

RESEARCH NOTES

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What Iran's Chemical Past Tells Us About Its Nuclear Future

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In response to Iraq's use of chemical weapons during the Iran-Iraq War, Iran developed a modest CW capability and often warned that it would retaliate in kind. Whether it did so remains unclear.

The history of Iran's chemical weapons program, however, offers a number of important insights into how the regime thinks about the development and use of weapons of mass destruction, and the value system and strategic culture of the Islamic Republic's senior leadership. It thus provides vital context for the current debate regarding Iran's nuclear program.

The parallels between Iran's CW and nuclear programs are striking. In both cases, Iran claimed that religious rulings prevented it from developing WMD, though in neither case did these religious prohibitions prevent it from conducting weapons development work or from actually developing a CW capability.

Moreover, although Iran developed CW production capability, officials claim it did not weaponize the agent that it produced—perhaps in the hope that this would deter further Iraqi CW attacks, without the risk or opprobrium that weaponization or use would entail. This raises the question of whether a “nonweaponized” CW deterrent (if that is actually what it had) might serve as a template for a “recessed” or “nonweaponized” Iranian nuclear deterrent posture.

Lastly, Iran eventually abandoned its CW capability prior to joining the Chemical Weapons Convention (CWC) in 1997; this raises the question of whether it would likewise be willing to eventually abandon its presumed goal of acquiring a nuclear weapons capability as part of a long-term comprehensive deal with the P5+1 (the five permanent members of the United Nations

Security Council—Britain, China, France, Russia, and the United States—plus Germany).

Origins and Development of Iran's CW Program

Iraq made extensive battlefield use of CW during the war—at first to break Iranian human wave attacks and later to facilitate offensive conventional operations. As a result, Iran devoted significant resources to developing an ability to respond in kind for purposes of deterrence and defense. After Iraq started using lethal CW agents in 1983, Iran acquired CW precursors and production equipment from Western Europe, the United States, and Japan. Following the tightening of export controls in the mid-1980s, Iran was forced to find alternative sources, including India and Syria, though West German suppliers continued to play an important role.¹

Iran acknowledges having achieved a CW production capability at two sites and having produced limited quantities of mustard (and possibly other agents) toward the end of the war. Iranian officials insist that the Islamic Republic did not weaponize the agent, did not possess a stockpile of chemical weapons, and did not use CW during the war.² By contrast, Iraq claimed that Iran used CW on a limited basis toward the war's end. While the UN investigated these claims, the results were inconclusive.³ There is no definitive proof that Iran used chemical weapons in combat, although Iranian troops may have used captured Iraqi chemical munitions—wittingly or unwittingly—against Iraqi troops during the war, or employed limited quantities of domestically produced agents on a small number of occasions, perhaps

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to test their effectiveness or to signal to Iraq that it had finally attained the ability to respond in kind.⁴

Following the war's conclusion, Iran unilaterally destroyed its CW capabilities before joining the CWC in 1997. For this reason, and because declarations by state parties to the Organisation for the Prohibition of Chemical Weapons (OPCW) are confidential, questions linger about many aspects of its program.⁵ The director-general of the OPCW addressed these lingering concerns in a December 2000 statement, which declared that there is

no reason whatsoever to question Iran's full compliance with the CWC, and that the application of verification measures in Iran is strictly in accordance with the Convention. There are no grounds for any concern or ambiguity in this regard.⁶

The U.S. government, however, has long doubted Iran's claims. It has asserted at various times that Iran manufactured and stockpiled blister, blood, and choking agents (and conducted research on nerve agents), filled mortar, rockets, artillery, and aerial bombs with some of these agents, and made limited use of CW during the war.⁷ Even after Iran joined the CWC, the U.S. government assessed that Iran continued to seek production technology, training, and expertise from abroad that could enable it to produce CW, and that it retained a CW production capability embedded in its dual-use chemical industries. In recent years, however, the United States has stepped back from many of these claims, raising questions about the credibility of its earlier assessments.⁸

During the war, Tehran launched an international campaign to publicize Baghdad's use of CW in order to mobilize pressure on Iraq to halt further use of these weapons. It likewise tried to deter further use by warning that it would eventually retaliate in kind if the attacks did not cease. (Although Iran was a signatory to the 1925 Geneva Protocol, which prohibited the use of chemical weapons, it adhered to a widely shared interpretation that the treaty did not proscribe retaliation in kind for a country that had been the target of a CW attack.⁹)

Iran's declaratory policy concerning retaliation evolved in the course of the war. At first, Iranian statements were ambiguous and contradictory; starting in 1984, Iranian officials stated that they were constrained from responding in kind because Islam prohibited the use of CW, though Iran would respond with all means at its disposal if Iraq did not cease using chemical weapons.¹⁰

But as Iran's nascent CW capabilities matured, Iranian officials eventually threatened to respond in kind. Thus, in March 1985, President Ali Khamenei announced:

We do not want to...use chemical and other weapons...but we have given our ultimatum, and we declare, here and now, that we are capable of retaliation against every action...if Iraq uses chemical weapons, we will give a firmer reply—and be sure that we will do it.¹¹

In August 1986, Majlis speaker Akbar Hashemi Rafsanjani stated that Iran had finally developed the ability to “retaliate in kind to the same level as Iraq.”¹² And in December 1987, Prime Minister Mir Hossein Mousavi told the Majlis that the Islamic Republic could produce “a variety of chemical weapons” and that “if one day Islam permits us, we will have no problems in the use and mass production of these weapons.” But, he added, Iran would not do so as “long as it is not forced to.”¹³

Mousavi issued a clarification two days later—in response to media reports interpreting his statement as a tacit admission that Iran had produced CW—saying that “the Islamic Republic is capable of manufacturing chemical weapons and possesses the technology. But we will produce them only when Islam allows us and when we are compelled to do so.”¹⁴ It is not clear why he issued this clarification, though it is possible that Tehran did not want to lose the moral high ground in its public campaign to condemn Iraq's use of CW by acknowledging that it had produced CW.

Toward the war's end, reports surfaced that Iran's Supreme Leader, Ayatollah Ruhollah Khomeini, had issued a secret fatwa forbidding the development and use of CW, purportedly because they are indiscriminate weapons that harm combatants and noncombatants alike and poison the environment.¹⁵ It is possible that the purported fatwa was kept secret because Iranian officials believed that publicizing it would undermine the deterrent value of their threats to respond in kind. Conversely, word of its existence may have been allowed to leak out in order to counter the negative impact on Iran's image of its repeated CW deterrent threats, as well as reports that it had produced CW.¹⁶

The religious logic behind the CW fatwa can be found in a 1985 book published by the Ideological-Political Directorate of the Iranian army regarding Islam and war. In a section devoted to CW, the book states that it is for-

Q: Did Iran Use CW during the Iran-Iraq War?

A: In short, we are unsure. Iraqi military officers who served on the front during the war and were interviewed following Saddam Hussein's fall claim to not know of any such instances (although they might not have been in a position to know). And accusations that Iran shared responsibility with Iraq for the gassing of the Iraqi-Kurdish town of Halabja have long since been discredited, and the incident attributed solely to Iraq.¹⁷

Toward the end of the war, UN investigators interviewed Iraqi soldiers who showed clear signs of exposure to CW agents, but they still could not conclude that Iran had used CW, since these incidents could have resulted from the blowback of Iraqi gas on friendly positions, the destruction of Iraqi CW munitions by Iranian artillery barrages, or the inadvertent release of Iraqi CW in an accident. Likewise, the investigators were shown 141 81-mm mortar rounds that the Iraqis claimed were Iranian CW munitions. While the ammunition crates they were stored in tested positive for the presence of mustard agent, tests of the contents of one of the rounds were inconclusive.¹⁸

Finally, it should be noted that several Iraqi intelligence documents captured by U.S. forces following the 2003 invasion of Iraq report small-scale use of lethal CW agents by Iran on a half dozen occasions in 1987 and 1988, as well as the capture of the 141 CW mortar rounds in spring or summer 1988 that were later examined by the UN investigators.¹⁹ Because these were highly classified internal documents intended to inform Iraqi forces of enemy capabilities, and were not intended for public consumption, they deserve greater attention than they have received to date.

bidden for Muslims to use chemical weapons to destroy people, crops, and so forth, although such weapons can be manufactured for deterrence and defense purposes. If, however, the enemies of Islam use such weapons, their use by Muslims becomes mandatory—to preserve the *umma* (Muslim community) and spare it even greater harm.²⁰

Whether or not the fatwa initially permitted the development and production of CW but not its use, or whether the fatwa was later modified to permit CW use in the face of escalating Iraqi chemical warfare, Iran did ultimately develop a chemical weapons capability during the latter phases of the war, and it declared this capability when it joined the CWC in 1997.

Specifically, Iran reportedly declared a CW production capability but not a chemical weapons stockpile—implying that it produced bulk agent, but not filled munitions.²¹ (Iran is not the only country to have done so; both Libya and Syria declared the possession of bulk agent but not weapons when they joined the CWC in 2004 and 2013, respectively. However, several hundred undeclared CW munitions were subsequently discovered in Libya in 2011 after the overthrow of Muammar Qadhafi, and there are concerns that Syria did not declare weaponized munitions that it may possess.²²) Since Iran's declaration has never been made public, in accordance with the confidentiality provisions of the CWC as well as the conditions that Iran's parliament attached to its accession to the CWC, these claims cannot be assessed.²³ The confidentiality provisions, which

were intended to encourage countries to join the CWC without fear of adverse publicity and to protect industrial trade secrets, impede independent efforts to understand Iran's CW program, thereby ensuring the primacy of Tehran's official narrative regarding its decision to develop and then eliminate its CW capabilities.

The most detailed presentation of this narrative was provided by Iran's ambassador to the UN in Geneva, Mohammad Reza Alborzi in his speech to the Third Session of the Conference of the States Parties of the Chemical Weapons Convention in November 1998:

Faced [during the Iran-Iraq War] with continued and expanding use of chemical weapons against our soldiers and civilians alike, and persistent muteness and inaction on the part of the United Nations Security Council, Iran was left with no alternative but to seek an effective means of deterrence in the hope that it could halt, or at least limit the barrage of these barbarous weapons on its people. This particularly became an absolute necessity when threats were made of chemical bombardment of the cities in the final stages of the conflict, and some indeed were carried out against civilian centers as reported by the United Nations investigating missions. In this context, the decision was made that, on a strictly limited scale capabilities should be developed to challenge the imminent threat particularly against the civilian populated centers. We declared, at the time, that Iran had chemical weapons capability, while maintaining the policy not to resort to these weapons and rely on diplomacy as the sole mechanism to stop their use

by its adversary. The war ended soon after. Following the establishment of cease-fire, the decision to develop chemical weapons capabilities was reversed and the process was terminated. It was reiterated consequently that Iran would not seek or produce chemical weapons and would accelerate its efforts to ensure early conclusion of a comprehensive and total ban under the CWC. This has continued to be my government's policy ever since.²⁴

Did Iran Use CW—and if Not, Why Not? If Iran developed a CW capability during the Iran-Iraq War for deterrence and defense purposes, why did it not use it in response to Iraq's continued chemical weapons use? And if it did use CW (as alleged by Iraq), why did it do so on such a limited basis? Was it a matter of restraint, lack of capacity, or were other factors at work? The most common reason given by Iranian officials is that Iran did not use CW due to Khomeini's fatwa banning the production and use of such means.²⁵ However, the real reason is probably more complicated than that.

Ambassadors Mohammad Reza Alborzi and Mohammad Javad Zarif (now Iran's foreign minister and the lead negotiator in the nuclear talks with the P5+1) have claimed that Iran did not use CW during the war, and gave two reasons for this in a 1999 article about Iran's CW program published in an official Ministry of Foreign Affairs journal. In the article, they stated that, in response to Iraq's continued use of CW,

Iran concluded that no other alternative was left but to resort to the only remaining means of deterrence...(especially) when threats were made against large population centers. Following extensive deliberations...the decision was made to develop a limited deterring [*sic*] capability. Iran declared at the time through then Prime Minister Moosavi that it possessed chemical weapons capability. Notwithstanding this new capability, [the] Iranian religious leadership found it very difficult to condone the use of these weapons, even as reprisal. Furthermore, Iran's relatively primitive locally developed capabilities were no match for the very advanced chemical warfare machine of Iraq, which benefited from decades of Western technology and experimentation. Thus the policy not to resort to these weapons and instead to rely on diplomatic means to prohibit them globally and stop their use by Iraq was...actively pursued. Soon after, the war ended...Iran ceased the difficult and costly mass production of chemical weapons.²⁶

It is worth noting that Alborzi and Zarif acknowledge that Iran was engaged in the "mass production of chemical weapons," although it is not clear from the context whether this meant Iran was producing bulk agent, or filled munitions as well. Their acknowledgment of Iran's limited capabilities could be a tacit acknowledgment that Iran had not succeeded in weaponizing its agent, or that it had done so but lacked sufficient stockpiles to make a difference.

Iraq's experience is instructive here. Its early CW were based on conventional munitions procured abroad that were converted to chemical munitions. From 1981 to 1984, Iraq purchased 40,000 artillery shells and 7,500 shell casings from various countries, which it modified for use with CW. It subsequently reverse-engineered these munitions and produced them domestically, showing that if safety, reliability, and battlefield effectiveness are not high priorities, weaponizing mustard is fairly easy.²⁷ It is possible that Iran had not located a source of suitable munitions for this purpose, or that it was in the process of modifying conventional munitions for use with CW when the war ended. This may be why Supreme Leader Ali Khamenei was able to claim in a 2003 speech that "even when Iraq attacked us by chemical weapons, we did not produce chemical weapons."²⁸

Journalist Baqer Moin, in his biography of Ayatollah Khomeini, provides yet another explanation for Iran's possible decision to not use CW: with the collapse of the war effort and morale in May and June 1988, the Islamic Revolutionary Guard Corps (IRGC) tried to convince Khomeini to authorize CW use, but Majlis speaker and acting commander-in-chief of the armed forces Akbar Hashemi Rafsanjani persuaded him not to do so, because of Iraq's ability to retaliate massively:

In desperation, the Revolutionary Guard proposed that Iran should use its own chemical weapons in response to their deployment by the Iraqis. Khomeini had, however, been convinced by Rafsanjani that such a move would provoke more missile attacks, possibly with chemical warheads, against the already demoralized citizens of Tehran.²⁹

If Moin's account is accurate, it would imply that by the end of the war, Iran had an operational CW capability but declined to use it for policy reasons. Indeed, during the final "War of the Cities" in February–April 1988, about a quarter of Tehran's population had fled the city

for the safety of the countryside to avoid the almost daily missile strikes.³⁰ The conventional bombardment of Tehran was exacting a toll, and Iranian officials apparently feared that if they provoked Iraq into mounting chemical warheads on these missiles, the impact on civilian morale would be devastating.

And finally, it is possible that Tehran produced and employed small numbers of chemical munitions to send a message to Iraq and give teeth to its deterrent warnings without incurring the risk of massive retaliation and international opprobrium that more widespread use would have invited.

In sum, there are several possible explanations for Iran's (non)use of CW during the Iran-Iraq War: (1) Iran produced bulk agent but did not weaponize it, for religious or policy reasons, or because it lacked the ability to do so; (2) Iran produced bulk agent and small numbers of munitions, which it did not use due to fear of massive retaliation; or (3) Iran produced bulk agent and small numbers of munitions, which it used on a limited basis, because that was all it was capable of doing, or because it wanted to add teeth to its deterrent threats without incurring the downsides that more widespread use would have entailed. All that can be said with certainty is that Iran's CW program failed to deter Iraqi CW use, and that the war ended before Iran's CW program had matured to a point where it could make a difference on the battlefield.

Iranian Retaliation during the 'War of the Cities.' Given the lack of reliable independent accounts regarding Iranian CW decisionmaking during the Iran-Iraq War, an examination of the factors at work in similar situations would be useful. Accounts of Iran's decision to retaliate in kind for Iraqi air and missile strikes during the war provide particularly useful insights in this regard.

From the outset of the war, Iraq conducted intermittent air and missile strikes on Iranian cities, and Iran responded with airstrikes (since at first it lacked rockets or missiles). The situation became acute, however, when Iraq launched an intense air and missile campaign against Iranian cities in February 1984—the first “War of the Cities”—sparking a debate in Iran on how to respond. Iran opted to respond in kind with airstrikes—and it launched its first missile strike on Iraq in March 1985, after acquiring its first Scud B missiles from Libya. However, due to religious concerns

about collateral damage, and perhaps political concerns about alienating Iraqi Shiites whom they still hoped would rise up against the Baathist regime, Iranian leaders made a practice of announcing the attacks a day in advance on Arabic radio, giving residents of those cities time to evacuate. This may also have been because Iraq had sometimes given prior notice of attacks on cities, and Iran did not want to be seen doing anything less. In a 2008 interview, Hassan Rouhani, now Iran's president, shed light on the debates that led up to this decision:

The debate began in the year 1363 [1984] in order to address Iraqi air attacks on our cities. Iraq was hitting our cities, but we did not retaliate because we had problems from a religious/legal (*shari'*) perspective. The question was, what do we do for deterrence? When Iraq invaded our cities and weakened our home front, we had obstacles in preventing them. We realized that we required a response and answer. Mr. Hashemi Rafsanjani researched this issue and raised it with the Imam (Khomeini). The Imam said that you can do so (retaliate) on the condition that you announce/declare it on the radio and tell at what time you will attack, so the people do not suffer in the city. And so it was done through the means of Arabic radio, and announced that tomorrow that in retaliation for Iraq's attack on a particular city, Kirkuk or Mosul or Basra will be attacked.³¹

In these broadcast warnings, Iran often took pains to explain that it was targeting only military and economic sites in the cities it had selected for retaliation, and that residents living near such targets or in those cities should evacuate.³² These air and missile strikes were not very accurate, and they often caused significant collateral damage. Indeed, a comprehensive survey of official announcements during the war showed that Iran fired roughly 320 Oghab rockets and 120 Scud B missiles against targets in Iraqi cities and towns, killing and wounding more than a thousand civilians.³³ (This figure does not include Iraqi civilian casualties caused by Iranian air strikes.)

Thus, military necessity trumped all other considerations for Iran when it came to undertaking retaliatory strikes. And while it would be wrong to dismiss Iran's attempts to warn Iraqi civilians as merely a pro forma gesture, it seems that the near certainty of widespread collateral damage did not, in the end, deter Iran from acting. This conclusion would also seem to indicate that if Iran

had the ability to deliver CW, it would have done so, and that nonuse in these circumstances would probably be due to operational or policy considerations. While moral-religious considerations might have framed the internal debate about CW use, it seems likely that operational and policy considerations were the decisive factors.

Reports of CW Munitions Transfers to Libya. An interesting sidelight to this discussion concerns media and U.S. government reports that Iran provided Libya with chemical weapons in mid-to-late 1987 for use in Chad—perhaps to test their effectiveness in combat—in return for naval mines or Scud B missiles needed by Iran for its war with Iraq.³⁴ (Captured Iraqi intelligence documents mention such a swap, citing Egyptian intelligence as their source.³⁵) While these claims have never been substantiated, they would, if true, suggest that Iran possessed not only a CW production capability but also munitions that could be used to deliver CW. Reports that munitions filled with mustard agent found in Libya in 2011 were originally from Iran underscore the need for additional research on this matter, and this remains a source of concern to the U.S. government.³⁶

Decision to Eliminate CW. After the war, the Islamic Republic unilaterally “terminated” its chemical weapons capability and signed on to the Chemical Weapons Convention. This decision was likely influenced by several factors: First, the elimination of Iraq’s CW program following the 1991 Gulf War put an end to the threat that had driven its own CW program—which had proven to be of limited deterrence value anyway. Second, signing the CWC was essential if Iran were to develop its industrial potential and become a regional power. Third, adherence to the CWC would enhance the legitimacy of Iran’s nuclear program, which was much more important to the country’s efforts to transform itself into a regional power. And finally, this step would burnish Iran’s image as a good international citizen. President Rouhani has described some of these considerations in his memoirs:

We agreed to accept the Chemical Convention...[for the sake of] development, because industry officials believed that if we did not accept this convention, the import of many chemical substances needed...would be prohibited and we would have problems in the chemical industry. They were saying in that case we would not even be able to produce insecticide....Iran’s Islamic system is fundamentally opposed to chemi-

cal weapons, especially because Iran was a victim of chemical weapons in the imposed war. We therefore accepted the Chemical Convention after detailed discussions because for a nation that is not seeking chemical weapons, there was no reason not to.³⁷

Undoubtedly, some Iranian officials had reservations about Iran’s joining the CWC; after all, shortly after the Iran-Iraq War, Majlis speaker and acting commander-in-chief of the armed forces Rafsanjani dismissed the importance of arms control agreements, famously stating that

chemical and biological weapons are [a] poor man’s atomic bombs and can easily be produced. We should at least consider them for our defense. Although the use of such weapons is inhuman, the war taught us that international laws are only drops of ink on paper.³⁸

And in April 1998, IRGC commander Yahya Rahim Safavi asked rhetorically, in a closed-door speech to IRGC commanders:

Can we withstand American threats and domineering attitude with a policy of detente? Can we foil dangers coming from America through dialogue between civilizations? Will we be able to protect the Islamic Republic from international Zionism by signing conventions banning the proliferation of chemical and nuclear weapons?³⁹

Notwithstanding the reservations of certain key officials, those advocating membership in the CWC ultimately prevailed.

However, because Iran unilaterally destroyed its CW capability before joining the CWC, because of the CWC’s confidentiality provisions, and because Iran has not been fully responsive to U.S. requests for clarification, questions about its program remain. Thus, in a 2011 arms control treaty compliance report, the U.S. Department of State declared as follows:

Based on available information, the United States cannot certify whether Iran has met its chemical weapons production facility (CWPF) declaration obligations, destroyed its specialized chemical weapons (CW) equipment, transferred CW, or retained an undeclared CW stockpile....The United States does not have sufficient information to be certain that some Iranian facilities are involved in or intentionally retain the capability to produce CW agents, and likewise we possess insufficient information about the disposition of specialized CW equipment

used in former CWPFs. The United States also has insufficient information about possible CW activity prior to EIF [Entry into Force] of the Convention. There are reports that Iran transferred CW munitions to Libya in the late 1980s.⁴⁰

Iran's Chemical Legacy. Tehran stood virtually alone against Baghdad during the Iran-Iraq War. Its strategic loneliness was heightened by the apathetic international response to Iraq's use of chemical weapons—an experience that left deep scars on the Iranian national psyche that remain today. According to Iraq, in the course of the war with Iran, it used some 2,540 tons of agent delivered in 101,000 munitions.⁴¹ More than 5,000 Iranians were killed and 100,000 injured in chemical attacks—which equates to only about 2 percent of those Iranians killed but a significant percentage of those wounded in the war. Some 32,000 Iranians reportedly continue to suffer from the physical and psychological effects of CW exposure.⁴²

Tehran's perception that the United States (and “the West”) had abetted Baghdad's development of CW and enabled its use by failing to condemn Iraq confirmed the view held by many Iranian officials of the United States as the embodiment of evil, as manifested by the genocide of Native Americans, the enslavement of Africans, the dropping of the atomic bomb during World War II on Hiroshima and Nagasaki, the Vietnam War, and Washington's support for the shah. It also reinforced feelings of victimhood rooted in the Shiite narrative of injustice and suffering and Iran's historic victimization at the hands of the Great Powers, which has profoundly influenced the Islamic Republic's stance toward its nuclear program and negotiations with the P5+1.

Iran's CW Program: Lessons for Its Nuclear Program?

Not unlike Iran's CW program, many of the basic facts about Iran's nuclear program remain shrouded in uncertainty—though what is known about Tehran's past CW activities provides important insights that may help explain elements of its current nuclear strategy.

Iran's nuclear program was first started by the shah in the 1960s, but the 1979 Islamic revolution brought these efforts to an abrupt halt. The Islamic Republic of Iran started its own nuclear program in 1985 at the height of the Iran-Iraq War. It is likely that wartime exigencies drove the decision to revive the nuclear program—just as they drove the decision to establish the

CW program.⁴³ The reason a country starts a nuclear program, however, may not be the reason it continues with it. For Iran, the reasons for continuing its nuclear program after the Iran-Iraq War likely derived from a desire to:

- avoid a repeat of the kind of deterrence failure that led to the eight-year war with Iraq, and defend against potential threats from nuclear-armed adversaries;
- achieve self-reliance in all areas of national life—a value central to the ethos of the Islamic Revolution and a necessity for a “strategically lonely” state with few, if any, reliable allies; and
- project influence throughout the Middle East and beyond, burnish its image as a defender of Muslim honor, and challenge “global arrogance” (U.S. power).⁴⁴

Iran's CW program was a wartime crash effort to create a tactical capability to counter Iraq's CW program. By contrast, its nuclear program is a slow-motion effort (no other program has gone on for so long without producing a device or a weapon) to create a nuclear weapons option, and thereby transform itself into a regional power.

The extraordinarily slow pace of the program can be attributed to delays caused by export controls in supplier states, shortages of skilled manpower and raw materials, technology bottlenecks, sabotage, diplomatic efforts to slow Iran's nuclear progress, and a strategic culture that values patience, and operates on a very long time horizon. But it is also likely the product of a variety of policy considerations: an incremental go-slow approach calculated to avoid rousing its enemies to action, concerns about the potential risks and costs that a nuclear breakout would entail, and differences among the regime's leadership due to uncertainty regarding its near-term and long-term nuclear objectives.

Iran's weapons research and development work (as documented by the International Atomic Energy Agency) and its construction of a secret underground enrichment facility at Natanz (before its existence was exposed in 2002) suggest that Iran was originally pursuing a clandestine parallel nuclear program—although to what end is not clear.⁴⁵ The scope of the initial effort was startling: Iran was building a massive facility at Natanz capable of accommodating 50,000 centrifuges—sized,

ostensibly, to fuel the nuclear power plant at Bushehr but also capable of producing sufficient enriched uranium for twenty-five to thirty weapons a year with its first-generation centrifuges.⁴⁶

The objective of its clandestine parallel program, however, remains unclear. Was it to create a “recessed deterrent,” consisting of large quantities of high-enriched uranium at dispersed sites that could have been used to manufacture a small nuclear arsenal in a number of months in the event of a crisis or war?⁴⁷ Was it to create a “nonweaponized deterrent” consisting of unassembled nuclear weapons kept separate from their associated delivery systems that could have been rapidly assembled and mated should the need emerge to hastily create an operational nuclear force?⁴⁸ Or would Tehran have secretly built a ready stockpile of nuclear weapons if it could have done so without getting caught, unveiling this capability only in case of crisis or war (just as South Africa had secretly produced a half dozen nuclear devices by the late 1980s, which it intended to keep under wraps until needed)? It is impossible to say—and perhaps Iran’s senior leadership did not have a clear plan.⁴⁹

Iran subsequently tried to build another secret underground enrichment facility at Fordow—which was much smaller and therefore more appropriate for clandestine production—whose existence was revealed by Iran in 2009 when it learned that the United States knew of the site and was preparing to publicize its existence. Twice burned, Tehran may have concluded that a parallel clandestine program was not a viable option at this time, though there are indications that some weapons research and development work continued.⁵⁰ But there are no discernible signs that Tehran is building additional clandestine facilities elsewhere at this time, despite declaring in November 2009 that it would build ten more underground facilities like that at Fordow.⁵¹ Indeed, it would be the height of folly for it to do so while high-stakes negotiations with the P5+1 are under way—though, in fact, Iran commenced construction of Fordow during an earlier round of negotiations with the P5+1.

So, what are Tehran’s options? Right now, it has agreed to cap its declared nuclear program in accordance with the Joint Plan of Action it concluded with the P5+1 in November 2013. If, building on this plan, Iran could have its status as a nuclear threshold state confirmed and

legitimized in a long-term comprehensive deal with the P5+1 that allows it to continue producing and stockpiling limited amounts of fissile material and to continue fuel-cycle-related research and development work, it might be content to live with this new status quo for many years. This would provide Iran with a virtual nuclear deterrent, since the United States and others would tread lightly whenever tensions flared with Iran, lest it attempt a nuclear breakout. This option would also confer on Tehran many of the benefits of being a nuclear weapons state, without the associated risks and costs. And the breakout capability that such an agreement would provide might assuage the concerns of at least some Iranian hardliners who would have preferred an unconstrained program that could be rapidly reconfigured to produce nuclear weapons.

If a long-term agreement with the P5+1 proves unattainable, however, Iran might resume its efforts to incrementally expand and upgrade its nuclear infrastructure and its production of fissile materials (enriched uranium and, eventually, plutonium) in order to create an infrastructure so vast, dispersed, and hardened that an effective conventional preventive strike by Israel or the United States would no longer be possible. Iran would then be a nuclear threshold state with a bombproof breakout capability.

Iran could then try to resurrect once again its clandestine parallel program with the aim of acquiring the bomb in secret if it assessed that it could do so without being caught. Or it could follow in the footsteps of North Korea and withdraw from the Nuclear Nonproliferation Treaty (NPT) if it determined that “extraordinary events” had “jeopardized” its “supreme interests,” as specified in Article X of the treaty. At that point, it would be free to acquire nuclear weapons, though it would likely pay a high political, economic, and perhaps military price for doing so.

In any case, Tehran wants to be in a position where the matter of whether or not it gets the bomb will reflect its own sovereign choice. This likely explains Ayatollah Khamenei’s statement from early 2013: “We believe nuclear arms must be eliminated and we don’t want to build nuclear arms. But if we did not believe this and decided to have nuclear arms, no power could stand in our way.”⁵² Time will tell whether this will prove to be the case, or whether the perception of Iranian sov-

oreign choice in nuclear matters is an illusion. At any rate, a number of considerations—grounded in religion, policy, and identity politics—will influence Iran's nuclear decision calculus.

Religion, Morality, and the Nuclear Fatwa. Just as Iranian officials claimed during the early years of the Iran-Iraq War that Iran would not develop or use CW for religious reasons (and that Ayatollah Khomeini had issued a fatwa to that effect), in recent years they have claimed that Iran would never develop or use nuclear weapons (and that Ayatollah Khamenei had likewise issued a fatwa to that effect).

Since at least the early 1990s Khamenei has repeatedly insisted that Iran had no intention of acquiring nuclear weapons or WMD, although it was not until October 2003 that he reportedly issued an oral fatwa declaring nuclear weapons *haram* (forbidden according to Islam).⁵³ Curiously, the original statement is not to be found on his website, although he has repeated the ban many times since then, and these later statements can be found there.⁵⁴ An oral decree has the same legal standing as a written fatwa in Shia Islam.⁵⁵

The variety of forms that these statements take is curious. Sometimes Khamenei states that the “production” of nuclear weapons is prohibited, other times it is the “manufacture and use,” and still other times only the “use.” It is not clear whether these variations are significant, although he is more likely to mention the ban on the “production” or “manufacture and use” when meeting with foreign visitors or when the context makes it more likely that his statements will attract foreign attention.⁵⁶ Furthermore, Khamenei often mixes nonreligious and religious terminology when discussing this matter. Thus, he may proclaim that “developing nuclear weapons is unlawful,” that having nuclear weapons “is futile and dangerous,” and that using nuclear weapons is “prohibited” (*haram*) and “a big sin”—and, for these reasons, Iran “will never go after them.”⁵⁷

That the nuclear fatwa was first issued in October 2003 is almost certainly *not* a coincidence. Coming in the aftermath of embarrassing revelations in August 2002 regarding Iran's secret underground enrichment plant at Natanz and at around the time it concluded an agreement with the EU-3 (Britain, France, and Germany) committing Iran to resolve all outstanding ques-

tions regarding its nuclear program, it is hard to avoid the conclusion that there were large elements of damage control and attempts at confidence building involved in the effort to publicize the fatwa.

Moreover, in considering what significance to assign Khamenei's pronouncements on the matter, it should be kept in mind that fatwas are not immutable and can be altered in response to changing circumstances. Thus, Ayatollah Khomeini, the founder of the Islamic Republic, modified his position on a number of issues during his lifetime: taxes, military conscription, women's suffrage, monarchy as a form of government, and apparently even chemical weapons. And Ayatollah Khamenei could likewise alter his fatwa regarding nuclear weapons should he deem it necessary.⁵⁸

Further confusing matters is the habit of Iranian spokespersons of proffering self-serving explanations regarding the policy significance of the Supreme Leader's fatwas. Thus, Iranian officials characterized Ayatollah Khomeini's 1989 fatwa calling for the killing of British author Salman Rushdie as a private opinion that was *not* binding on the government, as part of their effort to undo the damage that the fatwa had inflicted on ties with Europe. More recently, officials responsible for explaining Iran's nuclear policy to the world claimed that Ayatollah Khamenei's 2003 nuclear fatwa is a religious decree that *is* binding on the government.⁵⁹

In fact, Khamenei is the principle decider on matters of government policy. It is the principle of *maslahat-e nezam* (expediency or interest of the regime), and not religious dogma, that ultimately guides the formulation of Iranian policy, and the Supreme Leader is invested by the Iranian constitution with absolute authority to determine the regime's interest. Thus, he can cancel laws or override decisions by the regime's various deliberative bodies (the parliament/Majlis, the Guardian Council, and the Expediency Council) if he decides to do so. And if the Supreme Leader decided such a measure were expedient, Iran could develop, stockpile, and even use nuclear weapons.⁶⁰ Whether he would do so is another matter, as such a decision could entail significant downsides (discussed shortly).

Despite a history of speaking out against nuclear weapons, a dramatic public reversal by Khamenei on this topic—especially during a time of crisis or war—would likely be seen by many Iranians as a justifiable about-face.

And while most Iranians would probably assess the efficacy of such a move in practical terms, Khamenei would not have to look hard to find a religious justification should he desire to do so. For while his nuclear fatwa is broadly consistent with a corpus of Islamic rulings that forbid indiscriminate weapons that are apt to kill non-combatants, destroy crops and livestock, and poison the environment, many traditional Shiite sources and many prominent Shiite jurists who are close to the regime believe the ban on such weapons is, in effect, conditional. Thus, they believe that Islam permits the acquisition of nuclear weapons to deter and defend against an enemy that possesses nuclear weapons, and allows the use of nuclear weapons against enemy military forces on the battlefield and, in extremis, against civilians—if that is what is required to prevail in a war with nonbelievers.⁶¹

So, just as moral and religious considerations did not prevent Iran from developing a chemical warfare capability—and perhaps using CW—they would not prevent Iran from developing a nuclear weapons capability, or using nuclear weapons if the interests of the system so required. However, religious considerations might influence how Iran would use nuclear weapons. Just as Iran provided advance warning of air and missile strikes on Iraqi cities during the Iran-Iraq War, Iran might try to restrict the use of nuclear weapons to enemy forces on the battlefield, if at all possible, in order to minimize noncombatant losses—at least when Muslim civilians were at risk. But even this threshold could be crossed if need be. This conclusion has important implications for U.S. nuclear contingency planning in the Persian Gulf.

It also has important implications for Israel. Iran has traditionally preferred to talk tough and act with caution toward Israel, working through proxies whenever possible, due to the latter's robust conventional and nonconventional military capabilities. However, Iran's support for terrorist groups that routinely target civilians, as well as a number of statements by Iranian officials, would seem to indicate that there are no moral or religious constraints when it comes to targeting Israeli civilians. For instance, in a December 2001 Friday prayer sermon, Akbar Hashemi Rafsanjani stated:

If one day, the Islamic world is also equipped with weapons like those that Israel possesses now, then the strategy of global arrogance will reach a stand-

still because the use of even one nuclear bomb inside Israel will destroy everything. However, it will only harm the Islamic world. It is not irrational to contemplate such an eventuality.⁶²

Iranian officials have recently made a number of similar statements threatening the destruction of Israel by military means, though without explicitly referring to nuclear weapons. Thus, IRGC deputy commander Brig. Gen. Hossein Salami recently warned that “Islam has given us the wish, capacity and power to destroy the Zionist regime,” adding that “today, we can destroy every spot which is under the Zionist regime's control... right from here” and that “our hands will remain on the trigger from 1,400 km away [awaiting] that day.”⁶³ Of course, this statement begs the question of how an Iran with only conventionally armed missiles might destroy an Israel possessing one to two hundred nuclear weapons without itself being destroyed.

Similarly, in his 2013 Nowruz speech, Supreme Leader Khamenei threatened to destroy the cities of Tel Aviv and Haifa if Israel launched a preventive strike against Iran's nuclear infrastructure—a threat subsequently repeated by other officials.⁶⁴ This threat departs from Iran's approach to retaliation during the Iran-Iraq War in two respects: First, rather than a proportional in-kind response, it promises a massive response. Second, there is no pretense of limiting the response to military and economic targets—rather entire cities, and their residents, will be targeted. This would seem to indicate that the kinds of restraints that shaped Iranian conduct when retaliating against Iraq—a neighboring state with a Muslim, and majority Shiite, population—would not hold with regard to Israel.

It should be recalled, however, that just as Iran might have been deterred from retaliating in kind for Iraqi CW attacks by the threat of massive retaliation, its nuclear calculus vis-à-vis Israel will surely be much influenced by the latter's ability to visit truly horrific destruction on Iran—although the psychological environment created by the kind of loose talk cited above could heighten the potential for miscalculation during a crisis.⁶⁵

Policy Considerations and Nuclear Restraint. Powerful drivers have caused Iran to invest significant resources in its nuclear program, despite the considerable political and economic costs it has incurred for doing so. These

include its desire to strengthen deterrence and defense, to enhance self-sufficiency, and to increase power, prestige, and influence.

Yet, for many years, senior Iranian officials, including Supreme Leader Khamenei and President Rouhani, have insisted that Iran would never produce nuclear weapons because—in addition to the aforementioned religious and moral reasons—to do so would be contrary to its interests. Producing nuclear weapons, according to this thinking, would trigger a nuclear arms race in the region; lead to even-more-onerous sanctions and political isolation; and hinder access to the technology required for Iran's emergence as an advanced nation capable of competing with the West. And victory in nuclear war would be impossible—especially since the United States would ensure that Israel retained escalation dominance. Moreover, nuclear weapons possession could not ensure the survival of the Islamic Republic—just as it did not ensure the survival of the Soviet Union. Finally, even without nuclear weapons, Iran has repeatedly foiled American design.⁶⁶

Recently, Iranian military officials have begun speaking up on this issue, arguing that nuclear weapons have little utility for either Iran or the United States. Thus, IRGC Aerospace Force commander Brig. Gen. Amir Ali Hajizadeh recently stated:

Today, the [decision of whether to] use nuclear weapons or not is a complex issue. Perhaps, there was a time when these bombs could be used as a deterrent, but now they have no potential in this regard. Intellectually there is no way to make use of these weapons, because of their high costs, and the damage [they cause], which affects all. Also, in the manner of our warfare [they have no place], neither in our methods nor tactics.⁶⁷

IRGC commander Maj. Gen. Mohammad Ali Jafari has likewise dismissed the utility of the U.S. nuclear arsenal, responding as follows to a question during a recent public appearance regarding whether Iran could defend itself from a nuclear strike:

Preventing an atomic attack is not possible, but of course [Iran's enemies] would not make this error. The capabilities created in Iran and many points of the world to respond to any type of military action against Iran are very great and [serve as a] deterrent. The atomic threat is a ridiculous threat.⁶⁸

While it should not be a surprise that public statements

by senior military officers on such a sensitive matter would toe the regime's line, it is also possible that they accurately represent the thinking of some members of Iran's military. After all, there is growing sentiment among former American policymakers that nuclear weapons are dangerous and lack political and military utility.⁶⁹ But just as Washington has yet to abandon its nuclear stockpile despite this growing sentiment, this line of reasoning might not be sufficient to dissuade Tehran from attempting to get the bomb, since it might be motivated to do so for a variety of reasons beyond security—such as the pursuit of honor and status, or the desire for power, prestige, and influence.

And it would be a mistake to assume that these statements represent the full range of opinion on this matter in the Iranian military. In the past, some senior officers have made statements that appear to support the acquisition of nuclear weapons, and Iran has previously engaged in weapons R&D work toward this goal.⁷⁰ Nonetheless, evidence of such reasoning is an interesting development that could influence Iran's nuclear calculus.

Honor, Status, and Reciprocity. Tehran's pursuit of honor and status and the resultant insistence on reciprocity in its relations with other states will weigh heavily on Iran as it considers a decision to acquire nuclear weapons. Iran always insists that peaceful interactions with other countries be based on "mutual respect," while it has often declared that, in response to hostile acts, it will match "threat with threat" and respond proportionally and in kind.⁷¹ Thus, during the war with Iraq, Iran answered Saddam Hussein's "Tanker War" as well as air raids and missile strikes on Tehran with attacks on shipping and air and missile strikes on Iraqi cities, to include, eventually, Baghdad. Likewise, it answered Iraq's use of chemical weapons with its own CW program and with threats to retaliate in kind. Furthermore, during the war and since, Iran has repeatedly warned that if it cannot export oil from the Gulf as a result of a blockade or sanctions, then none of its neighbors will either.⁷²

Iran has also demonstrated that it desires the full range of military capabilities possessed by the Great Powers. Thus, it has with great fanfare claimed to have developed advanced precision munitions, armed UAVs, stealth fighters, and space satellites, and it has

announced plans to build aircraft carriers and to send men into space.⁷³ And just as U.S. ships regularly patrol the waters of the Persian Gulf off its coast, Iran has announced its intention of sending naval vessels to ply the waters off the coast of the United States.⁷⁴

This insistence on reciprocity is rooted in the Islamic Republic's identity and worldview: the Shiite commitment to fighting "injustice," a desire to avoid repetition of Iran's past national humiliations at the hands of the Great Powers, and the rejection of double standards rooted in a "third-worldist" strand in the regime's ideology. As Iran's leadership sees it, to seek less would be to signal acceptance of second-class status unbefitting a revolutionary regime that sees itself as the guardian of Muslim honor and the modern heir of one of the world's great empires. It is clear that many senior decisionmakers believe the country's nuclear program is a key to defining Iran's place in the world, its future as a rising power, and its ability to deal with the West from a position of strength.

This point is brought home by an infographic posted on Supreme Leader Khamenei's website, which, drawing on Khamenei's speeches over the past decade, identifies a dozen major achievements of Iran's policy of "nuclear resistance." Only two pertain to the usual justifications for Iran's nuclear program: the production of electricity and the freeing of Iranian oil production for export. The remaining ten describe how the nuclear program has contributed to Iran's independence, enabled it to resist alleged efforts by the West to keep Muslims weak and backward, and enhanced the Islamic Republic's power, prestige, and influence.⁷⁵ So, just as Iran once acquired chemical weapons to counter Iraq's CW capabilities, Iran may be tempted to acquire nuclear weapons in order to deal with the United States and other Great Powers as equals—at least in symbolic terms.

Nuclear Technology and Weapons Transfers. Unresolved reports that Iran sent CW to Libya in the 1980s beg the question of whether Iran might provide dual-use nuclear technology to other states, or nuclear weapons to nonstate actors. Nearly every nuclear weapons program has spawned spin-offs: the United States assisted Britain and France once they got the bomb, and thanks to intelligence penetrations, Washington inadvertently contributed to the Soviet nuclear program; the Soviet

Union assisted China; China assisted Pakistan; Pakistan's Abdul Qadir Khan assisted North Korea, Iran, and Libya; North Korea assisted Syria; and France assisted Israel. In some cases, the proliferator was motivated by a desire to assist an ally; in other cases, by a desire to harm a rival or enemy.

Iran has already stated its readiness to help other Muslim-majority states acquire "peaceful nuclear technology,"⁷⁶ and its technological base is sufficiently advanced that it could become a supplier of dual-use civilian nuclear technology to aspiring proliferators or even to established proliferators such as North Korea—which has a fledgling centrifuge enrichment program of its own. As for whether Iran would be willing to incur the many risks involved in the transfer of a nuclear device to another state or a nonstate actor, the past provides no insight in this regard. As noted earlier, it is still not certain whether Iran transferred CW to Libya in the 1980s. And at any rate, it is probably not relevant to compare the transfer of tactical CW munitions with nuclear weapons that could cause widespread devastation.

A Diplomatic Deal? Having given up its chemical weapons capability in the early 1990s, would Iran be willing to give up its nuclear weapons capability as well? Due to its experience during the Iran-Iraq War, Tehran strongly supported the creation of the CWC, and it likely hoped that by giving up its CW capability it would gain international legitimacy for its nuclear program. Thus, Iran insists that its membership in the NPT confers on it an "inalienable right" to enrichment, which provides it with a de facto nuclear breakout capability. Iran is unlikely to give up those aspects of the nuclear fuel cycle that it claims are implicitly permitted under the NPT and that make it a nuclear threshold state—namely: dual-use fissile material production facilities and stockpiles of fissile material. In effect, Iran hopes that a long-term comprehensive deal with the P5+1 will confirm and legitimize its status as a nuclear threshold state. The deal that it may be willing to "do," at this time, is to accept limits and constraints that would burden its path to becoming a nuclear weapons state. That proposition will be tested in the coming months in negotiations with the P5+1.

Conclusions

Iran's CW and nuclear programs were created to serve very different purposes. The former was an attempt to develop a niche deterrent capability in wartime to counter a specific enemy battlefield capability. Once the war ended and the threat abated with the UN's elimination of Iraq's CW program, the need for a CW deterrent disappeared. By contrast, Iran's nuclear program is a dual-use prestige project that was established to provide Iran with a nuclear weapons option; it has become central to the regime's self-image and identity, its perception of Iran's place in the world, and its ambitions to transform the Islamic Republic into a regional power. Nevertheless, studying Iran's efforts to create a CW deterrent during the Iran-Iraq War can provide context regarding Iran's nuclear program.

Islam and WMD. Iran's most senior postrevolution clerical leaders—Ayatollahs Khomeini and Khamenei—seem to have entertained genuine moral qualms about chemical and nuclear weapons, due to the indiscriminate and potentially catastrophic nature of the harm they can inflict. That individuals who can visit the harshest cruelties on political dissidents, religious minorities, or other “enemies of God” could still be troubled by moral concerns may seem strange, but it should come as no surprise. History is replete with examples of selective morality.

From a policy perspective, the regime's moral logic could create opportunities (however slim) to influence Iran's calculus regarding the development, stockpiling, deployment, or use of nuclear weapons. That Iran did create a CW capability and appears to have undertaken nuclear weapons design work *despite* such moral qualms underscores the subordination of religious values to the interests of the regime and the nation. So, while religion may frame the debate, it does not decide it. Hence, Tehran's renunciation of nuclear weapons, even if framed in religious terms, is no substitute for robust monitoring of any nuclear agreement with Iran.

Deterrence. Iran's CW program was created to serve a narrow tactical purpose—to deter Iraqi use of CW—and in this regard, it failed. What lessons did Iran derive from this experience? Did it conclude that the mere threat of in-kind retaliation (or even limited use—if that is indeed what occurred) is not sufficient to deter a determined adversary? Or are nuclear weapons so dif-

ferent from CW, and the potential costs of nuclear miscalculation so high, that uncertainties about Iran's actual nuclear capabilities would be sufficient to deter potential adversaries? If so, would Iran regard a “recessed” or “nonweaponized” nuclear deterrent as a viable, long-term posture? Or would Iran feel compelled to create and test a nuclear device, in order to eliminate any uncertainty regarding its capabilities and to ensure the efficacy of its nuclear deterrent? The past provides little to go on here, and this topic demands more research.

Signals and Messaging: Reading Tehran in Washington.

One key lesson from Iran's CW experience is the degree to which statements by Iranian government officials were unreliable indicators of Iran's actual capabilities and intentions, often overstating the former and misrepresenting the latter. Thus, for instance, Iranian officials claimed that the Islamic Republic had the ability to respond in kind to Iranian CW attacks shortly after the CW program was established, and threatened to do so if Iraqi CW attacks continued. In fact, if Iran ever had such a capability, it probably was not until relatively late in the war.

The challenge of assessing Tehran's capabilities and intentions remains today, as many Iranian statements reflect a preoccupation with spin and a tendency to respond to the needs of the moment—whether to impress an audience, create an effect, or save face. This could complicate future U.S. efforts to assess Iranian capabilities and intentions, differentiate “signals” from “noise,” and create a stable deterrent relationship with Iran.⁷⁷ Furthermore, threats by Iranian officials to eliminate Israel contribute to a psychological environment that could make miscalculation more likely.

Political-Psychological vs. Military Ends. The purpose of Tehran's CW program was deterrence and warfighting, and to this end Iran had a well-developed declaratory policy regarding CW use. Nevertheless, almost nothing definitive is known about its choice of munitions and delivery systems, its command-and-control arrangements, and its nascent CW doctrine.

By contrast, Iran's nuclear program is intended to serve political-psychological, as well as military, objectives—to enhance soft power and political influence as well as deterrence and defense, respectively.⁷⁸ If Iran eventually attempts to get the bomb, the way in which

it does so (whether secretly or overtly) and the dual purpose of its nascent nuclear arsenal are likely to have significant implications for the sort of declaratory policy, command-and-control arrangements, and doctrine it adopts. Moreover, the fact that it already possesses a large missile force dispersed to mobile launchers and hardened silos will likely influence the concept of operation of a major part of its nascent nuclear arsenal.

And because many of the political-psychological benefits that Iran hopes for can be obtained by a “recessed” deterrent, the United States should not assume that Iran would inevitably seek nuclear weapons. Washington should seek to shape Tehran’s decision calculus, even if such efforts will be complicated by a lack of knowledge about Iran’s past and current WMD decisionmaking.

Ignorance, Knowledge, and Policy. It is striking how little is known about Iran’s CW program and decision-making nearly thirty years on. While enough is known to draw broad conclusions about the program and its strategic rationale, many important details regarding the program, its chronology, and major milestones are missing: Was only mustard produced, or were other agents produced as well? Were any agents weaponized? If so, were they used? If not, why not? What was Iran’s incipient CW use doctrine? And did Iran transfer chemical agents or munitions to Libya or others?

Filling these gaps is not merely a matter of academic interest but of vital practical concern for policymakers, because flawed assumptions about adversary WMD programs are likely to lead to failed policies; that much should be clear, more than a decade after the U.S. invasion of Iraq. Moreover, the lack of transparency that has contributed to this state of affairs is a major reason for the lack of confidence between the United States and Iran, and a major obstacle to better relations between the two countries. Finally, these information gaps enable the Islamic Republic to ensure the primacy of its own narrative, thereby creating an environment more conducive to the attainment of its own policy objectives.

For this reason, Washington needs to have a detailed understanding of Iran’s past nuclear activities, including possible military dimensions, if confidence building is to succeed and a durable deal is to be struck. Accordingly, the United States and the P5+1 should give priority to

efforts to clarify all outstanding questions regarding Iran’s nuclear program in the present negotiations over a long-term comprehensive deal.

Domestic Politics, Risks/Costs, and Nuclear Restraint.

Despite the impression of unanimity created by consistent messaging regarding the retaliatory use of CW, there is reason to suspect a degree of internal discord on this issue among Iran’s leadership during the war with Iraq. It is therefore possible that Iran produced bulk agent but did not weaponize it—or resorted to limited use—in an effort to satisfy opposing factions as well as to deter further Iraqi CW attacks while avoiding the risks that widespread use would entail. It remains unclear, however, whether the facts support this thesis.

What can be said with some confidence is that Iran’s nuclear future will be determined, in no small part, by how the regime resolves the ongoing internal factional struggle regarding its nuclear program. While one faction may be willing to live, at least for now, with limits and constraints that would ensure Iran remains a nuclear threshold state for the foreseeable future, the other would prefer an unconstrained program that could be rapidly reconfigured to produce nuclear weapons, once a decision were made to do so. And there may be members of both factions who would support attempts to resurrect Iran’s clandestine parallel program, if it could be done without getting caught.

For all the reasons presented here, it is not a foregone conclusion that Iran will build a nuclear weapon—at least in the near term—even if important considerations will move it in this direction in the long term. The potential dangers of an attempted nuclear breakout are clear enough to Iran’s leadership and are a major reason why Tehran is moving slowly and may be willing to settle, at least for now, for a deal with the P5+1 that preserves breakout capability while effectively deferring a decision on this matter to the distant future. One key question is whether those who are willing to live with temporary limits and constraints will remain ascendant, and content with Iran’s status as a nuclear threshold state, once those limits and constraints are removed.

The trajectory of Iran’s nuclear program, then, will depend on several factors: the factional balance of power in Tehran; the perceived risks and costs of attempting a nuclear breakout; possible crises that could alter the

terms of debate and Tehran's decision calculus; and the degree to which the country's leadership believes that any attempt to revive Iran's clandestine parallel program would be detected. America's ability to effectively influence Tehran's nuclear calculus will depend on its ability

to gain a more refined understanding of all these factors through intelligence work, diplomatic interactions, nonofficial exchanges, and academic research. Hopefully, this paper will make a small contribution to this end, and spur additional research on this topic.

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