranium to below five percent?

Iranian officials continue to say that, once restrictions expire, they will expand their enrichment capacity to "industrial scale." In a meeting with his staff on April 2, 2015, Ali Akbar Salehi, head of the Atomic Energy Organization of Iran, reaffirmed Iran's goal of an enrichment capacity of 190,000 "separative work units" or SWUs⁴⁷ annually (a measure of centrifuge efficiency), which is more than 37 times⁴⁸ the enrichment capacity permitted during the first ten years of the JCPOA.

Although plans to build two additional Russian-supplied reactors as well as possible near-term reactor purchases from other suppliers are likely to involve the same arrangements that applied to the first Bushehr reactor—that is, foreign supply of enriched reactor fuel—Iranians claim that, once their enrichment capacity is allowed to expand, they will begin to produce their own fuel, not just for foreign-origin reactors but also for power reactors they hope to be able to design and build indigenously. To meet the fueling needs of a much larger power reactor fleet, they also say that, in addition to significantly increasing the number of centrifuges, they will be replacing their first-generation centrifuges with much more productive, advanced machines.

It is unknown, of course, whether and when these plans will materialize. Given the JCPOA's highly restrictive centrifuge R&D provisions, it is not clear whether advanced centrifuges can be proven and

⁴⁷ Michelle Moghtader, Fredrik Dahl, "Iran's Supreme Leader calls for more enrichment capacity," *Reuters*, July 8, 2014, <http://www.reuters.com/article/us-iran-khamenei-idUSKBN0FD0MY20140708>

⁴⁸ Based on the following figures: 5,060, the number of centrifuges Iran is allowed to operate under the JCPOA, all of which are IR-1 centrifuges located at Natanz; 1, the estimated maximum average annual output of each IR-1 centrifuge, in SWUs, when operated in production cascades. David Albright, "Technical Note: Making Sense out of the IR-8 Centrifuge," *Institute for Science and International Security*, September 23, 2014, <http://isis-online.org/isis-reports/detail/technical-note-making-sense-out-of-the-ir-8-centrifuge/8>

deployed as soon as currently anticipated by Iran. Moreover, given potential legal and practical obstacles to Iran fabricating fuel for any foreign-built power reactors, the Iranians may decide that they need not ramp up their enrichment capacity so quickly.

Unfortunately, a quirk of nuclear science is that the amount of enriched uranium required for nuclear weapons is far less than the amount of enriched uranium required for nuclear power. So even if Iran were to expand its number of operating centrifuges or deploy advanced centrifuges more gradually than expected, it would probably not be long after restrictions end in 2028-2030 when its breakout time for producing enough highly enriched uranium for a single nuclear bomb would be reduced to a matter of weeks.

Regional countries will also regard Iran's record of compliance under the JCPOA as an indication of its future intent. Efforts by Iran to cut corners or step over JCPOA boundaries will be taken as an ominous sign. Iran's neighbors will also focus on whether it is cooperating with the IAEA and with the Agency's use of advanced safeguards technologies intended to provide rapid confirmation of an Iranian decision to produce highly enriched uranium.

Especially important will be whether regional countries believe Iran is complying with the JCPOA's permanent prohibitions on engaging in activities related to the development of a nuclear explosive device and on acquiring the equipment needed for such activities. In his December 2015 report indicating that Iran had engaged in past activities relevant to the development of nuclear weapons, IAEA Director General Amano assessed that Iran's past work had not advanced "beyond feasibility and scientific studies and the acquisition of certain relevant technical competencies and capabilities."⁴⁹ Assuming the IAEA continues to report that Iran is abiding by its commitments in these areas and there are no indications from intelligence sources that Iran is engaged in covert weaponization

efforts, there can be a measure of confidence that Iran's nuclear weapon capabilities remain nascent.

Countries will be mildly reassured if there are no signs that Iran is violating the JCPOA's restrictions on weaponization, but they will still need to plan against the possibility of intelligence failure or that Iran made sufficient progress prior to halting its active weapons program in 2003-2004 that it does not need to risk detection by working on nuclear weapons presently.

Regional dynamics

Decisions by regional states whether to pursue nuclear fuel cycle capabilities or nuclear weapons will depend significantly on the regional context in which Iranian nuclear developments take place. Although it is hard to fathom at present, the Middle East could be a far more stable and secure place in 10-15 years than today, particularly if the crises in Syria and Yemen are resolved. Though it is unlikely that Saudi Arabia and Iran will have reached a permanent settlement of their differences, stemming as they do from fundamentally irreconcilable views on religion and the structure of government, they may also have reached an accommodation that would permit each other a measure of security. If Iran were enjoying economic growth on the back of increased stability, then it is at least plausible that its own regional behavior would be more benign, both to avoid undermining a positive economic environment or creating incentives for other countries in the region to reconsider their nuclear options.

On the other hand, it is easy to imagine a Middle East that is at least as fractious as it is today, creating security problems for all sides and prompting concerns that Iran would take advantage of its latent nuclear capabilities to exploit regional turmoil and obtain a strategic advantage. If states of the region see Iran behaving provocatively—increasing support for proxies, interfering in the internal affairs of neighbors, and in general seeking to dominate the

⁴⁹ "Final Assessment on Past and Present Outstanding Issues regarding Iran's Nuclear Programme," *International Atomic Energy Agency*, December 2, 2015, p. 14, <https://www.iaea.org/sites/default/files/gov-2015-68.pdf>

region—they will be more inclined to begin hedging their nuclear bets.

Conventional defense capabilities

The perceived conventional military balance between Iran and its neighbors is also likely to be an important factor in future nuclear decision-making. Strong conventional defense capabilities could give Iran's potential regional adversaries confidence that they could effectively counter Tehran's efforts to intimidate them and expand its influence through military means. They could present Iran with the unattractive prospect of entering into a costly and unwinnable conventional military conflict, which even a nuclear-armed Tehran might fear. Countries in the region—the Saudis and Emiratis, in particular—can boast having some of the most advanced conventional military forces obtainable. Gulf Arab military spending far exceeds that of Iran. In 2014, Saudi Arabia, UAE, Oman, Kuwait, Qatar, and Bahrain spent a combined \$113 billion⁵⁰ on their militaries. In a 2015 statement, Obama said that Iran's defense budget is approximately \$30 billion,⁵¹ and U.S. arms sales in the past year will preserve and even increase the advantages the Gulf Arabs enjoy relative to the Iranian military. Missile defenses, including the prospect of networking GCC missile defense capabilities, further contribute to this capacity, neutralizing to some extent Iran's ability to threaten its neighbors with its large arsenal of conventionally-armed and potentially nuclear-armed missiles.

But Gulf Arab advantages could erode over time. The expected strengthening of the Iranian economy will allow Tehran to rebuild its defense capabilities. And while the U.N. Security Council's embargo against the sale of major defense items to Iran will remain in effect for five more years, Iranian authorities are already talking to arms suppliers in Russia, China, and elsewhere about large purchases. These arms suppliers will have to decide whether they wish to risk U.S.

unilateral sanctions, which will remain even after the Security Council arms embargo is eliminated. But it is possible that one or more will decide the Iranian market is sufficiently lucrative as to warrant running the risk of U.S. penalties. In evaluating their own defense requirements and future nuclear options, regional states will be following carefully the growth of Iran's conventional military capabilities.

The United States as a security partner and the role of other outside countries

Support for the defense capabilities of Gulf Arab states has come almost exclusively from their relationships with the United States and other Western countries. These relationships have provided regional partners with advanced military hardware, training, and operational guidance. Moreover, the military-to-military partnerships have been robust, with joint exercises and training programs arranged to ensure some level of interoperability.

However, confidence by countries in the region that they can cope with the perceived threat from Iran comes not just from their own defense capabilities but also from their belief that their security and political ties with the United States afford them a significant measure of protection. No states of the Middle East (with the exception of Turkey) receive the kind of formal security commitment that the United States gives to its treaty allies in NATO, Japan, and South Korea. But U.S. administrations of both parties have long maintained that no state should be permitted to dominate the Middle East, and they have behaved as if the security of close U.S. friends was a critical interest of the United States, as Washington demonstrated most dramatically in the first Gulf War by protecting Saudi Arabia and evicting Iraqi forces from Kuwait. And while the United States has not explicitly extended its nuclear umbrella over the Middle East, its nuclear capabilities would contribute to deterrence in the event of a nuclear-armed Iran.

⁵⁰ Alia Chughtai, "GCC military spending spree," *Al Jazeera*, August 8, 2015, <http://www.aljazeera.com/indepth/interactive/2015/08/gcc-military-spending-spre-150808120255563.html>

⁵¹ Jon Greenberg, "Obama: Iran spends \$30 billion on defense; U.S. about \$600 billion," *PolitiFact*, April 9, 2015, <http://www.politifact.com/truth-o-meter/statements/2015/apr/09/barack-obama/obama-iran-spends-30-billion-defense-us-about-600/>

America's robust military presence in the region—including approximately 35,000⁵² military personnel, Fifth Fleet Headquarters in Bahrain, air bases at Al Udeid in Qatar, Ali Al Salem in Kuwait, and Al Dhafra in the UAE,⁵³ and training and joint exercises—reinforces the credibility of its security assurances. The United States maintains a more robust military posture in the region than before the 9/11 attacks. To address concerns about Iran's behavior in the wake of the nuclear deal, Washington has frequently sought to reassure its regional partners about its determination to support their security and push back against destabilizing activities. At the Camp David GCC summit, President Obama reiterated the Carter Doctrine, pledging that “the United States is prepared to work jointly with GCC member states to deter and confront an external threat to any GCC state's territorial integrity . . . using the means at our collective disposal, including the use of military force.”⁵⁴ As long as the United States is seen as a reliable guarantor of regional security, incentives for proliferation will be reduced.

But as noted earlier, traditional U.S. partners have become increasingly concerned that the U.S. commitment to the region and to their security is weakening and that the United States is not showing sufficient resolve in countering Iran's efforts to expand its influence at their expense. As confidence in Washington has waned, countries in the region have explored relationships with other potential defense partners like Russia, although they acknowledge that they are unlikely to find another partner with both the ability and inclination to fill the crucial security role the United States has historically played. To the extent that countries in the region feel abandoned by the United States and are unable to find new partners that can fill America's shoes, they may look to their own devices—by becoming more assertive militarily on their own or with Arab allies (as we see

in Yemen and, to a lesser degree, in Syria) or eventually by pursuing a latent or actual nuclear weapons capability.

Feasibility of acquiring the nuclear fuel cycle and, later, nuclear weapons

There is a wide gulf between a country deciding to acquire fuel cycle facilities or nuclear weapons and actually acquiring them. Several countries have sought such capabilities only to be stopped midstream by external pressure (e.g., Iraq, Syria). A few have also been halted in their tracks by the sheer difficulty of the endeavor and lack of persistence (e.g., Libya). Although the science underlying nuclear weapons and the nuclear fuel cycle has been made sufficiently public so as to eliminate some of the guesswork, countries must still invest in the necessary expertise, materials, and physical plant—and this requires considerable time, financial means, perseverance, and often large-scale foreign assistance. The obstacles to achieving fuel cycle or nuclear weapons capabilities are not insurmountable, but they pose a challenge to countries in a region where the necessary expertise, nuclear infrastructure, or financial resources are often lacking. And, of course, any country in the region seeking to balance Iran would be starting at square one, or nearly square one, as compared to Iran with its 30 years of investment in the nuclear enterprise.

Possibility of foreign objections and countermeasures

Iran's own nuclear endeavor was complicated by foreign objections and countermeasures, which lengthened the timelines, costs, and difficulties. For example, while Iran sought to purchase an enrichment plant outright from Russia (and received substantial fuel cycle-related assistance from China) in the 1990s, U.S. pressure prevented the provision of

⁵² “2015 Index of U.S. Military Strength: Middle East,” *Heritage Foundation*, <http://index.heritage.org/military/2015/chapter/op-environment/middle-east/>

⁵³ Craig Whitlock, “U.S. relies on Persian Gulf bases for airstrikes in Iraq,” *The Washington Post*, August 26, 2014, https://www.washingtonpost.com/world/national-security/us-relies-on-persian-gulf-bases-for-airstrikes-in-iraq/2014/08/25/517dcde0-2c7a-11e4-9b98-848790384093_story.html

⁵⁴ “Remarks by President Obama in Press Conference after GCC Summit,” *White House Office of the Press Secretary*, May 14, 2015, <https://www.whitehouse.gov/the-press-office/2015/05/14/remarks-president-obama-press-conference-after-gcc-summit>

enrichment technology to Iran directly and rolled back some of the cooperation that was initiated.⁵⁵ Iran was instead forced to turn to A.Q. Khan's black market network and reverse-engineer a Pakistani centrifuge design originally stolen from URENCO in the 1970s.

The contributions of the Khan network to the nuclear weapons programs of Iran, North Korea, and Libya motivated the United States and its partners to strengthen the international nonproliferation regime in the 2000s to prevent the transfer of fuel cycle technologies. These efforts—including the tightening of the Nuclear Supplier Group's restrictions on transferring fuel cycle technologies, the strengthening of national controls on sensitive dual-use exports, and international cooperation in interdicting illicit shipments of sensitive goods and materials—have greatly complicated a would-be proliferator's task of acquiring its own nuclear fuel cycle, unless it is able to find an existing technology holder willing to violate current norms against providing assistance in the areas of enrichment and reprocessing.

In addition to considering the difficulties of gaining access to the necessary technologies, a state deciding whether to pursue nuclear fuel cycle or nuclear weapon capabilities would have to weigh the risk that key countries from within or outside the region would take strong measures to thwart its attempt. Such measures could range from diplomatic pressure to economic sanctions to cyberattacks to military strikes, all of which have previously been employed in the Middle East to disrupt or stop what was perceived to be a nuclear weapons program.

Domestic attitudes toward nuclear weapons

In a number of countries—including some that opted for nuclear weapons as well as some that did not—the domestic balance between proponents and opponents was as important a factor in nuclear decision making as external considerations. In autocratic systems, the views of the ruler or ruling elite can be decisive. Hosni

Mubarak's concerns about nuclear safety and aversion to nuclear weapons were as critical to Egypt's nuclear abstinence as Moammar Gadhafi's megalomania was to Libya's unsuccessful attempt to join the nuclear club. In democratic systems, the views of the public and elected officials will be more central. The end of military rule in Argentina and Brazil led to the abandonment of their nuclear weapons programs, while the 1998 election of the Bharatiya Janata Party government led to India's nuclear weapons tests. In some Middle East countries, the stigma attached to nuclear weapons may be a factor, particularly when combined with the latent threat of punishment for pursuing the bomb and the inherent cost of developing the necessary infrastructure. Leadership transitions, such as the generational change underway in Saudi Arabia, may bring leaders to power with their own perspectives on options for promoting national security.

COUNTRY CASES

In assessing the probability of proliferation in the Middle East, it is necessary to focus on how the various factors discussed above affect nuclear decision making in individual countries. Four regional countries—Saudi Arabia, the UAE, Egypt, and Turkey—are often cited as the most likely to go for a latent or actual nuclear weapons capability. Each has one or more of the prerequisites for obtaining that capability, such as strategic interest, national will, technical expertise, and financial resources. However, none of the four possesses all of the requirements of such a program nor has any of them indicated a clear, national decision to embark on this venture. Consequently, although some observers have assumed a degree of inevitability that at least one of these countries will start down the path toward nuclear arms, it is far from certain that this will be the case.

Saudi Arabia

The Saudis are considered by many to be the most likely to follow Iran down a path to the acquisition

⁵⁵ David Albright, Andrea Stricker, "Iran's Nuclear Program," *United States Institute of Peace*, September 2015, <http://iranprimer.usip.org/resource/irans-nuclear-program>

of nuclear weapons. In a May 2009 meeting in Riyadh with senior White House official Dennis Ross, King Abdullah stated more than once that “if they get them, we get them,” suggesting an element of automaticity in Saudi decision making on this matter. Ross maintains that Saudi Arabia has a need to create an image of equivalence with Iran and to avoid looking as if the Kingdom is at a disadvantage in any way with respect to the rival it views as both a security threat and a competitor in the Islamic world.⁵⁶

A possible Saudi interest in matching Iran’s nuclear capability stems from the Kingdom’s perception of a multifaceted Iranian threat, not just from the fear that Tehran may acquire nuclear weapons. In various interviews we conducted with Saudi officials and think tank representatives, Iran was described as an implacable opponent of Saudi Arabia and a menace to the entire region that was motivated by religious zealotry. There was widespread skepticism that the Iranians would be capable of moderating their approach to the region, which was seen as detrimental not only to Saudi Arabia but also to the United States.

According to polling data, this mindset persists throughout Saudi society. In one Zogby poll, respondents were asked to evaluate whether Iran is a threat and, if so, to weigh whether the threat stems from its nuclear program, its regional activities, or both equally. While Saudis were split on where the threat stems from, only 14 percent believed that Iran posed no threat.⁵⁷ This same poll identified concern with the JCPOA itself, with 69 percent believing the deal was in Iran’s interest and no one else’s.

This negative view of Iran is based heavily on the ongoing conflicts in Syria and Yemen, which the Saudi government has identified as being directed by the Iranian Revolutionary Guard Corps (IRGC) for the

purpose of destabilizing the region so that Iran can establish its regional hegemony.⁵⁸

The Saudis see Iran not just as an external threat to their interests in the region but also as an existential threat to the Kingdom’s internal order. They believe the Iranians are seeking to undermine the Saudi monarchy, plotting with Shiite religious dissidents in Saudi Arabia as well as casting a poor light on Saudi performance as the Custodian of the Two Holy Mosques. Subjects interviewed suggested that problems with the Hajj in 2015—including a stampede that reportedly left hundreds dead—were the result of Iranian provocation. The Saudi execution of Shiite cleric (and, according to the Saudis, supporter of terrorism) Nimr al-Nimr and the resulting Iranian ransacking of the Saudi Embassy in Tehran only served to heighten existing bilateral tensions in January 2016.⁵⁹

At the same time that Saudi concerns with Iran have been rising, confidence in the United States has been falling. This has given rise to support for the Kingdom acting more forcefully on its own as well as looking to additional foreign partners. Saudi officials and non-governmental experts recite a litany of U.S. actions or failures to act that, in their view, illustrate a reduced U.S. commitment to the security of its partners and the region—including tacitly supporting Egyptian president Mubarak’s ouster, failing to enforce its redline against Syrian use of chemical weapons, pulling back from its insistence that Bashar Assad “must go,” giving lukewarm support to Syrian rebels, and acquiescing in a greater Iranian regional role.

Saudi expert Nawaf Obaid argues that, “With the Obama administration abandoning the United States’ historical responsibilities and, by extension, most of its prestige in the Middle East, the Saudis

⁵⁶ Email to one of the authors from Ambassador Dennis Ross on March 30, 2016.

⁵⁷ “Middle East 2015: Current and Future Challenges,” *Zogby Research Services*, November 2015, p. 28, <http://www.zogbyresearchservices.com/new-gallery-1/>

⁵⁸ Julian Pecquet, “Saudi king wants Obama to tackle Iranian ‘mischief,’” *Al-Monitor*, August 31, 2015, <http://www.al-monitor.com/pulse/originals/2015/08/saudi-king-washington-visit-iran-deal.html>

⁵⁹ “Saudi Arabia cuts diplomatic ties with Iran over embassy storming,” *RT*, January 3, 2016, <https://www.rt.com/news/327820-saudi-cut-ties-iran/>

have no choice but to lead more forcefully.”⁶⁰ Official expressions of concern are less frequent, but Deputy Crown Prince and Minister of Defense Mohammed bin Salman told *The Economist*: “The United States must realize that they are the number one in the world, and they have to act like it.”⁶¹

Saudi officials with whom we spoke tended to play down such concerns. In fact, meetings at the Ministry of Defense as well as the Ministry of Foreign Affairs supported the notion that, although the Saudis have their doubts about the JCPOA and its regional implications, they believe the United States remains committed to Saudi and broader Gulf Arab security. Ministry of Defense (MOD) officials, while complaining about the slow speed with which requests for supplies were granted and fulfilled, noted that U.S. support for the Saudi-led campaign in Yemen was good.⁶² When asked about Saudi overtures to other outside powers, including Defense Minister Mohammed bin Salman’s reported meeting with Russians about the possible purchase of defense items, these same officials denied that reports of Saudi interest in partnering with other countries—including France and Russia—should be interpreted as a Saudi desire to replace the United States as the Kingdom’s essential security partner.

Yet, it is clear that the challenge from Iran has prompted a re-examination of the Kingdom’s conventional defense requirements. The Saudis have taken advantage of the Obama administration’s interest in keeping the Gulf Arab states at least mildly supportive of the JCPOA to request new military

assistance, including fighter aircraft, munitions, and spare parts, which have led to some of the largest U.S. weapons sales in history. Given Iran’s efforts to strengthen its ballistic missile forces, the Saudis have prioritized building up their air defense capabilities—in particular, through the purchase of an updated Patriot air defense system and 600 interceptors in the summer of 2015.^{63, 64, 65} The replenishment of Saudi munitions supplies announced in November 2015 can give the Saudis confidence that, should they get engaged in a protracted conflict with Iran or its proxies, they will be able to sustain the effort with a reasonable expectation of U.S. support.⁶⁶ Overall, Saudi Arabia is the world’s second largest importer of conventional arms. Its imports rose 275 percent in 2011 to 2015 when compared against the previous period, 2006 to 2010,⁶⁷ and much of this came from the United States.

Saudi conventional military forces, among the most advanced in the world, ought to be sufficient to protect the Kingdom from conventional military attack from Iran. Although Iran invested in developing its navy in the 1990s—and now fields a combination of surface and submerged naval assets that could threaten passage through the Straits of Hormuz and associated waters—Iran’s power projection capabilities do not extend beyond its naval forces. Anthony Cordesman of the Center for Strategic and International Studies put it bluntly in 2014: “With the possible exception of Iraq, Iran’s conventional forces cannot compete with the United States or Gulf states in any regular form of conventional warfare.”⁶⁸ Assuming adequate warning, Saudi Arabia ought to be

⁶⁰ Nawaf Obaid, “A new generation of Saudi leaders — and a new foreign policy,” *The Washington Post*, March 26, 2015, https://www.washingtonpost.com/opinions/a-new-generation-of-saudi-leaders--and-a-new-foreign-policy/2015/03/26/2cf83582-d102-11e4-a62f-ee745911a4ff_story.html

⁶¹ “Transcript: Interview with Muhammad bin Salman,” *The Economist*, January 6, 2016, http://www.economist.com/saudi_interview

⁶² Interview with MOD officials conducted by the authors on November 1, 2015, in Saudi Arabia.

⁶³ Clay Dillow, “U.S. greenlights sale of 600 Patriot missiles to Saudi Arabia,” *Fortune*, August 1, 2015, <http://fortune.com/2015/08/01/u-s-patriot-missiles-saudi-arabia/>

⁶⁴ “Trends in International Arms Transfers, 2015,” *Stockholm International Peace Research Institute*, February 2016, <http://books.sipri.org/files/FS/SIPRIFS1602.pdf>

⁶⁵ “Raytheon Secures \$213M FMS Contract for Patriot Program,” *NASDAQ*, February 1, 2016, <http://www.nasdaq.com/article/raytheon-secures-213m-fms-contract-for-patriot-program-cm573276>

⁶⁶ “The Government of Saudi Arabia - Air-to-Ground Munitions,” *Defense Security Cooperation Agency*, November 16, 2015, <http://www.dsca.mil/major-arms-sales/government-saudi-arabia-air-ground-munitions>

⁶⁷ “Saudi arms purchases almost triple in five years,” *Middle East Monitor*, February 23, 2016, <https://www.middleeastmonitor.com/20160223-saudi-arms-purchases-almost-triple-in-five-years/>

⁶⁸ Anthony H. Cordesman, “The Gulf Military Balance Volume I: The Conventional and Asymmetric Dimensions,” *Center for Strategic and International Studies*, January 28, 2014, p. 119, http://csis.org/files/publication/1305022_Gulf_Mil_Bal_Volume_I.pdf

in a position (especially if operating in coordination with other GCC states and the United States) to defend its territorial integrity from an Iranian assault.

Notwithstanding the favorable conventional balance, however, the Saudis may believe that Iran's nascent ability to field a nuclear weapon could trump their conventional military forces and render them vulnerable to coercion—and this could motivate them to pursue nuclear weapons. But the Kingdom's ability to achieve a nuclear weapons capability will require it to obtain the necessary physical and human infrastructure, and that is the principal constraint on any nuclear weapons ambitions Saudi Arabia may have.

Saudi Arabia has large-scale plans for its nuclear program. It intends to construct 16 nuclear power reactors over the next 20 years. By 2040, it projects 17 GWe (gigawatts, electrical) of nuclear capacity.⁶⁹ The main rationale for this plan is to rely more on nuclear and other non-fossil fuel sources for electricity generation and to preserve fossil fuel production for export purposes. At present, Saudi Arabia remains highly dependent on burning oil to provide the electricity required to make the Arabian Desert habitable, particularly during the summer months. Senior staff of the King Abdullah City for Atomic and Renewable Energy (known as KACARE, which serves as the lead for Saudi Arabia's nuclear program) told us that the Saudis use between one-quarter and one-third of their total oil production for domestic electricity production. They anticipate this number would climb to one-half of their total oil production by 2035 if left unchecked.

Absent the generation of electricity from non-oil sources, this would impose a considerable financial cost on the Kingdom; for example, by burning 50 percent of total Saudi oil production to generate

electricity, the Saudis would forgo nearly \$55 billion annually in export revenue, assuming present low oil prices continue. If, as is likely, oil prices were to climb back to a more "normal" range of \$50 to \$75 per barrel, the Saudi opportunity cost of burning this oil at home would exceed \$100 billion annually. Consequently, ensuring that Saudi Arabia's nuclear program gets off the ground may be critical to the Kingdom's economic future, not to mention its political stability.

However, despite the importance of developing non-oil electricity production, the Saudi nuclear program remains nascent. In January 2015, the initial timetable for constructing 16 nuclear power reactors was postponed for eight years, apparently because Saudi authorities recognized that they did not have the workforce, supply chain, or regulatory infrastructure to support such an ambitious effort.⁷⁰

According to officials at KACARE, the Saudis are years from being able to construct their first power reactor and intend to start with foreign-constructed research reactors within "the next few years."⁷¹ These officials noted that the highest near-term priority is the establishment of scholarship and job placement programs to create a cadre of nuclear scientists; they anticipate being able to train approximately 1,000 new nuclear experts in the next five years, assuming consistent funding and interest. The knowledge base and expert pool presently in Saudi Arabia is small, with only 40 to 50 people at KACARE involved specifically in nuclear science. KACARE officials further noted that its experts are mostly involved in the use of radioactive sources for civil uses—not surprising given that this sector comprised Saudi Arabia's entire nuclear industry until now.⁷²

With its indigenous human infrastructure only now being developed, Saudi Arabia has mostly been

⁶⁹ "Nuclear Power in Saudi Arabia," *World Nuclear Association*, January 2016, <http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/saudi-arabia.aspx>

⁷⁰ Dan Yurman, "Saudi Arabia delays its nuclear plans," *Neutron Bytes/Reuters*, January 24, 2015, <https://neutronbytes.com/2015/01/24/saudi-arabia-delays-its-nuclear-plans/>

⁷¹ Interview with KACARE officials conducted by the authors on November 2, 2015, in Saudi Arabia.

⁷² According to NTI, the Saudis possess one three-megavolt Tandatron accelerator and one 350 kilovolt light-ion accelerator for nuclear physics experiments (both located at King Fahd University of Petroleum & Minerals), and three cyclotrons for producing medical isotopes (located at King Faisal Specialist Hospital and Research Centre).

working with foreign partners. It has concluded broad agreements for civil nuclear cooperation with France, South Korea, Argentina, China, Finland, Russia, and Hungary and has held discussions on such agreements with the United States, Japan, the United Kingdom, Canada, and Spain. GE Hitachi, Toshiba/Westinghouse, Areva, and Rosatom are among the entities interested in building power reactors in the Kingdom. The South Korean Korea Atomic Energy Research Institute (KAERI) has a head start, signing an agreement with KACARE in 2015 to assess the possibility of constructing at least two 330 MWt (megawatts, thermal) System-integrated Modular Advanced reactors (also known as SMART reactors).⁷³

U.S. negotiations with the Kingdom on an agreement for civil nuclear cooperation have been at an impasse for several years. In keeping with its policy to discourage the spread of fuel cycle capabilities, the United States has insisted on a legally binding commitment not to acquire enrichment or reprocessing facilities, but Saudi Arabia has so far resisted such a commitment.

KACARE officials told us that, while there were no current plans for an enrichment program and that such a program was not anticipated for at least 25 years, there could be an economic justification for an enrichment capability to provide fuel for the Kingdom's desired fleet of 16 nuclear power reactors.⁷⁴ They said Saudi Arabia might have a far more compelling rationale for domestic enrichment than, for example, the UAE, given the larger fleet of power reactors the Kingdom envisions. They also noted that Saudi Arabia has potentially useful sources of domestic uranium from its phosphate deposits, which have been publicly reported as substantial in size, even if the uranium content of those deposits

has yet to be fully assessed.^{75, 76} As a consequence, even though uranium enrichment might make little economic sense in the near term, KACARE suggested it would be economically unwise to renounce it at this time.

Assuming that oil prices rebound and the Saudi economic situation improves, Saudi Arabia would have the financial resources to support the full nuclear fuel cycle. Moreover, it is going about developing physical and human infrastructure in a determined and systematic way. However, they are starting at a very low base and will take many years to build the capacity to pursue fuel cycle programs. Moreover, with tightened nonproliferation constraints on transfers of fuel cycle technologies, acquiring such technologies from abroad will be very difficult. And given the importance of nuclear power to the Kingdom's energy future, Riyadh may be very reluctant to put its civil energy program in jeopardy by seeking sensitive nuclear technologies, openly or illicitly, from foreign suppliers.

Given the difficulty of Saudi Arabia developing an indigenous nuclear weapons capability for the foreseeable future, speculation has often turned to the possibility that a foreign power would assist Riyadh in becoming a nuclear-armed state, perhaps even by transferring the weapons themselves. In that connection, the foreign power usually identified is Pakistan. Saudi Arabia provided generous financial support that helped Pakistan pursue its nuclear weapons program, and over the years the idea has gained currency that Pakistan agreed to return the favor by aiding the Kingdom's quest for the bomb. The idea that Pakistan has committed to help Saudi Arabia obtain nuclear weapons has been repeated so many times and for so long that it is widely taken as fact.⁷⁷

⁷³ "Saudi Arabia teams up with Korea on SMART," *World Nuclear News*, March 4, 2015, <http://www.world-nuclear-news.org/NN-Saudi-Arabia-teams-up-with-Korea-on-SMART-0403154.html>

⁷⁴ Interview with KACARE officials conducted by the authors on November 2, 2015, in Saudi Arabia.

⁷⁵ "Saudi Arabia's city of phosphate," *Oxford Business Group*, March 2, 2014, <http://www.oxfordbusinessgroup.com/news/saudi-arabia%E2%80%99s-city-phosphate>

⁷⁶ Mohammad A. Al-Eshaikha, Ahmed N. Kadachia, M. Mansoor Sarfrazb, "Determination of uranium content in phosphate ores using different measurement techniques," *Journal of King Saud University - Engineering Sciences*, vol. 28, I, January 2016, pp. 41-6, <http://www.sciencedirect.com/science/article/pii/S1018363913000494>

⁷⁷ Mark Urban, "Saudi nuclear weapons 'on order' from Pakistan," *BBC*, November 6, 2013, <http://www.bbc.com/news/world-middle-east-24823846>

But the truth about this alleged Saudi-Pakistani understanding is impossible to pin down. From our conversations with Saudi and Pakistani officials, there are scant indications that such a commitment was ever made. During a June 2015 visit to Washington, Pakistani Foreign Secretary Aizaz Chaudhry stated that speculation that Pakistan would sell or transfer nuclear arms or advanced technology was “unfounded and baseless.”⁷⁸ At a 2015 conference organized by the Carnegie Endowment in Washington, Lt. Gen. (Ret.) Khalid Kidwai, who formerly had responsibility for Pakistan’s nuclear weapons program, also denied such a plan was in place: “I don’t think Pakistan will ever be a potential source for any country. Never.” Asked whether Saudi Arabia had ever considered purchasing nuclear weapons from Pakistan, Prince Turki al-Faisal said it had not: “You need a whole complex infrastructure to service nuclear weapons. So it’s not just simply buying from Pakistan. And that’s never been considered an option in the Kingdom despite what American and European reporters have said or written.”⁷⁹ In a private interview, the former Saudi intelligence chief indicated that he never believed in such an understanding and, in any event, was never involved in it.⁸⁰

If such an understanding does exist, it was probably between a former Saudi king and a former Pakistani leader, and it probably took the form of a vague, unwritten assurance without operational details or agreement on the circumstances in which it would be activated. But even if it does exist, Saudi Arabia would find it difficult to rely on such an assurance now—mindful of Pakistan’s rejection of the Saudi request that it participate in the Yemeni campaign. The Pakistanis know that their ambition to exit the international nonproliferation dog-house for the crimes of A.Q. Khan and to achieve international nuclear respectability would be permanently hampered by transferring sensitive technology or nuclear weapons to Saudi Arabia. Moreover, while Saudi-Pakistani friendship remains strong, Islamabad also wishes to maintain a good relationship with Iran,

which provides another reason not to be Saudi Arabia’s nuclear accomplice.

The idea of Pakistan deploying its nuclear weapons on the territory of Saudi Arabia under Pakistani control—in a manner similar to U.S. nuclear deployments on the territory of its non-nuclear NATO allies—has sometimes been mentioned as an option for Saudi Arabia to meet its deterrence needs without acquiring its own nuclear weapons capability. But even with the NATO precedent, both Saudi Arabia and Pakistan could expect tremendous criticism unless the Kingdom was faced with a grave threat, such as from a nuclear-armed Iran. If the Saudis do indeed have a “Pakistani option,” it may well be nothing more than a general assurance that, in the event the Kingdom is threatened or attacked, Pakistan would take steps to support and defend its ally. Such an assurance would fall far short of a commitment to transfer nuclear arms or sensitive nuclear technology.

If they believed they could manage the international consequences, the Saudis might well seek to acquire nuclear weapons or, at a minimum, a complete nuclear fuel cycle so as to create a latent nuclear weapons threat. But the likely international consequences are a strong disincentive. Acquisition of nuclear weapons could trigger strong U.S. sanctions and other international penalties. U.S. military cooperation would be foreclosed, severely impairing Saudi ability to defend the Kingdom or project power. Turning to others for defense support would be politically complicated and the transition away from dependence on the United States would not be quick or easy. In sum, the combination of the slow Saudi start on nuclear technology, the risk of losing access to international nuclear and military cooperation, the uncertain relevance of nuclear weapons to addressing the Kingdom’s most compelling security and political challenges, and the difficulty of gaining foreign technical support for a nuclear weapons capability all reduce the likelihood that Saudi Arabia

⁷⁸ Maria Khan, “Pakistan: Foreign secretary Aizaz Ahmad Chaudhry denies talks with Saudis on nuclear issues,” *International Business Times*, June 5, 2015, <http://www.ibtimes.co.uk/pakistan-foreign-secretary-aizaz-ahmad-chaudhry-denies-talks-saudis-nuclear-issues-1504551>

⁷⁹ Dan Drollette Jr., “The feud with Iran: A Saudi view.”

⁸⁰ Interview with Turki al-Faisal conducted by an author on Oct 26, 2015, in Washington, DC.

will elect to move in that direction or would succeed if it did.

United Arab Emirates

The Emiratis share many of the Saudis' apprehensions about Iran. They believe Iran poses a severe threat to the stability of the region and that Iranian aggressiveness has only increased since the JCPOA was concluded. They cite Iran's direct military involvement in Syria, its undue influence in Baghdad, and its support for the Houthis in Yemen (where Emirati troops are now fighting Iran's proxies). They believe Tehran is still trying to export revolution, including through Shi'ite conversions in the UAE, and they continue to protest Iranian occupation of three of their islands. Like Riyadh, Abu Dhabi is convinced that Iran has not given up its nuclear weapons ambitions and will resume its quest when key JCPOA restrictions expire. According to polling, Emiratis are even more skeptical of the JCPOA than the Saudis, with 91 percent of Emiratis polled saying they do not support the JCPOA and only a slightly smaller percentage indicating that the Iranians got the better of the deal.⁸¹

However, while the UAE is deeply concerned with Iranian behavior and is a close partner of the Saudis in prosecuting the conflict in Yemen, the Emiratis have not taken the same hardline tack with Iran overall as the Saudis have done. Emirati President Sheikh Khalifa was among the first to offer his congratulations to the Iranians for completing the nuclear deal.⁸² While the Saudis tend to view the struggle with Iran as irreconcilable and see little to be gained through engagement, the Emiratis take a more pragmatic approach and believe that, if Tehran's regional designs are effectively countered and a regional balance is established, a modus vivendi with Iran can eventually be achieved.

Doubtless, part of the reason for this approach is the close economic ties that exist between the UAE and neighboring Iran. Yousef Al Otaiba, UAE ambassador to the United States, writes that "perhaps no country has more to gain from normalized relations with Tehran. Reducing tensions across the less than 100-mile-wide Arabian Gulf could help restore full trade ties, energy cooperation and cultural exchanges, and start a process to resolve a 45-year territorial dispute." But despite what he describes as Emirati efforts to coexist with Iran and the hopes created by the nuclear deal, Al Otaiba maintains that "the Iran we have long known—hostile, expansionist, and violent—is alive and well, and as dangerous as ever."⁸³

Emirati officials underscored that, although they do not believe Washington has opposed Iranian regional behavior strongly enough and they remain upset that they were not trusted with information concerning the secret U.S.-Iran channel in 2012 to 2013 (and, perhaps more irritating, the Omanis were), they continue to regard the United States as their vital security partner. Emirati officials reminded us on several occasions that the UAE has fought alongside the United States in every conflict it has undertaken since the first Gulf War, something that no other Arab country has done, a fact that they mention with pride and that they believe has earned them special consideration when it comes to U.S. support.⁸⁴

There are indications that the UAE is seeking to diversify the sources of its security, including through defense cooperation with France (which has a base in Abu Dhabi) and purchases of military equipment from other countries.⁸⁵ As with the Saudis, officials in the UAE suggested that their purchase of non-U.S. military goods was not a strategic signal of Emirati concern with the United States but rather a prudent decision to develop ties with various countries.

⁸¹ "Middle East 2015: Current and Future Challenges," p. 27.

⁸² "Khalifa congratulates Iranian President on nuclear agreement," *Emirates News Agency*, July 14, 2015, <http://www.wam.ae/en/news/emirates/1395283286975.html>

⁸³ Yousef Al Otaiba, "One Year After the Iran Nuclear Deal," *The Wall Street Journal*, April 4, 2016, <http://www.wsj.com/articles/one-year-after-the-iran-nuclear-deal-1459721502>

⁸⁴ Interview with a UAE official conducted by the authors on November 4, 2015, in the UAE.

⁸⁵ Awad Mustafa, "Saudi, UAE Influence Grows With Purchases," *Defense News*, March 22, 2015, <http://www.defensenews.com/story/defense/policy-budget/budget/2015/03/22/saudi-uae-influence-grows-with-purchases/25013385/>

However, the bulk of Emirati arms purchases still come from the United States and their major military systems are American in origin.⁸⁶ The Emiratis would have reason to fear such cooperation would be curtailed should they embark on an independent nuclear path. According to a U.S. official who works closely with the UAE, “the Emiratis know the United States is their only security option, but it worries them.”⁸⁷

The direction of the UAE’s civil nuclear program is perhaps the best indication that Abu Dhabi has no current intention to pursue nuclear weapons.

Like the Saudis, the Emiratis started on their nuclear program comparatively late. The UAE’s nuclear program began in earnest in late 2006 as part of a broader Gulf Cooperation Council (GCC) project to explore the feasibility of nuclear power in the region. The UAE’s own nuclear policy paper—the “Policy of the United Arab Emirates on the Evaluation and Potential Development of Peaceful Nuclear Energy”—was published in April 2008.⁸⁸ In it, the UAE laid out its rationale for nuclear energy—essentially mirroring the Saudi goal of providing reliable electricity production without depending too heavily on the burning of fossil fuels—and its intention to develop a nuclear program of the highest quality insofar as safety, security, and nonproliferation standards are concerned.

As of early 2016, the Emiratis have concluded nuclear cooperation agreements with the United States, Hungary,⁸⁹ Russia, China, South Korea, France, and Argentina⁹⁰ and have begun the construction of four nuclear power plants, which are scheduled to come online starting in 2017.⁹¹ Even if there are delays in

construction, the Emiratis are likely to move swiftly from development to construction to operation of some of the most state-of-the-art nuclear facilities in the world.

To achieve their ambitious nuclear energy goals, the Emiratis are fully reliant on assistance from the outside world. Their primary contractor is the Korea Electric Power Corporation (KEPCO), which is leading a consortium that involves other companies from Korea as well as Toshiba and its subsidiary Westinghouse.⁹² Although this project includes a sizable package of training, human resources, and education programs in the UAE,⁹³ these programs will not be completed by the time the first reactor becomes operational, and so the UAE will not be independently capable of operating its nuclear facilities for quite some time.

Lack of independence does not appear to be a major Emirati concern. Far from seeking a fully independent nuclear program (which is inconceivable in any event given the paucity of uranium in the country), the Emiratis have instead sought the technological benefits of integrating their nuclear program with more advanced programs. The Emiratis have also been clear that they have no intention of developing the complete nuclear fuel cycle, a policy that was formalized in the U.S.-UAE Agreement for Cooperation in the Peaceful Uses of Nuclear Energy (aka, the “123 Agreement,” after section 123 of the U.S. Atomic Energy Act, which mandates such agreements). In the U.S.-UAE 123 Agreement, the Emiratis went well beyond the minimum requirements for such agreements by undertaking a legally binding commitment not to acquire enrichment or reprocessing capabilities. This commitment became

⁸⁶ Ibid.

⁸⁷ Interview with a senior U.S. diplomat conducted by the authors on November 4, 2015, in the UAE.

⁸⁸ “The Policy of the United Arab Emirates on the Evaluation and Potential Development of Peaceful Nuclear Energy,” *Emirates Nuclear Energy Corporation*, April 2008, <http://www.enec.gov.ae/uploads/media/uae-peaceful-nuclear-energy-policy.pdf>

⁸⁹ “Saudi Arabia, Hungary agree to cooperation,” *World Nuclear News*, October 20, 2015, <http://www.world-nuclear-news.org/NP-Saudi-Arabia-Hungary-agree-to-cooperation-2010155.html>

⁹⁰ “Saudi Arabia, Russia sign nuclear power cooperation deal,” *Reuters*, June 19, 2015, <http://uk.reuters.com/article/uk-saudi-russia-nuclear-idUKKBN0OZ10R20150619>

⁹¹ “Timeline,” *Emirates Nuclear Energy Corporation*, <http://www.enec.gov.ae/our-nuclear-energy-program/timeline/>

⁹² “KEPCO wins UAE civil nuclear bid,” *Nuclear Engineering International Magazine*, January 4, 2010, <http://www.neimagazine.com/news/newskepco-wins-uae-civil-nuclear-bid>

⁹³ “Prime Contractor,” *Emirates Nuclear Energy Corporation*, <http://www.enec.gov.ae/our-nuclear-energy-program/prime-contractor/>

known as the “gold standard” for 123 Agreements, in that it was intended to serve as a model for future civil nuclear cooperation agreements that would impede the worldwide spread of fuel cycle facilities.

It is for this reason that concerns were raised when Ed Royce, chairman of the House Foreign Affairs Committee, stated in the fall of 2015 that he had been told by Yousef al-Otaiba that the UAE was reconsidering⁹⁴ this pledge because of the Iran nuclear deal. The U.S.-UAE agreement permits the UAE to withdraw from its terms if another country in the Middle East concludes a 123 Agreement with the United States on more advantageous terms. Although the JCPOA is not a 123 Agreement, the fact that it permits limited enrichment now and unrestricted enrichment and reprocessing after 15 years has been viewed by some as giving the UAE a politically justifiable option, if not a legal right, to abandon its renunciation of fuel cycle capabilities.

Emirati officials told us that the JCPOA’s treatment of enrichment and reprocessing had put them in an uncomfortable position. Their government, they said, had done the right thing but was now looking as if it had negotiated a bad deal. The UAE had been criticized by some Arab governments for accepting the “gold standard” and setting a precedent that they were reluctant to follow, as well as for having conceded too much to Washington. It had resisted that criticism, but now that Iran seemed to have gotten a better deal, there was some interest in Abu Dhabi in renegotiating the 123 Agreement.

Interviewees in the UAE indicated that, despite these concerns, the Iran nuclear deal had not produced any change in Emirati nuclear energy plans; there was still no intention to pursue enrichment or reprocessing. Iranian enrichment, one senior official stated, “was a tough pill to swallow, but we won’t do something illogical in response.”⁹⁵ The decision to reconsider the 123 Agreement did not mean the UAE would necessarily seek to renegotiate. Rather,

it was a reminder to Iran and the Emirati public that the decision to forgo enrichment and reprocessing could change, even if such a change is never undertaken.

Emirati officials also acknowledged that seeking to renegotiate the U.S.-UAE agreement to permit uranium enrichment could imperil the agreement and, with it, Emirati plans to finish their existing nuclear power project.⁹⁶ Given that the KEPCO project involves reactors with U.S. content, a collapse of the U.S.-UAE 123 Agreement would likely require a halt in activities and a significant delay in the construction of the reactors, particularly since a new agreement would require new congressional consideration. Moreover, should the UAE decide to embark on its own nuclear fuel cycle, it would face some of the same challenges as Saudi Arabia in terms of access to foreign sources of sensitive technologies and materials. The UAE is probably better prepared to pursue enrichment technology than Saudi Arabia, largely because its nuclear program is further along. But Emirati dependence on foreign contractors for the construction of its planned nuclear facilities suggests that—like the Saudis—they would face real human resources problems in making such a push.

We do not believe the UAE has any current intention to pursue nuclear weapons or an independent nuclear fuel cycle. Unlike in the case of Saudi Arabia, there have been no rumors, speculation, or officially-inspired hints to that effect. As long as the UAE remains committed to the terms of the current 123 Agreement and to completion of the project to build four nuclear power reactors—and as long as it believes its security requirements can be met through cooperation with the United States and its GCC partners—this assessment is unlikely to change.

Egypt

Of the four main countries addressed in this survey, Egypt is the only one that previously made efforts to

⁹⁴ Deb Reichmann, “UAE tells US lawmaker it has right to enrich uranium, too,” *Associated Press*, October 16, 2015, <http://bigstory.ap.org/article/1c56cae59325422086997619d347d17b/uae-us-lawmaker-we-have-right-enrich-uranium-too>

⁹⁵ Interview conducted by the authors with Emirati officials on November 4, 2015, in the UAE.

⁹⁶ *Ibid.*

acquire nuclear weapons. But Egyptian leaders voluntarily abandoned an interest in nuclear weapons long ago. In doing so, the Egyptians have made opposition to nuclear weapons in the Middle East and support for disarmament more generally a core part of their foreign policy. Taken in combination with their lackluster nuclear energy development efforts over the past 60 years and their current economic difficulties, it is unlikely that—unless faced with a direct threat from Iran that has yet to manifest itself—the Egyptians would reconsider their present stance.

Under President Gamal Abdel Nasser, Egypt took steps aimed at acquiring the capability to develop nuclear weapons. But Presidents Anwar Sadat and Hosni Mubarak, particularly following the Six Day War in 1967, calculated that Egypt's interests were better served by renouncing nuclear weapons and adhering to the Nonproliferation Treaty.⁹⁷ The result of this decision was not only to walk away from a nuclear weapons program, but also to step away from nuclear technology development writ large. Since that time, the Egyptian nuclear program has foundered on the lack of financial support given to it, concerns over safety (particularly after the Chernobyl accident in 1986), and a reliance on alternative means of generating electricity (primarily from natural gas)⁹⁸ in the country.

Egypt's record of compliance with its nuclear non-proliferation obligations is not without blemishes. In 2004, the IAEA indicated that Egypt failed to report imports of uranium material or uranium irradiation experiments carried out between 1990 and 2003. In 2005, the IAEA director general notified the IAEA Board of uranium conversion experiments, uranium and thorium irradiation experiments, and preparatory activities related to reprocessing that had not

been reported, which Egypt said was a result of a difference of interpretation regarding reporting requirements under its safeguards agreement with the IAEA. Although the Agency believed that “repeated failures by Egypt”⁹⁹ to report nuclear materials and activities were “a matter of concern,” it welcomed Egypt's cooperation in addressing these matters and concluded that no explicit policy of concealment seemed to exist—a conclusion endorsed by the United States. Subsequently, traces of highly enriched uranium were detected at Inshas in 2007 and 2008, which Egypt said could have been brought into the country with contaminated transport containers. The IAEA was unable to determine the source of the uranium particles. Despite this record, which some experts doubt has an entirely innocent explanation, it is regarded as very unlikely that these Egyptian activities were part of a government-sanctioned, programmatic effort to pursue nuclear weapons, and today there are no indications that weapons-related activities are underway in Egypt (a judgment that the IAEA's Annual Safeguards Implementation Report confirmed in May 2015).¹⁰⁰

Egypt possesses two small research reactors (including one built in 1997), which offer an opportunity for substantive work by Egyptian nuclear scientists.¹⁰¹ But, even with these facilities, the Egyptian nuclear budget remains small, something that is unlikely to be remedied during ongoing domestic unrest. Moreover, while Egypt trained a substantial number of nuclear scientists in the 1950s and 1960s, especially compared to other countries in the developing world, its human nuclear infrastructure has atrophied in recent decades as ambitious nuclear energy plans never materialized.

Egypt has committed to work with Russia on the construction of its first nuclear power reactor.¹⁰² But

⁹⁷ Robert Einhorn, “Egypt: Frustrated but still on a non-nuclear course,” in *The Nuclear Tipping Point*, edited by Kurt Campbell, Robert Einhorn, and Mitchell Reiss (Manas Publications, 2005).

⁹⁸ “Egypt,” *U.S. Energy Information Administration*, June 2, 2015, <https://www.eia.gov/beta/international/analysis.cfm?iso=EGY>

⁹⁹ “Implementation of the NPT Safeguards Agreement in the Arab Republic of Egypt,” *International Atomic Energy Agency*, February 14, 2005, p. 5, http://www.globalsecurity.org/wmd/library/report/2005/egypt_iaea_gov-2005-9_14nov2005.pdf

¹⁰⁰ “The Safeguards Implementation Report for 2014,” *International Atomic Energy Agency*, May 6, 2015, p. 8, <https://armscontrolaw.files.wordpress.com/2015/07/sir-2014.pdf>

¹⁰¹ “Egypt,” *Nuclear Threat Initiative*, September 2015, <http://www.nti.org/country-profiles/egypt/facilities/>

¹⁰² “Wasting energy,” *The Economist*, November 24, 2015, <http://www.economist.com/news/middle-east-and-africa/21679090-egypt-and-others-alternatives-nuclear-power-hold-more-promise-why-more>

this is not the first time that a reactor project has been initiated in Egypt (it never followed through on plans to build eight power reactors),^{103, 104} and it is unclear the degree to which planning and preparations are any more solid this time around. Even assuming that the commissioned Russian reactor is built, the agreement between Russia and Egypt is described in press reports to include the provision of fresh fuel and arrangements for the disposition of spent fuel,¹⁰⁵ likely involving the repatriation of spent nuclear fuel from Egypt to Russia. Moreover, although the agreement apparently involves training and the domestic manufacture of some elements of the reactor project, there are no indications that technology transfer will extend to the more sensitive aspects of the project. The overall picture of the Egyptian nuclear industry remains one of continued interest, but capabilities are still nascent and will take years to mature, especially with few financial resources to throw into the effort.

Assuming the Egyptians were even interested in a nuclear weapons capability or hedge, it is not clear that this would be in response to Iran. Certainly, there is no love lost between Cairo and Tehran. A street in Tehran was named after Anwar Sadat's assassin until the early 2000s.¹⁰⁶ Moreover, Iran is actively supporting causes that directly undermine the interests of Egypt's core Arab allies (who, incidentally, provide substantial investment in the Egyptian economy and aid for the Egyptian government).¹⁰⁷ But although the Iranians and Egyptians have occasionally sparred on regional issues, the combination of physical distance between the two countries and the absence of any direct, ongoing cause for conflict probably avoids the security dilemma for Egypt that might be created by any actual or latent Iranian nuclear weapons capability.

In addition, in contrast to Saudi concerns about a possible rapprochement between the United States and Iran, Egyptians seem to believe that better U.S.-Iranian relations could have positive implications for regional security. A high-level Egyptian foreign ministry official told us it would be wrong to pre-suppose a future confrontation between Iran and its neighbors.¹⁰⁸

A bigger security concern for Egypt than Iran is the turbulent overall regional environment and its effect on internal security. This sentiment was echoed by current and former Egyptian officials that we interviewed in Cairo in June 2015. One former senior military officer identified terrorist insurgency and the Muslim Brotherhood as Egypt's top security threats.¹⁰⁹ This same officer said that Israeli nuclear weapons would not motivate an Egyptian push for nuclear weapons, asserting that while Egyptians have concerns regarding Israel's nuclear program, the Israelis "are not crazy." A top-level foreign ministry official listed extremist ideology, the fragmentation of Syria and Iraq, and instability in Libya as the main security threats facing Egypt.¹¹⁰

Egyptians we interviewed also expressed concern that the JCPOA's impact on regional dynamics could indirectly have an adverse effect on them. Several maintained that Gulf Arab states, responding to an Iran they believed was empowered by the nuclear deal, have acted more assertively in the region, especially in Yemen and Syria, and that these conflicts could breed the terrorism and insurgency that pose the greatest national security threat to Egypt. Some suggested that the absence of a regional security component in the JCPOA reduced its positive impact. Egyptian polling data indicate widespread skepticism toward the nuclear deal, with 90 percent of Egyptians polled by Zogby

¹⁰³ "U.S. worried by Egypt plan for eight nuclear reactors," *World Tribune*, May 29, 2002, http://www.worldtribune.com/worldtribune/WTARC/2002/ss_egypt_05_29.html

¹⁰⁴ "Egypt is Ready to Begin Nuclear Energy Program," *Agence France-Presse*, March 13, 1995.

¹⁰⁵ "Russia, Egypt sign agreement on Egypt's first nuclear plant construction," *ITAR-TASS*, November 19, 2015, <http://tass.ru/en/economy/837847>

¹⁰⁶ "Iran and Egypt 'to restore ties'," *BBC*, January 6, 2004, http://news.bbc.co.uk/2/hi/middle_east/3371545.stm

¹⁰⁷ Salma El Wardany, Tarek El-Tablawy, Ahmed Feteha, "Egypt Secures Billions in Aid, Deals as Gulf Arabs Lead Way," *Bloomberg*, March 14, 2015, <http://www.bloomberg.com/news/articles/2015-03-14/egypt-gets-billions-in-aid-deals-as-gcc-investors-lead-charge>

¹⁰⁸ Interview conducted by the authors on May 31, 2015, in Egypt.

¹⁰⁹ *Ibid.*

¹¹⁰ *Ibid.*

agreeing that sanctions relief granted to Iran would contribute to Iranian adventurism,¹¹¹ and 77 percent believing that Iran got the better of the deal.¹¹²

It was also notable that, although Egyptian officials evinced strong dissatisfaction in our meetings with the lack of progress toward a Middle East Weapons of Mass Destruction Free Zone (MEWMD-FZ)—a centerpiece of Egyptian foreign policy for decades—there was little suggestion that this was changing Egypt’s posture on nuclear weapons. Foreign Minister Shoukry told us that “Egypt will never seek nuclear weapons.” Egypt’s firm rejection of nuclear weapons did not, however, apply to a nuclear fuel cycle. One former senior official suggested that Egypt retains some interest in, among other things, uranium enrichment, but as part of a regional approach;¹¹³ universally, there was recognition that Egypt can neither afford nor independently create such a capability.

Overall, the picture we gleaned from our research on and time in Egypt is that the Iran nuclear deal has not changed Cairo’s perspective regarding its own possession of nuclear weapons. Its relatively poor economy, combined with its preoccupation with low-tech threats like insurgency and terrorism, mean that there is little interest in embarking on a nuclear hedge. Assuming these security concerns and economic problems persist, it is unlikely that Egypt will reconsider its stance on nuclear weapons.

That said, as frustration builds in Cairo with the lack of progress toward a MEWMD-FZ and as other countries develop more advanced nuclear capabilities, even if for civil energy purposes, there may be growing pressure on the Egyptian government to acquire similar capabilities and perhaps to demonstrate to Israel and the United States that Egyptian nuclear restraint can no longer be taken for granted. Many Egyptians regret the indefinite extension of the NPT in 1995 because they believe it removed pressure on

Israel and the United States to work toward a MEWMD-FZ. Cairo has protested the nuclear asymmetry with its neighbor by refusing to join another arms control agreement as long as Israel refuses to join the NPT and movement toward a MEWMD-FZ is stalled. But despite its frustration with the nuclear status quo in the region and the prospect that Egypt might even fall farther behind the nuclear capabilities of other regional states, Egypt seems neither to have the inclination nor the resources to move in the direction of a military nuclear capability.

Turkey

Of the countries in this survey, Turkey is the one with the least obvious need for an independent nuclear weapons option. Alone among these countries, Turkey is protected by a treaty-guaranteed nuclear umbrella as a member of the North Atlantic Treaty Organization (NATO). Moreover, Turkey has had U.S. nuclear weapons stationed on its territory, crystallizing the sense of protection and commitment granted by its membership in the organization. Turkey has also enjoyed historically warm relations with Iran, serving as a major trading partner with the country both before and after the fall of the Shah. Turkey’s own foreign policy is predicated on having no conflicts with its neighbors, and this extended to Iran despite entreaties by the United States and others to restrict its engagement with Iran during the height of the global sanctions campaign against it.

Yet Turkey’s confidence in its relationship with the United States and its sense of security within NATO has diminished over the course of the Cold War and since it ended, especially during the past few years. During one discussion with Turkish academics, a litany of examples of either lackluster support for Turkish security interests, such as the recent friction over the presence of air defense systems in Turkey,¹¹⁴ or perceived betrayals from the distant past, such as the withdrawal of Jupiter missiles from Turkey after

¹¹¹ “Middle East 2015: Current and Future Challenges,” p. 29

¹¹² “Middle East 2015: Current and Future Challenges,” p. 27

¹¹³ Nabil Fahmy, “The New Middle East, Iran Nuclear Deal and the Arabs.”

¹¹⁴ Metin Gurcan, “US plays politics with Patriot missile removal,” *Al-Monitor*, August 20, 2015, <http://www.al-monitor.com/pulse/originals/2015/08/turkey-germany-patriots-controversial-arrival-controversial.html>

the Cuban Missile Crisis, were presented as evidence that NATO membership has sometimes meant little to Turkey.¹¹⁵ These academics noted that the Turkish population had lost some of its admiration for the organization due to what was seen as excessive NATO involvement in Turkish internal affairs in the 1960s and 1970s. Although the prevailing view within the Turkish military remains that NATO will most likely be there for Turkey in a future contingency, policymakers and non-governmental experts in Turkey do not take it as a given.

Turks are apprehensive about the current tensions with Moscow triggered by Turkey's shoot-down of a Russian fighter jet in December 2015. French President François Hollande spoke about the risk of war between Russia and Turkey. But concerns about Russia are unlikely to drive Turkey toward nuclear weapons. Indeed, Ankara will be reluctant to embark on a nuclear path that might imperil its ability to call upon NATO to address any challenges it may face from Moscow. Turkish expert Sinan Ülgen notes that "interoperability with NATO forces remains the key component of Turkey's defense policy and it is unlikely that Ankara would threaten its union with its most important allies."¹¹⁶

Although Ankara and Tehran have taken opposing sides in the Syrian civil war, most Turks do not see Iran as a direct military threat. Rather, it is the instability and terrorism that are seen as emanating from that conflict that the Turks regard as their principal security concerns. Each of the individuals we interviewed in Turkey, who ranged from former government officials to academics and journalists, agreed that continued fighting in Syria—and the concomitant flow of refugees into and through Turkey—would create significant instability along Turkey's southern border and within the country more generally. All agreed that these problems could not be addressed with nuclear weapons or even a latent nuclear option.

Turkish consideration of strategic issues is heavily tied to the internal dynamics of the country. One opponent of Erdoğan with whom we spoke even opined that an Iran strengthened by the JCPOA could usefully serve as a counterweight to an expansionist, Islamist Turkish government. In fact, every conversation that we had in Turkey began with the JCPOA and devolved quickly into a discussion of Turkish internal politics, which were then preoccupied with parliamentary elections that would determine whether President Erdoğan's Justice and Development Party (AKP in Turkish) would have the majority needed to amend the constitution to give the presidency more power. The only person we met who believed Turkey might well pursue nuclear weapons tied the matter to a domestic motivation: if an Islamist government decided to do so in order to advance a religious agenda.

Not only is there little support in Turkey for pursuing nuclear weapons but, unlike in the three other Middle East countries surveyed, the JCPOA itself is comparatively popular in Turkey. Polling data show that a majority of Turks polled believe that the JCPOA will effectively address the Iranian nuclear problem.¹¹⁷

Our interview subjects all agreed that, although Turkey will likely preserve the option to proceed with the nuclear fuel cycle, it is not a near term prospect. Turkish authorities have suggested that an enrichment capability might in the future be justified on economic grounds. They are also unwilling to foreclose what they see as a legal right to pursue the fuel cycle, and in the 2011 decision by the Nuclear Suppliers Group to strengthen restrictions on transfers of enrichment and reprocessing technology, Turkey was one of the members resisting the most rigorous limits. In negotiations on nuclear cooperation with Japan, Turkey apparently insisted on retaining the option to pursue enrichment and reprocessing, but Energy Minister Taner Yıldız played down Turkey's

¹¹⁵ Interview conducted by the authors on May 29, 2015, in Istanbul.

¹¹⁶ Sinan Ülgen, "Turkey and the Bomb," *Carnegie Endowment for International Peace*, February 2012, p. 23, http://carnegieendowment.org/files/turkey_bomb.pdf

¹¹⁷ "Middle East 2015: Current and Future Challenges," p. 27

interest in the fuel cycle: “We don’t have any project regarding nuclear fuel and... enrichment.”¹¹⁸

This is consistent with the status of the Turkish nuclear program altogether, which remains in an early stage of development. Turkey possesses two research reactors: one 250 kWt (kilowatts, thermal) TRIGA Mark-II reactor, operating at Istanbul Technical University¹¹⁹ and used for radiography experiments, and a second 5 MWt reactor for the production of isotopes for medical and industrial uses.¹²⁰ Turkey is also pursuing power reactors to deal with its persistent energy dependency on foreign imports, although with its first power reactors planned to be constructed by Russia (at Akkuyu) and Japan (at Sinop),¹²¹ it will still find itself tied to foreign supply.¹²²

While the Erdoğan government has billed these projects as necessary to promote Turkish national development, experts we interviewed noted that the expanded nuclear program is a big gamble for the Turkish government, given long-standing public concerns with nuclear energy safety and dependency on Russia. These concerns may have been exacerbated by the current downturn in relations between Ankara and Moscow. Ülgen believes that Russian-Turkish tensions as well as financial strains that reduce Russia’s ability to meet its nuclear power plant export commitments could delay or derail the Akkuyu reactor project: “Under current conditions, both Ankara and Moscow may have an incentive to end cooperation, rather than accept risks that could be amplified by worsening political ties.”¹²³

Because of its emergence in the last decade as a rising power, its large and growing scientific and industrial

base, and its ambition to be an influential if not dominant player in the region, Turkey is usually included on a short list of countries that may decide, in the wake of the Iran nuclear deal, to pursue a latent or actual nuclear weapons capability. But given its focus on terrorism and instability on its southern border, the absence of a direct military threat from Iran, its reluctance to put relations with its NATO allies in jeopardy, the continued albeit uncertain value it places on NATO security guarantees, and its current preoccupation with the future orientation of Turkish domestic politics, the likelihood that Turkey will pursue a nuclear weapons option is small, at least for the foreseeable future.

Other cases

Although the countries reviewed above are likely to remain the focus of most speculation regarding a potential Middle East proliferation cascade, three others bear mention, given their past interest in nuclear weapons: Iraq, Libya, and Syria.

Iraq. Iraq’s nuclear infrastructure was decimated by two wars, a decade of economic sanctions, and the efforts of the United States and its partners from 2003 to 2008 to retrain Iraqi scientists and remove from the country all residual nuclear materials. Further, Iraq is hamstrung by its ongoing conflict with ISIS, internal political and religious differences, and an economy that is struggling to grow, particularly with oil prices dramatically lower than in recent history.¹²⁴ Though it is theoretically possible for Iraq to overcome these problems and support a new drive for nuclear weapons, it is unlikely that Iraq would be motivated to do so in order to counter a latent or actual nuclear Iran. Although assessments that Iraq

¹¹⁸ “Turkish energy minister denies uranium enrichment intention,” *Hurriyet Daily News*, January 9, 2014, <http://www.hurriyetdailynews.com/turkish-energy-minister-denies-uranium-enrichment-intention.aspx?pageID=238&nID=60787&NewsCatID=348>

¹¹⁹ “Istanbul Technical University Turkish Research Reactor (ITU-TRR),” *Nuclear Threat Initiative*, <http://www.nti.org/facilities/494/>

¹²⁰ “Turkish Reactor 2,” *Nuclear Threat Initiative*, <http://www.nti.org/facilities/495/> “Turkish Reactor 2,” *Nuclear Threat Initiative*, <http://www.nti.org/facilities/495/>

¹²¹ “Turkey ratifies agreement for new plant at Sinop,” *World Nuclear News*, April 2, 2015, <http://www.world-nuclear-news.org/NN-Turkey-ratifies-agreement-for-new-plant-at-Sinop-02041502.html>

¹²² “Nuclear Power in Turkey,” *World Nuclear Association*, May 22, 2016, <http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/turkey.aspx>

¹²³ Sinan Ülgen, “Is this the end of Moscow-Ankara nuclear cooperation?” *Bulletin of the Atomic Scientists*, January 13, 2016, <http://thebulletin.org/end-moscow-ankara-nuclear-cooperation9059>

¹²⁴ “An empty chest: Fiscal problems add to the country’s woes,” *The Economist*, March 21, 2015, <http://www.economist.com/news/finance-and-economics/21646804-fiscal-problems-add-countrys-woes-empty-chest>

is subservient to Iran are overblown, there is no denying that Iraq and Iran have far closer ties now than at any time since the Iran-Iraq War began in 1980. Moreover, Iran can be expected to oppose a nuclear weapons capability in Iraq, would probably be able to discover an Iraqi program at an early stage, and would have ample means of intervening to put a halt to it. Iraq therefore is unlikely to revive its nuclear weapons ambitions, especially in the context of its current material and financial shortfalls.

Syria. Although Syria evidently sought a capacity to produce plutonium for use in nuclear weapons—in the form of the al-Kibar reactor built with assistance from North Korea—its present circumstances make it all but impossible to pursue a nuclear capability now and for the foreseeable future. The destruction of the al-Kibar reactor by Israel in 2007 likely put an end to Syrian nuclear weapons work. And while Syria has repeatedly rebuffed IAEA efforts to visit facilities suspected of being related to the destroyed reactor, it is highly improbable that significant activities related to the production of fissile materials or nuclear weapons are continuing in the country. Consumed by civil war—and with its survival as a unitary state very much in question—Syria lacks basic attributes required to pursue a successful nuclear weapons program, including human and physical infrastructure, financial resources, and a disciplined leadership able to carry out a sustained effort. For the near term, the greater weapons of mass destruction (WMD) threat in Syria is the government’s possession and use of any chemical agents not declared and destroyed after Damascus adhered to the Chemical Weapons Convention in 2013.

Libya. As with Syria, although the Libyans under Gadhafi had nuclear ambitions, their present internal conflict makes it virtually impossible that a revived nuclear weapons effort will emerge in the near term. Gadhafi agreed to ship to the United States in March 2004¹²⁵ almost everything from his previous nuclear weapons program, including centrifuges,

uranium hexafluoride feedstock for centrifuges, a facility for producing uranium hexafluoride, and associated machine tools and components. The Libyans did retain from their previous program a research reactor and associated facilities at Tajura, but the ongoing turmoil effectively precludes any further nuclear advances. Moreover, the dearth of indigenous nuclear expertise that impeded Libya’s ability to convert centrifuge components and other sensitive equipment purchased from the A.Q. Khan network into a workable enrichment program remains a formidable constraint on any renewed Libyan interest in nuclear weapons. Indeed, the biggest nuclear threat at the present juncture is not the development of an independent fuel cycle but rather the potential diversion of nuclear materials from their present, secured location to the hands of insurgent groups.

Unknowable Unknowns

It is important to underscore that the relatively optimistic assessment provided here of prospects for further proliferation is framed by our present knowledge and expectations of the future development of the Middle East politically, technically, and strategically. We assume that the situation in the region in 10 to 20 years will not differ radically from the situation today. But given the changes we have seen even in the last five years, that is a very shaky assumption. Presently unforeseen but by no means inconceivable developments—in terms of technological enablers, internal political changes, regional dynamics, and relations with external powers—could alter our judgment that none of the states of the Middle East are likely to opt for nuclear weapons or even a latent fuel cycle capability. That is why, even if the current outlook is positive, it is essential that the United States adopt policies that offer insurance against the uncertainties it faces going forward and that it continue to reduce the incentives and the opportunities for countries of the region to reconsider their nuclear options.

¹²⁵ Kelsey Davenport, “Chronology of Libya’s Disarmament and Relations with the United States,” *Arms Control Association*, February 2014, <https://www.armscontrol.org/factsheets/LibyaChronology>

CHAPTER 6

RECOMMENDATIONS

As the preceding pages make clear, we do not believe the JCPOA will trigger a cascade of proliferation. Due to a combination of technical, political, economic, and strategic factors, none of the most talked-about entrants in a new nuclear arms race are likely to acquire nuclear weapons. Consequently, we find the net nonproliferation effects of the JCPOA in the region to be positive. By removing the most likely near-term instigator of competitive nuclear arming—Iran’s own acquisition of nuclear weapons—the JCPOA will restrain future proliferation in the Middle East.

However, although we find the chances of a cascade of regional nuclear proliferation to be slight, they are not zero and much will depend on how effectively the JCPOA is enforced and on a range of other factors previously discussed. Moreover, the turmoil that currently afflicts the Middle East renders any judgment as to the “most likely” course of events prone to future revision.

Of the countries that we have surveyed, we believe that Turkey and Egypt are the least likely to pursue an independent nuclear capability, whether in the form of a latent nuclear weapons option or in actual weapons acquisition. Turkey’s most pressing security challenges cannot be met with nuclear weapons, and those challenges where nuclear weapons are more relevant are addressed by Ankara’s membership in NATO. As for Egypt, its primary security threats arise from terrorism and internal turmoil. The prospect of a nuclear-armed Iran is unlikely to change its threat perception significantly, and of the countries studied, Egypt is the least well-equipped financially to mount a nuclear weapons program.

To the extent that we are concerned about future proliferation in the Middle East, our primary focus is on those countries that feel most directly threatened by Iran—the Gulf Arabs, and particularly Saudi Arabia. To reduce the likelihood that they—as well as others in the region—will opt for nuclear weapons, we recommend that U.S. policymakers pursue the following policies, starting under the Obama administration and continuing under the next president:

1. Ensure that the JCPOA is rigorously monitored, strictly enforced, and faithfully implemented.
2. Strengthen U.S. intelligence collection on Iranian proliferation-related activities and intelligence-sharing on those activities with key partners.
3. Deter a future Iranian decision to produce nuclear weapons by threatening the use of military force if Iran were believed to be proceeding toward breakout.
4. Seek to incorporate key monitoring and verification provisions of the JCPOA into routine IAEA safeguards as applied elsewhere in the Middle East and in the global nonproliferation regime.
5. Pursue U.S. civil nuclear cooperation with Middle East governments on terms that are realistic and serve U.S. nonproliferation interests.
6. Promote regional arrangements that restrain fuel cycle developments and build confidence in the peaceful use of regional nuclear programs.

7. Strengthen security assurances to U.S. partners in the Middle East.
8. Promote a stable regional security environment, especially the resolution of current civil wars and the reduction of Saudi-Iranian tensions.

1. Ensure that the JCPOA is rigorously monitored, strictly enforced, and faithfully implemented.

Confidence by regional states that the JCPOA is working effectively as a barrier to an Iranian nuclear weapons capability will reinforce their inclination to remain non-nuclear, whereas a JCPOA of uncertain sustainability with a checkered compliance record will increase their incentives to hedge their nuclear bets.

- **The United States should respond immediately to any Iranian violations of the nuclear provisions of the deal.** The precise nature of this response should be at the discretion of the administration and will depend on the nature of the infraction. Some violations are likely to be relatively minor and technical, such as Iran’s apparently inadvertent production of more than the permitted amount of heavy water in early 2016. In these cases, there are remedial actions that can be taken by Iran without the need by the P5+1 to re-impose sanctions or take other coercive steps. In the heavy water case, the IAEA reported in February 2016 that Iran simply exported more of its heavy water stockpile than required in order to remain clearly under the threshold.

In other cases, however, Iranian breaches may not be as innocent. Tehran must be under no illusion that it will be permitted to “creep out” of its JCPOA obligations. The United States retains the option of re-imposing sanctions in response to such cheating, either through the JCPOA’s Joint Commission process or unilaterally if time is of the essence. However, the United States can also act to penalize Iran

for such violations short of re-imposing sanctions, such as by refusing to permit Iranian acquisition of nuclear-related items through the JCPOA’s procurement channel until the situation is resolved. Likewise, the United States could slow licenses of authorized transactions with Iran in other areas, such as aviation services, until the noncompliance is addressed. Above all, the United States must not give the impression that it cares more about the JCPOA than Iran does. If the JCPOA is no longer serving U.S. interests, it should be scrapped, and such a stance is needed to reassure U.S. partners as well as deter Iranian noncompliance.

- **The United States should remain firm on the imperative of rigorous verification.** At the present time, it appears that Iran is fulfilling its obligations under the JCPOA and cooperating with the IAEA. This must continue for the life of the agreement. The United States and its P5+1 partners should have no tolerance for any Iranian infringement of the IAEA’s rights in the execution of its responsibilities under the IAEA Safeguards Agreement, Iran’s Additional Protocol, or the JCPOA. This includes any Iranian refusal to permit IAEA access to suspect sites.

That said, the United States and its partners should also maintain a healthy respect for the IAEA. If the IAEA believes that it can do its job, even using nontraditional inspection procedures, and U.S. technical experts concur in that judgment, then the Obama administration and its successors should trust in the Agency’s professionalism and expertise. At the same time, such confidence in the IAEA would be easier to sustain if the Agency were to provide more detailed information in its quarterly reports on Iran’s nuclear program than it provided in its initial post-Implementation Day report in February 2016. Iran should support such detailed reporting as a means of building international confidence in its nuclear program.

- **The United States must take reasonable steps to ensure that Iran realizes the benefits of sanctions relief that it is entitled to under the JCPOA.** The JCPOA reflects a fundamental bargain: nuclear limitations and intrusive monitoring in exchange for sanctions relief and eventual Iranian nuclear normalization, provided Iran’s nuclear program remains in conformity with its international nonproliferation obligations. Absent full realization of the sanctions relief provided in the JCPOA, Iran will find it unsustainable to fulfill its nuclear commitments.

The United States needs to ensure that the JCPOA does not fall apart because of problems in the area of sanctions relief. The United States has a compelling national interest in Iran continuing to fulfill its nuclear commitments. If the JCPOA should collapse, it should be clear both at home and abroad that Tehran, not Washington, is to blame. More generally, the United States should maintain its international reputation for fulfilling its commitments, which is the bedrock of U.S. credibility so essential to pursuing effective diplomacy and achieving U.S. national interests.

This may mean that the United States needs to make practical adjustments in the implementation of sanctions relief if it is found that previously unidentified and unintended technical problems are impeding relief, just as Iran needs to make practical adjustments in fulfillment of its nuclear commitments, such as exporting more heavy water than the JCPOA would require in order to avoid an implementation problem on the nuclear side.

Frustrated that they have not been reaping the expected benefits of sanctions relief, Iranian officials have accused the United States of discouraging international banks and businesses

from engaging with Iran. In a speech on April 27, Supreme Leader Khamenei charged that, “[t]he reason big banks are not ready to work with Iran is Iranphobia, which the Americans created and continue.”¹²⁶

Well-informed Iranians understand that many of the problems impeding economic recovery are home grown. An Iranian Foreign Ministry report sent to the Majlis on April 16 stated that “[t]he biggest problem and challenge that the JCPOA faces, however, is an atmosphere of trust and confidence-building in the country for foreign parties.”¹²⁷ Nonetheless, senior Iranians have complained repeatedly, both in public and privately to the United States at senior levels, that Washington, especially the Treasury Department, is consciously impeding sanctions relief.

The United States has taken these concerns seriously. Secretary Kerry stated on April 22 that “the United States is not standing in the way and will not stand in the way of business that is permitted with Iran since the JCPOA took effect.”¹²⁸ Treasury Secretary Lew met with the governor of the Iranian Central Bank on April 14 to discuss ways to address Iran’s difficulty in gaining better use of the international financial system. Washington has also published 40 pages of frequently asked questions—and issued additional guidance, general licenses, and licensing policy notes—to help banks and businesses around the world understand what sanctions relief enables them to do.

These efforts notwithstanding, Iran’s access to international finance is lagging. Some of this is unavoidable: Iran abused the international financial system for years—and implicated foreign banks, which were then subject to significant fines—so many banks

¹²⁶ Arash Karami, “Khamenei says US pushing ‘Iranphobia’ to block foreign investment,” *Al-Monitor*, April 27, 2016, <http://www.al-monitor.com/pulse/originals/2016/04/khamenei-us-banking-sanctions-seif-kerry.html>

¹²⁷ Caitlin Shayda Pendleton, “Translation: The Foreign Ministry’s First Report on the Nuclear Deal’s Implementation,” *American Enterprise Institute Iran Tracker*, April 22, 2016, <http://www.irantracker.org/nuclear/pendleton-translation-foreign-ministry-report-nuclear-deal-implementation-april-22-2016>

¹²⁸ “Remarks Before Meeting with Iranian Foreign Minister Javad Zarif,” *U.S. Department of State*, April 22, 2016, <http://www.state.gov/secretary/remarks/2016/04/256536.htm>

are now simply unwilling to do business with Iran. Moreover, the reality that significant non-nuclear sanctions remain available to the United States, as well as the possibility of snap-back of sanctions in response to Iranian cheating, is probably chilling banks' readiness to work with Iran. Iran's byzantine bureaucracy and threatening demeanor, particularly toward Israel, only reinforce these tendencies, which Washington can do little to address.

However, where there are modest modifications to U.S. sanctions policy that could be made to remove some of the discomfort foreign banks are feeling about doing business with Iran without undermining the sanctions regime, the Obama administration and its successors should consider them. Some of this has already happened. On March 24, 2016, the Treasury Department released General License I, which permitted negotiations over aviation service supply to Iran to take place without a specific license, while leaving the actual provision of the services subject to specific licensing requirements.¹²⁹ A similar modification to U.S. sanctions relief was apparently under consideration with respect to the use of the U.S. dollar as a means of currency exchange for business transactions. Although such a modification quickly became distorted in press accounts as synonymous with granting Iran access to the U.S. financial sector, the device in question is little more than a bookkeeping operation for banks struggling to manage trade with Iran without the use of the world's dominant, most stable currency. The test for any future proposals to facilitate sanctions relief is whether the modification helps Iran obtain the relief it has already purchased with its nuclear concessions or whether it extends the reach of the Iranian economy into areas subject to remaining U.S. sanctions restrictions.

If the proposed modification simply permits Iran to get what it bargained for—even if the exact terms are not explicitly anticipated or provided for in the JCPOA—then it ought to get a fair hearing in Washington.

2. **Strengthen U.S. intelligence collection on Iranian proliferation-related activities and enhance intelligence-sharing on those activities with key partners.**

Uncertainty about nuclear developments in Iran will feed concerns about the future and create incentives for regional states to keep their nuclear options open.

- **The United States should sustain and even increase its investment in national intelligence capabilities to monitor the proliferation-related activities of Iran.** While IAEA monitoring and inspections will be critical and deserve strong support by the United States and the international community generally, IAEA efforts must be supplemented by those of the U.S. intelligence community. The U.S. intelligence collection and analysis apparatus devoted to Iran is immense, dwarfing the assets brought to bear against Iran's nuclear program by any other country in the world (although Israel's intelligence effort, while smaller in scale, is focused at least as heavily and with great sophistication on the Iran target). Even with the JCPOA and its unprecedented IAEA surveillance procedures in place, the U.S. national intelligence mission is far from over. In fact, it may have now gotten more difficult, as Iran's nuclear program will become legitimized over time but still treated with suspicion in the United States. For example, discriminating between legitimate Iranian nuclear commerce and illicit Iranian nuclear procurement will be a challenge, requiring extensive collection and analysis

¹²⁹ "Iranian Transactions and Sanctions Regulations," *U.S. Department of the Treasury, Office of Foreign Assets Control*, March 24, 2016, https://www.treasury.gov/resource-center/sanctions/Programs/Documents/iran_gli.pdf

resources. While Iran will have to compete with many pressing U.S. intelligence priorities in the period ahead, the U.S. effort against the Iranian nuclear program cannot slacken because of the JCPOA and must be adequately funded.

- **The United States should create standing mechanisms for the sharing of proliferation-related Iran intelligence with regional partners.** The United States has various mechanisms for sharing information with countries throughout the Middle East about the myriad threats they face together. However, there remains a pervasive sense of unease about the nature of U.S. proliferation intelligence and the degree to which it is being shared with regional partners. Conscious of the Iraq WMD policy and intelligence failures, and surprised by the 2007 Iran National Intelligence Estimate release, which revealed that the United States had information confirming that a key component of Iran's active nuclear weapons program ended in 2003 to 2004, countries in the region may have some uncertainty about the quality of U.S. WMD intelligence in Iran and about whether they will know before the general public does about any significant Iranian cheating on the JCPOA. The United States should establish standing mechanisms with countries of the region to share relevant information on Iran's nuclear program as well as on other Iranian activities of strategic concern, such as Iran's missile program. Naturally, there will remain a need for compartmentalization and secrecy, even with the closest U.S. partners, but it should be possible to develop briefings and other informational materials to give U.S. partners sufficient clarity into Iran's nuclear program and—importantly—what the U.S. intelligence community thinks about what it knows. Moreover, such information exchange should be two-way, with the United States also learning from its regional partners what they see going on in Iran. In

this fashion, rumors and innuendo can be dismissed if unfounded and real leads developed for further collection and analysis.

3. **Deter a future Iranian decision to produce nuclear weapons by threatening the use of military force if Iran were believed to be moving toward breakout.**

Incentives for acquiring a latent or actual nuclear weapons capability will increase if regional states believe Iran can and will successfully break out and produce nuclear weapons in the future—either in the first 15 years of the JCPOA or once key restrictions on fissile material production capabilities expire after 15 years. Those incentives will be greatly reduced if regional states are confident that the United States is committed to intervening and thwarting a breakout attempt.

- **The United States should underscore its readiness to use military force, if necessary, in response to an attempted Iranian nuclear breakout.** U.S. policy with respect to Iranian development of nuclear weapons has been known for over a decade. President George W. Bush refused to take any option off the table to prevent Iran's development of nuclear weapons, a stance which President Obama reaffirmed, including after the conclusion of negotiations over the JCPOA. At the same time, there remains uncertainty in the Middle East (and beyond) about how the United States would actually respond to an Iranian breakout attempt. The formulation that “all options are on the table” is widely seen as ambiguous and not sufficiently committed to the use of military force. President Obama should state clearly that the policy of his administration is to use military force, if necessary, to prevent Iranian acquisition of a nuclear weapon. The next U.S. president should offer the same affirmation at an appropriate, early point in her or his administration. Such a declaration need not spell out the exact nature of U.S. action nor the precise circumstances under which force would

be used. But, the statement should be sufficiently clear and committal so as to remove the apparent uncertainty that still surrounds U.S. intentions.

- **The U.S. Congress should pass a standing Authorization to Use Military Force (AUMF) in the event a future Iranian nuclear weapons breakout is detected by the United States.** It is not clear that a formal AUMF would be necessary for either President Obama or his successor to use force to stop an Iranian nuclear weapons breakout. Under the War Powers Act, absent a formal AUMF, the president is permitted to commit U.S. forces to action for up to 60 days, contingent on a notification to Congress within 48 hours of military action having been launched. Any U.S. military action against Iran's nuclear program would likely fall within the 60 day period (if not the 48 hour period), meaning that a formal AUMF is probably not required for the president to act against Iran. However, even though an AUMF is not legally required, Congressional passage of an AUMF—by demonstrating that the executive and legislative branches are united in preventing a nuclear-armed Iran—would signal strong national resolve and strengthen the deterrent effect. Such an AUMF should not provide a blank check for future presidential action. Instead, it should specify criteria under which force might be used, such as a presidential determination that Iran was pursuing a nuclear weapons capability in breach of its NPT and JCPOA obligations, and require the president to convey to the Congress evidence on which that determination is based.

4. Seek to incorporate key monitoring and verification provisions of the JCPOA into routine IAEA safeguards as applied elsewhere in the Middle East and in the global nonproliferation regime.

Making some of the innovative features of the JCPOA's monitoring system the "new normal" for IAEA safeguards could enhance confidence that

Iran's neighbors are not pursuing nuclear weapons capabilities as well as ensure that Iran will remain bound by them indefinitely.

- **The United States should work with other governments and the IAEA to build into standard safeguards practices some of the signature elements of the JCPOA.** United Nations Security Council resolution 2231 and the IAEA Board resolution adopted on December 15, 2015 both state that the provisions of the JCPOA should not be considered precedents for the IAEA's standard verification practices. This may reflect a reluctance of IAEA members to accept what they see as additional safeguards burdens, an Iranian desire to eventually be free of non-standard practices, and perhaps an IAEA concern about being saddled with inadequately funded responsibilities. Still, as experience implementing the JCPOA in Iran demonstrates the monitoring value and cost-effectiveness of the non-standard provisions, it may be possible to build support for incorporating them more widely.

Iran's provisional adoption and eventual ratification of the IAEA Additional Protocol and its acceptance of modified code 3.1 on early notification of plans to construct new nuclear facilities could generate support for universalizing those critical measures. In addition, although on-line enrichment level monitoring was being developed long before the JCPOA as a means of improving IAEA inspector efficiency and reducing operating costs, its adoption by Iran could help build support for incorporating it in every enrichment plant operating worldwide as part of the IAEA's standard monitoring package. Similarly, the JCPOA's use of electronic seals, which communicate their status within nuclear sites to IAEA inspectors, and automated collection of measurements recorded by installed IAEA devices—though less efficient than the transmission of such data directly to IAEA headquarters in Vienna—reduce the operational demands on IAEA

personnel and improve the accountancy of nuclear material. Moreover, the JCPOA's continuous surveillance of centrifuge production facilities and uranium mines and mills, while not necessary or feasible on a universal basis, could strengthen the case for better access and more information with respect to those facilities than is provided for under the Additional Protocol.

A JCPOA feature that should be universalized for all NPT non-nuclear weapon states is the explicit prohibition on activities related to the development of a nuclear explosive device and on procurement of equipment used specifically in those activities. Also universalized should be the IAEA's right to monitor such a ban on "weaponization" activities, even when no nuclear materials are present.

5. Pursue civil nuclear cooperation with Middle East governments on terms that are realistic and serve U.S. nonproliferation interests.

An increasing number of regional countries are embarking on civil nuclear programs. Although several of them have abundant fossil fuel reserves, they have a legitimate interest in conserving their fossil fuels for export and relying more heavily on nuclear energy for electricity production. At the same time, nuclear programs are also viewed in certain quarters as providing a possible option to pursue nuclear energy for military purposes. It is in the U.S. interest to be in a position to help those countries shape their future nuclear energy choices.

- **The United States should pursue nuclear cooperation arrangements with Arab governments interested in nuclear power.** Although Turkey, Egypt, and UAE all have civil nuclear cooperation agreements with the United States (known as "Agreements for Nuclear Cooperation" or "123 Agreements"), Saudi Arabia and other states in the region do not. U.S. efforts to negotiate a nuclear cooperation agreement with Saudi Arabia have stalled, largely due to the Saudi refusal to forswear enrichment and repro-

cessing capabilities, as the UAE agreed to do in its agreement with the United States. This dispute raises a concern that the Saudis and perhaps other regional states will pursue nuclear cooperation with nuclear supplier governments that are less demanding than the United States in terms of nonproliferation restraints. Continued deadlock might also lead the UAE to seek to renegotiate its agreement with the United States to permit the acquisition of fuel cycle capabilities.

It is in the U.S. interest to be involved in the development of nuclear programs in the Middle East. This involvement gives the United States insights into the status and progress of those programs and a role in determining the safety, security, and proliferation-related design elements of the facilities to be constructed, as well as provides a boost for U.S. nuclear-related firms. U.S. engagement—and the desire of cooperation partners to benefit from U.S. nuclear technology—can provide leverage in serving U.S. nonproliferation goals. An Emirati official told us that the risk of losing access to U.S. technology was an element in the UAE decision, and least thus far, not to renegotiate the U.S.-UAE agreement. The reopening and potential loss of the agreement could mean an immediate halt in the construction of the UAE's first nuclear power reactors.

But the United States should not overestimate its leverage in today's nuclear market. There are suppliers, including Russia and China, that are eager to expand their market share and are willing to attract customers with highly advantageous financing. The inability to reach a civil nuclear deal with the United States will not prevent a country from developing a nuclear program. It will only increase the likelihood that the prospective customer will pursue cooperation with a supplier that is less demanding than the United States in terms of the nonproliferation constraints it requires as part of the agreement.

- **In order to conclude civil nuclear agreements with key Middle East countries, the United States should be prepared to modify the “gold standard” to meet the needs of particular partners.** In negotiations with the United States, both Saudi Arabia and Jordan have balked at accepting a formal renunciation of fuel cycle capabilities, and it is unlikely, especially in the wake of the Iran nuclear deal, that any other state of the region will accept the pure “gold standard.” This objection appears to have little to do with the whether states actually plan to do with the whether states actually plan to have enrichment or spent fuel reprocessing programs, particularly in the time frames in which nuclear cooperation agreements would be in effect (usually 30 years or less). Rather, the objection is largely political—and almost theological—in nature, relating to the rights of sovereign states. The fact that Iran will be permitted under the JCPOA to retain and eventually expand its enrichment program only reinforces this mindset, and places it in the context of the regional competition between Iran and the Arab states.

To avoid continuing deadlock in negotiations with Middle East countries on civil nuclear cooperation agreements—which would exclude the United States from nuclear commerce in the region and leave the field to other suppliers, who might have lower proliferation standards—Washington should be prepared, if necessary, to modify the “gold standard.” In cases where the pure “gold standard” is not achievable, the U.S. government should press for the strongest possible constraints on the acquisition of fuel cycle capabilities. It could, for example, insist on a provision permitting—but not requiring—the United States to withdraw from the agreement in the event that the other party decides to pursue indigenous enrichment or reprocessing. This would create a strong disincentive for the other party to opt for its own fuel cycle; but if the other party chose to do so, it would give the United States the option to retain the agreement

if risk mitigation elements were accepted by the party, such as capacity limits, enhanced monitoring and transparency, or a requirement that any fuel cycle facility be multinational in character.

Another approach would be retain the essential aspect of the “gold standard”—a legally binding renunciation of enrichment or reprocessing—while shortening the duration of the agreement from the standard 30 years or longer to, say, 20 years. For countries that wish to retain the option to acquire fuel cycle facilities in the future but have no near-term plans to pursue them, this could be acceptable.

Yet another approach—one that could be combined with and reinforce either of the first two—would be a non-binding commitment stating that the other party has no plan or intention to pursue enrichment or reprocessing. Many other approaches would be possible. The objective would be to decrease the likelihood that additional fuel cycle programs would take root in the Middle East—an objective that would be much harder to realize if continued U.S. insistence on the pure “gold standard” drove prospective U.S. partners to suppliers that did not seek any constraints on fuel cycle capabilities.

6. Promote regional arrangements that restrain fuel cycle developments and build confidence in the peaceful nature of regional nuclear programs.

The JCPOA’s limits on Iran’s fuel cycle programs will reduce pressures on Middle East countries to seek to match Tehran’s capabilities in the near term. But as the main restrictions on Iran’s nuclear programs lapse in 2025 to 2030, the likelihood of competitive fuel cycle developments in the region could increase, especially if the regional security and political environment remains as tumultuous as it is today. It would be useful to begin developing arrangements now that could head off difficulties down the road—arrangements that could be applicable to several regional states or even on a region-wide basis.

- **The United States should work with Iran and other Middle East governments on possible arrangements for addressing the nuclear energy requirements of regional states while minimizing the risks of nuclear proliferation.** The arrangements could take different forms: formal or informal, legally binding obligations, or political commitments. They could involve Iran and several neighboring states or could apply to the entire Middle East. They could address fuel cycle activities, monitoring and transparency measures, or both.

A key motivation for such arrangements would be mutual fears between Iran and its neighbors, particularly the Sunni Arab countries. For the Arab governments, the main risk is that Tehran would actually build the 190,000-SWU enrichment program that it has declared as its goal or would pursue a reprocessing program. For Iran, the main risk is that the Arab states—with their wealth and international partnerships—would seek to balance Iranian developments with their own nuclear fuel cycles.

Some arrangements could apply equally to all participants. For example, the participants could ban reprocessing and reprocessing facilities; they could agree to rely on foreign-supplied fuel for all power reactors and to ship all spent fuel out of the country; they could agree that all new research and power reactors would be light-water moderated and use uranium fuel enriched to below five percent; and they could accept indefinitely some of the enhanced monitoring and transparency measures contained in the JCPOA.

Some other arrangements might not apply equally to all participants. For example, some Arab governments might agree to forgo fuel cycle capabilities if Iran agreed to postpone the expiration of key JCPOA restrictions, accept limits on its enrichment capacity after 10

to 15 years, or slow the buildup of its capacity after 10 to 15 years.

Such regional arrangements would undoubtedly be difficult to negotiate, especially in today's political climate. But they would significantly reduce the likelihood of a regional competition in nuclear fuel cycle programs while enabling participants to enjoy the benefits of the peaceful uses of nuclear energy.

7. Strengthen security assurances to U.S. partners in the Middle East.

Concerns about the credibility and effectiveness of U.S. commitments to their security are the principal reason that Gulf Arab countries, especially Saudi Arabia, might decide to pursue latent or actual nuclear weapons capabilities.

- **The United States should reaffirm and build upon its security assurances to members of the Gulf Cooperation Council (GCC).** In May 2015, the United States and the GCC released a joint statement following the conclusion of summit-level talks at Camp David that contained a pledge of U.S. support for GCC member security. Specifically, the United States committed “to work jointly with the GCC states to deter and confront an external threat to any GCC state’s territorial integrity that is inconsistent with the UN Charter.”¹³⁰ In support of that commitment, the United States affirmed its readiness to “work with our GCC partners to determine urgently what action may be appropriate, using the means at our collective disposal, including the potential use of military force, for the defense of our GCC partners.”¹³¹

The U.S. pledge was reaffirmed during President Obama’s trip to the region at the end of April 2016. The communiqué issued at the second summit meeting of U.S. and GCC

¹³⁰ “U.S.- Gulf Cooperation Council Camp David Joint Statement,” *White House Office of the Press Secretary*, May 14, 2015, <https://www.whitehouse.gov/the-press-office/2015/05/14/us-gulf-cooperation-council-camp-david-joint-statement>

¹³¹ Ibid.

leaders in Riyadh stated that “the United States policy to use all elements of power to secure its core interests in the Gulf region and to deter and confront external aggression against its allies and partners, as it did during the Gulf War, is unequivocal.”¹³²

The next administration should consider amplifying the U.S. commitment by addressing particular GCC security concerns, including the possibility of Iran attempting to close off the Straits of Hormuz, a vital waterway for GCC members, and the threat posed by Iranian ballistic and cruise missiles. The United States and its GCC partners could also declare that Iranian noncompliance with either the NPT or the JCPOA would constitute “an external threat” to the GCC that would call for immediate consultations and an appropriate collective response which, in the event of an Iranian breakout toward nuclear weapons, could involve the use of military force.

- **The United States should explore with its GCC partners the development of a more closely integrated regional security framework, with stronger operational and institutional ties among its members.** Reassuring America’s Middle East partners will take more than strong political statements on paper. Arms sales—predictably the element of U.S. security cooperation that attracts the most attention—can make an important contribution to the self-defense capabilities and self-confidence of U.S. partners, but they are not sufficient to alleviate their concerns, especially about the prospect of a nuclear-armed Iran. The GCC countries need to know that they will not be left standing alone, and this will require a tighter network of political and military relationships with the United States.

One option would be to create a multilateral mutual defense arrangement—a Gulf analogue to NATO. A formal alliance could, in

theory, provide GCC countries the security they seek. Such a structure once existed in the region—the Central Treaty Organization, or CENTO, which was created in 1955 and included Iraq, Iran, Pakistan, Turkey, the United Kingdom, and the United States. But the weak and ineffective CENTO, which was disbanded in 1979, is hardly a model to emulate and, in any event, the difficulties of establishing a formal alliance today—including significantly differing views among GCC members toward Iran and opposition in the United States toward alliance ties with the Gulf’s autocratic regimes—would likely be insurmountable. Moreover, such an alliance, by hardening and deepening the divisions that exist in the region today, could increase the obstacles to eventually finding a *modus vivendi* between Iran and the Sunni Arab governments.

A related option—one that would not necessarily involve a formal, Senate-ratified mutual defense pact—would be to provide U.S. partners in the Gulf with a “nuclear umbrella.” The term “nuclear umbrella” can be construed in a variety of ways, but it is often meant as a pledge that, in the event nuclear weapons were threatened or used against a U.S. partner, the United States would provide a fitting, powerful response, which could include the use of nuclear weapons. While such a nuclear umbrella could be offered to protect Gulf Arab countries against Iran, the offer—at a time when Iran does not possess nuclear weapons—appears unnecessary or, at a minimum, premature. Should Iran eventually acquire nuclear weapons, a U.S. nuclear umbrella would be an appropriate response. For now, it is sufficient—as recommended earlier—for the United States to commit to preventing Iran from acquiring nuclear weapons, if necessary by using (conventional) military force.

A more effective regional security framework, with stronger operational and institutional

¹³² “United States-Gulf Cooperation Council Second Summit Leaders Communique,” *White House Office of the Press Secretary*, April 21, 2016, <https://www.whitehouse.gov/the-press-office/2016/04/21/united-states-gulf-cooperation-council-second-summit-leaders-communique>

ties between the United States and GCC members, can be developed in the absence of a formal alliance or a nuclear umbrella. The Obama administration has already taken significant steps in that direction.

The United States, in the annex to the U.S.-GCC Joint Statement of 2015, agreed to "... set up a senior working group to pursue the development of rapid response capabilities, taking into account the Arab League's concept of a 'unified Arab force,' to mount or contribute in a coordinated way to counter-terrorism, peacekeeping and stabilization operations in the region."¹³³ The communiqué released in April 2016 went farther, underscoring several key elements of an expanded, integrated, and collaborative approach to regional security. For example, it called for enhancing maritime security cooperation arrangements, which have already proven helpful in interdicting Iranian-origin arms and equipment intended for the Houthis in Yemen. It supported expedited steps to implement an integrated missile defense early warning system. The communiqué also announced initiatives to train specially-designated Special Operations Forces units from each GCC country and to expand cooperation on cybersecurity. Future U.S. administrations should build on these efforts—and the next president should commit to holding a summit with their GCC counterparts within the first six months of a new administration.

In a significant step toward strengthening their defense ties, the United States and the GCC countries agreed at their April 2016 summit to conduct a combined military exercise in March 2017 "to showcase the

full breadth of GCC-U.S. security capabilities."¹³⁴ This combined exercise should not be a one-off endeavor and instead should become a regular feature of U.S.-GCC military cooperation. If broadened beyond the GCC, these exercises could help the Arab League's "United Arab Force" develop real capabilities and become more than an organization that today exists largely on paper. A future administration could also consider expanding these exercises to include select partners from outside the region, such as the U.K. and France (both of which maintain a presence in the Gulf).

Gulf Arab confidence in U.S. security commitments would also be reinforced by political and policy-level engagement, including annual summit meetings, regular meetings of foreign and defense ministers, and frequent meetings of specialized working groups.

While strengthening U.S.-GCC institutional ties is important, it should not come at the expense of traditional bilateral U.S. security relationships with individual Gulf partners. In that connection, consideration should be given to awarding the status of major non-NATO ally (MNNA) to Saudi Arabia and the UAE, a status that Tunisia, Bahrain, Kuwait, Egypt and Jordan already enjoy. (Israel is technically a "major strategic partner" of the United States, which is a slightly elevated position with respect to MNNA.) MNNA status carries with it advantages from an arms procurement perspective^{135, 136} and, in this regard, could expedite the transfer of critical defense capabilities in line with the conclusions of the 2016 communiqué. Given the scrutiny that arms sales to Saudi Arabia receive in Washington, awarding MNNA status may be

¹³³ "Annex to U.S.-Gulf Cooperation Council Camp David Joint Statement," *White House Office of the Press Secretary*, May 14, 2015, <https://www.whitehouse.gov/the-press-office/2015/05/14/annex-us-gulf-cooperation-council-camp-david-joint-statement>

¹³⁴ "United States-Gulf Cooperation Council Second Summit Leaders Communique," *White House Office of the Press Secretary*, April 21, 2016, <https://www.whitehouse.gov/the-press-office/2016/04/21/united-states-gulf-cooperation-council-second-summit-leaders-communicue>

¹³⁵ "Designation of Tunisia as a Major Non-NATO Ally," *U.S. Department of State Office of the Spokesperson*, July 10, 2015, <http://www.state.gov/r/pa/prs/ps/2015/07/244811.htm>

¹³⁶ Gayatri Oruganti, Todd Ruffner, "U.S.-Tunisia Security Cooperation: What It Means to be a Major Non-NATO Ally," *Security Assistance Monitor*, July 14, 2015, <http://www.securityassistance.org/africa/blog/us-tunisia-security-cooperation-what-it-means-be-major-non-nato-ally>

difficult politically. However, the military and reassurance value of expediting arms sales and the potential for reducing incentives for nuclear proliferation suggest that, even if difficult, it would be worthwhile to make the attempt. Consultations with Congress on MNNA status should be held early in the next administration.

8. Promote a stable regional security environment, especially the resolution of current civil wars and the reduction of Saudi-Iranian tensions.

In a Middle East less racked by conflict, incentives for acquiring nuclear weapons, both by Iran and other states of the region, would be significantly reduced.

- **Pursue a “dual-track” approach of strengthening U.S. partnerships and U.S. regional presence while seeking to reduce regional tensions and conflict.** A prerequisite to building a more stable and peaceful Middle East is instilling confidence in America’s partners that the United States is committed to their security and will maintain a formidable military and diplomatic presence in the region to reinforce the credibility of that commitment. The perception of U.S. withdrawal from the region, however inaccurate, can be destabilizing. Fear of abandonment can make U.S. partners both more insecure and more unilaterally assertive, sometimes in ways that only exacerbate regional tensions. And the impression that the United States is heading for the exits can tempt Iran to take advantage by seeking to expand its regional influence. A United States committed to maintaining a strong regional presence and to preventing any country from achieving regional hegemony will provide incentives both to the Gulf

Arabs and the Iranians to find ways of tamping down regional conflicts.

At the U.S.-GCC summit in April 2016, President Obama expressed his support for a dual-track approach: “We have to be effective in our defenses and hold Iran to account where it is acting in ways that are contrary to international rules and norms. But we also have to have the capacity to enter into a dialogue to reduce tensions and to identify ways in which the more reasonable forces inside of Iran can negotiate with the countries in the region, so that we don’t see an escalation of proxy fights across the region.”¹³⁷ GCC leaders also endorsed the dual-track concept by committing to “address Iran’s destabilizing activities, while also working to reduce regional and sectarian tensions that fuel instability.”¹³⁸

- **Seek to resolve current regional conflicts.** Internal strife throughout the region, especially the civil wars in Syria and Yemen, have provided a battleground for Saudi and Iranian proxies and even for Saudi and Iranian military forces. There are many reasons for seeking the early termination of these conflicts, not the least of which is to de-escalate regional tensions that can fuel interest in acquiring nuclear weapons. Of course, the difficulty in achieving such a result cannot be underestimated.
- **Explore the creation of an inclusive regional security forum.** In the near term, the priority should be to encourage engagement between the Iranian and Gulf Arab governments, both in multilateral forums such as the Syria talks and in discreet bilateral settings. While conflict is raging throughout the region, it is far too early to establish a regional security body. But over the longer term, especially if a modicum of stability can be brought to Syria, Iraq, and Yemen,

¹³⁷ “Remarks by President Obama in Q&A with the Press—Riyadh, Saudi Arabia,” *White House Office of the Press Secretary*, April 21, 2016, <https://www.whitehouse.gov/the-press-office/2016/04/21/remarks-president-obama-qa-press-riyadh-saudi-arabia>

¹³⁸ “United States-Gulf Cooperation Council Second Summit Leaders Communique,” *White House Office of the Press Secretary*, April 21, 2016, <https://www.whitehouse.gov/the-press-office/2016/04/21/united-states-gulf-cooperation-council-second-summit-leaders-communique>

it would be valuable to try to create a multilateral mechanism—involving all countries of the Middle East or confined to Iran and the Arab countries of the Gulf—to deal with security issues. There is a precedent for such a mechanism: the Arms Control and Regional Security (ACRS) Working Group, which functioned in the early 1990s under the auspices of the Madrid peace process. With the participation of Israel, the Palestinian Authority, most Arab governments, the United States, Russia, and several other “extra-regional powers,” ACRS was surprisingly successful in facilitating frank, substantive discussions between Israel and Arab states (most of which did not have diplomatic relations with Israel) and in setting up data exchanges and other confidence-building measures. But it was handicapped by the absence of Iran, Iraq, Syria, and Lebanon, and it eventually fell apart as a result of the inability of Egypt and Israel to come to terms on how to address nuclear issues in the region.

A working group convened by the Brookings Institution and the Atlantic Council has proposed a multilateral forum modeled on the Organization for Security and Cooperation in Europe (OSCE).¹³⁹ Initially, the organization would be limited to Iran, Iraq, the GCC countries, and key outside powers; it would be a discussion forum; and it would address only regional security issues. But over time, its membership could be broadened to include other Middle East states; it could consider confidence-building and arms control measures; and its mandate could be extended beyond security issues to economic and political matters as well (emulating the mandate of the OSCE). While such a regional mechanism is undoubtedly unrealistic in current circumstances, creating a body along these lines in the future would be an important element of a strategy for reducing the likelihood of nuclear proliferation in the Middle East.

A PROLIFERATION CASCADE? UNLIKELY, AT LEAST FOR NOW

By sharply diminishing Iran’s capacity to produce fissile material for nuclear weapons for at least 10 to 15 years, the JCPOA has reduced incentives for neighboring states to acquire nuclear weapons or at least a hedging fuel cycle capability. But it has not eliminated those incentives.

For years to come, regional states will remain uncertain about several factors affecting their security—how well the JCPOA will deter and detect any Iranian non-compliance; whether the agreement will survive compliance disputes, challenges by opponents, and leadership transitions; and whether Iran will opt for nuclear weapons when key restrictions expire after 15 years. They will also be uncertain about other factors that could motivate them to reconsider their nuclear options, especially Iran’s future behavior in the region and America’s future regional role. These uncertainties will keep concerns about proliferation alive.

But this study suggests that, at least for now, those concerns have been subdued, even if not permanently set to rest. None of the Middle East’s “likely suspects” appears both inclined and able in the foreseeable future to acquire an indigenous nuclear weapons capability.

In the years preceding the JCPOA, it had practically become the conventional wisdom that, given Iran’s nuclear program, several additional nuclear-armed states would inevitably emerge in the Middle East. That conventional wisdom has largely been discredited. But there is a risk that a more complacent conventional wisdom will take its place—that the United States no longer has to worry about a regional nuclear arms competition.

It will be essential for the United States and other interested countries—pursuing policies along the lines recommended here—to make sure that the earlier predictions of a Middle East proliferation cascade do not yet come to pass.

¹³⁹ “Security and Public Order,” *The Atlantic Council and The Brookings Institution*, February 10, 2016, pp. 36-7, <http://www.brookings.edu/-/media/research/files/reports/2016/02/me-security-public-order-pollack/security-and-public-order-report.pdf>

ABOUT THE AUTHORS

ROBERT EINHORN is a senior fellow with the Arms Control and Non-Proliferation Initiative and the Center for 21st Century Security and Intelligence, both housed within the Foreign Policy program at Brookings. During his career at the U.S. Department of State, Einhorn served as assistant secretary for nonproliferation during the Clinton administration and as the secretary of state's special advisor for nonproliferation and arms control during the Obama administration. At Brookings, Einhorn concentrates on arms control, nonproliferation and regional security issues (including Iran, the greater Middle East, South Asia, and Northeast Asia), and U.S. nuclear weapons policies.

RICHARD NEPHEW is a nonresident senior fellow in the Foreign Policy program and affiliated with the Arms Control and Non-Proliferation Initiative housed within the Center for 21st Century Security and Intelligence. He is also a senior research scholar at the Center on Global Energy Policy at Columbia University. Prior to joining academia, Nephew was a civil servant in the U.S. government, including stints at the Department of Energy, Department of State, and National Security Council. His last position in government was as the principal deputy coordinator for sanctions policy at the U.S. Department of State. In this capacity, Nephew also served as the lead sanctions expert for the U.S. team negotiating with Iran from August 2013 to December 2014.

ABOUT THE BROOKINGS ARMS CONTROL AND NON-PROLIFERATION INITIATIVE

FEW PROBLEMS POSE GREATER CHALLENGES to U.S. national security than controlling, reducing and countering the proliferation of nuclear arms. The Brookings Arms Control and Non-Proliferation Initiative brings the Institution's multidisciplinary strengths to bear on the critical challenges of arms control and nonproliferation. Housed in the Center for 21st Century Security and Intelligence in the Brookings Foreign Policy program, the initiative addresses global arms control and proliferation challenges, as well as the central negotiations between the United States and Russia.

Brookings Senior Fellow Steven Pifer directs the initiative, joined by Senior Fellow Robert Einhorn. Brookings President Strobe Talbott is actively involved in the initiative, which also draws on the expertise of a number of other Brookings experts.

Research by Brookings experts in the Arms Control and Non-Proliferation Initiative focuses on several clusters:

- nuclear arms reductions, including U.S.-Russian nuclear arms reductions, reductions of third-country nuclear forces and the challenges of moving to a non-nuclear world;
- U.S. nuclear deterrence policy in the 21st century;
- nuclear nonproliferation challenges, including ratification of the Comprehensive Nuclear-Test-Ban Treaty and entry into force, a fissile materials cut-off treaty, strengthening the Treaty on the Non-Proliferation of Nuclear Weapons, nuclear security, civil nuclear energy cooperation, regional security (Middle East, Northeast Asia, South Asia), the North Korea nuclear challenge and negotiations on the Iranian nuclear program.

The initiative supports a dialogue led by former Secretary of State Madeleine Albright, Strobe Talbott and former Russian Foreign Minister Igor Ivanov on U.S.-Russian cooperation on nuclear arms reductions and nonproliferation, which has produced joint recommendations that are shared with senior U.S. and Russian officials. The initiative also sponsors the Brookings Arms Control and Non-Proliferation Roundtable Series and public events aimed at discussing the key arms control and nonproliferation challenges of the day. The initiative produces research and policy recommendations on these issues,

including the Brookings Arms Control and Non-Proliferation Series papers.

This is the eleventh paper in that series. Previous papers are listed below; all may be downloaded at: <http://www.brookings.edu/about/projects/arms-control-nonproliferation/arms-control-series>

- #1 Resetting U.S.-Russian Leadership on Nuclear Arms Reductions and Non-Proliferation, by Steven Pifer, Joseph Cirincione and Clifford Gaddy, January 2010
- #2 Salvaging the Conventional Armed Forces in Europe Treaty Regime: Options for Washington, by Anne Witkowsky, Sherman Garnett and Jeff McCausland, March 2010
- #3 U.S. Nuclear and Extended Deterrence: Considerations and Challenges, by Steven Pifer, Richard C. Bush, Vanda Felbab-Brown, Martin S. Indyk, Michael O'Hanlon and Kenneth M. Pollack, May 2010
- #4 The Next Round: The United States and Nuclear Arms Reductions after New START, by Steven Pifer, November 2010
- #5 The U.S. Policy of Extended Deterrence in East Asia: History, Current Views and Implications, by Richard C. Bush, February 2011
- #6 The Trilateral Process: The United States, Ukraine, Russia and Nuclear Weapons, by Steven Pifer, May 2011
- #7 NATO, Nuclear Weapons and Arms Control, by Steven Pifer, July 2011
- #8 Missile Defense in Europe: Cooperation or Contention?, by Steven Pifer, May 2012
- #9 The Treaty on Intermediate-Range Nuclear Forces: History and Lessons Learned, by Avis T. Bohlen, William F. Burns, Steven Pifer and John Woodworth, December 2012
- #10 Preventing a Nuclear-Armed Iran: Requirements for a Comprehensive Nuclear Agreement, by Robert J. Einhorn, March 2014



BROOKINGS

The Brookings Institution
1775 Massachusetts Ave., NW
Washington, D.C. 20036
brookings.edu