

Kibaroglu, of Bilkent University in Ankara and currently at the John F. Kennedy School of Government at Harvard, argues that a "Clash of Interests Over Northern Iraq-Israeli Alliance to a Crossroads." He claims that the longstanding Turkish-Israeli alliance is likely to clash with the growing autonomy or independence for northern Iraq's Kurds. He also argues that the increasing perception that a strong Kurdistan, whether independent or within Iraq, could be a useful ally against a nuclear-armed Iran and Pakistan, is a more reliable ally than Turkey. This, he argues, has the potential to determine the long-standing Turkish-Israeli strategic relationship, which would be a game-changer.

The lead essay of the Book Review section this time is called "Muslim Targets or Targets?" a review of a group of several books on Muslim terrorism. The review is by Amaniya Maira of the University of California at Davis. We also welcome Jennifer McElhinny as Assistant Editor of the issue. Jennifer is a Ph.D. candidate in the Department of Middle Eastern Studies at the University of California at Davis. She is also the co-author of the book "The Green Pastures: Jennifer comes to Jordan" in Arab Studies from Georgetown University, and served as the Assistant Editor for our *Cronology* column. She is responsible for our *Cronology* column and other publications of the Middle East Institute.

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Iraq's Chemical Weapons Legacy: What Others Might Learn from Saddam

Richard L. Russell

Iraq's experience with chemical weapons provides ample lessons for nation-states looking to redress their conventional military shortcomings. Nation-states are likely to learn from Saddam that chemical weapons are useful for waging war against nation-states ill-prepared to fight on a chemical battlefield as well as against internal insurgents and rebellious civilians. Most significantly, nation-states studying Iraq's experience are likely to conclude that chemical weapons are not a "poor man's nuclear weapon" and that only nuclear weapons can deter potential adversaries including the United States.

Americans breathed a sigh of relief when Iraq failed to use chemical weapons during the 2003 war to oust Saddam's regime, but they were dumbstruck after postwar investigations revealed that Saddam's once impressive chemical weapons program had all but collapsed during the 1990s under the weight of United Nations weapons inspections and the regime's internal decay and corruption. The postwar revelation that Iraq lacked substantial inventories of chemical weapons has slackened concern over chemical weapons in the Persian Gulf. But the region has witnessed the greatest use of chemical weapons in the world since World War I, and leaders elsewhere no doubt look to conflict in the Persian Gulf for lessons to inform their own chemical weapons programs. Even though the most recent Gulf war did not witness the use of chemical weapons, the study of the conflict still yields lessons on deterrence and war fighting for other nation-states harboring chemical weapons programs. The lessons that these states derive from conflicts in the Persian Gulf have implications for American security policy.

Military power remains a critical, but by no means only, ingredient to ensure the security of nation-states, especially in the Persian Gulf. In making their gross mili-

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tary balance of power calculations, many nation-states conclude that they lack the money and means to achieve a rough measure of conventional military capabilities at least to match or balance those of their rivals. The procurement and maintenance of large-standing conventional forces is increasingly an expensive undertaking, which strains the economic means of many nation-states. Consequently, many nation-states turn to chemical weapons — what they consider a Weapon of Mass Destruction (WMD) that is cheaper and more readily procurable than nuclear weapons — which they judge will give them the means in the first instance to deter armed conflict with adversaries or in the second instance to wage war in the event that deterrence fails. In the latter case, many nation-states hope that chemical weapons will compensate for conventional military shortcomings in battle. These calculations drove Saddam to invest in his chemical weapons program during the 1980-88 war with Iran. And they probably are driving Iran's interest in chemical weapons — as well as in nuclear weapons — today to hedge against American power in the Gulf.

But how effective are chemical weapons for deterring adversaries and waging war in the event that deterrence fails? This article explores the rich case history of chemical weapons use in the Persian Gulf. The history of warfare in this region is ripe for examining the strengths and weaknesses of chemical weapons in contributing to the security and national interests of nation-states. The article discusses the use of chemical weapons in the 1960s civil war in Yemen that set the precedent for chemical weapons use in the region and gave an impetus to other chemical weapons programs in the Middle East. It then examines the large-scale and militarily significant use of Iraqi chemical weapons during the 1980-1988 Iran-Iraq War. The Iraqis at the time were in an advantageous position because they had more robust and sophisticated chemical weapons capabilities than their Iranian foes. The study of Iraqi chemical weapons use in the Iran-Iraq War provides a stark contrast to the Iraqi non-use of chemical weapons in combat with American and British forces in the 1991 and 2003 wars. The impact of biological weapons — which are commonly lumped together with chemical weapons under the rubric of WMD — receives only parenthetical treatment because they have not been used in Gulf combat on a scale comparable to that of chemical weapons. Finally, the article synthesizes lessons learned and draws implications from chemical weapons deterrence and warfare in and beyond the Middle East.

The study draws on rich repositories of primary sources, which have not received adequate scholarly attention. These materials include declassified US Government documents from the American intelligence community to include Central Intelligence Agency (CIA) human intelligence reporting, CIA finished intelligence analyses, defense attaché reporting, and Defense Intelligence Agency (DIA) finished intelligence analyses.¹ These materials contain a wealth of under-exploited information on Iraq. They were declassified and made available to the public as part of a US

1. The documents are posted on GulfLink, a website maintained by the Office of the Assistant for Gulf War Illness, Office of the Secretary of Defense, US Department of Defense, located at <http://www.gulflink.osd.mil>.

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government effort to release information possibly related to the Gulf War illness controversy, in which veterans of the 1990-1991 Gulf War suffer from medical ailments they suspect originated from Iraqi use of chemical or biological weapons. The recent public release of the Iraq Survey Group's (ISG) post-2003 war investigation of Saddam's suspected WMD programs also provides remarkable flashes of insight on how he, and potentially how other leaders, viewed chemical weapons. The voluminous study is loaded with insight on Saddam's strategic thinking on chemical weapons, but public, political, and media attention have focused on the ISG's finding that Saddam had no militarily significant WMD stocks and largely ignored the wealth of other information and analysis contained in the report.² These declassified reports collectively are a windfall for scholars, policymakers, military officers, and the general public seeking to understand Iraq's chemical weapons program and capabilities under Saddam's regime.

CONVENTIONAL FORCE INADEQUACIES AND THE WMD DEFAULT

Military power is relative in international strategic contests. To take an example from the Middle East, the Israeli military has time and again demonstrated on the fields of battle that it dominates Arab forces. What is it that accounts for the dramatic Israeli military achievements against Arab forces in battle? Are we to believe the Arab worldview that Israeli military power is due to the equipping of Israeli forces with American military hardware that is qualitatively superior to Russian-built arms around which many Arab militaries have centered their militaries?³ Or are other factors at work to account for the conventional military superiority of Israel?

Much to the dismay of Arab officials and officers, a wide array of factors — other than the single casual explanation of American security assistance, to which many ascribe — contributed to Israel's military prowess. Arab observers shy away from examining the sources of the poor battlefield showings of Arab forces in no small measure because critiques of ruling regime policies are neither permissible nor tolerated. Nevertheless, American scholar Kenneth Pollack in an exhaustive study of Arab warfare, assesses that "four areas of military effectiveness stand out as consistent and crippling problems for Arab forces: poor tactical leadership, poor information management, poor weapons handling, and poor maintenance. These complications were present in every single Arab army and air force between 1948 and 1991. All had significant and identifiable effects on the performance of Arab armed forces."⁴ As

2. Special Advisor to the Director of Central Intelligence on Iraq's WMD, *Comprehensive Report*, 3 Volumes (Washington, DC: Central Intelligence Agency, September 30, 2004). Available at http://www.cia.gov/cia/reports/iraq_wmd_2004/index.html. Hereafter referred to as Iraq Survey Group (ISG).

3. For an analysis that critiques the Arab view that Soviet-built weapons were largely responsible for poor Arab military battle performances, see Michael Eisenstadt and Kenneth M. Pollack, "Armies of Snow and Armies of Sand: The Impact of Soviet Military Doctrine on Arab Militaries," *Middle East Journal*, Vol. 55, No. 4 (Autumn 2001), pp. 549-578.

4. Kenneth M. Pollack, *Arabs at War: Military Effectiveness, 1948-1991* (Lincoln: University of Nebraska Press, 2002), p. 574.

Pollack elaborates, "the lack of initiative, improvisation, adaptability, flexibility, independent judgment, willingness to maneuver, and ability to integrate the various combat arms effectively meant that Arab armies and air forces were regularly outfought by their adversaries."⁵

These Arab shortcomings are substantially more difficult to correct than the mere supply of American military hardware, as the Arab diagnosis would have it. These findings, in fact, strongly suggest that Arab forces, even if qualitatively and quantitatively equipped with American military equipment on a par with Israeli inventories, still would be no match for Israeli military power. Perhaps more damaging to the prospects for Arab development of robust conventional military capabilities is that all of their weaknesses are critical requirements for exploiting the Revolution of Military Affairs (RMA) — or more modestly, the transformation of military affairs — which offers the opportunity to magnify the destructive capabilities of militaries and increase the uses and effectiveness of military power. Arab military shortcomings, stemming in no small measure from stagnant economies and societies, portend dismal prospects for Arab militaries to tap the military capabilities offered by the information-technology age.

The Iranians, like their Arab counterparts, have formidable conventional military shortcomings. The Iranian Armed Forces lost their principal military equipment supplier in the United States after the 1979 Iranian revolution. The clerical regime largely dismantled the Iranian Armed Forces because it saw the Shah's instruments as a threat to its hold on power. Iranian forces, given their mass, were roughly comparable to the capabilities of Iraqi forces until the last stages of the 1980-88 Iran-Iraq War, in which Iraqi forces showed greater military capabilities on the battlefield, while Iranian forces increasingly suffered the effects of an eight-year war of attrition, which led Tehran to capitulate politically in 1988 to Iraq. The Iranians have failed to rebuild their conventional military forces that were in tatters after the Iran-Iraq war. As Michael Eisenstadt assesses it, Iran's conventional weapons procurement effort seems to have run out of steam because Tehran believes that in light of financial constraints it needs to spend available funds on augmenting WMD and missile delivery capabilities.⁶

The Israelis, early in their national security history, had felt the strategic pressure of the Arab states with numerically greater populations, armies, and weapons, and felt the dire need for a nuclear weapons deterrent. After consistently prevailing against Arab states in war, Tel Aviv feels less threatened from conventional military threats, but reserves its nuclear weapons to deter the use of such weapons by adversaries. By the same token, Arab states and Iran judge that the Israeli nuclear deterrent needs to be balanced with chemical and biological weapons, perceived by many as the

5. Pollack, *Arabs at War*, p. 574.

6. Michael Eisenstadt, "The Military Dimension," Chapter 4 in Patrick Clawson, Michael Eisenstadt, Eliyahu Kanovsky, and David Menashri (eds.), *Iran Under Khatami: A Political, Economic, and Military Assessment* (Washington, DC: The Washington Institute for Near East Policy, 1998), p. 74.

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Nation-states in the Middle East are pursuing WMD programs to compete for regional power between them, but also to deter or even fight the United States, whose interests are often at odds with those of nation-states in the region. As Steven Spiegel explains, they seek WMD because they fear rival states; the weapons, particularly chemical and biological weapons, are cheaper than a large arsenal of conventional weapons as well as easier and require less technological sophistication to produce; and WMD serves as a deterrent to the United States or a regional power.⁷ Middle Eastern states know from direct demonstrations of American military power in the region — with wars against Saddam's Iraq and the Taliban's Afghanistan — that they cannot match American military forces in a straight-up fight. In an elaboration of these points, Susan Martin observes, "to the extent that the RMA increases the conventional military power of the United States and/or the willingness of the United States to use its power, the RMA may spur the acquisition of WMD and especially biological weapons in an effort by states to counter a perceived threat from the United States."⁸ The Arab states as well as Pakistan and Iran find themselves in a similar set of circumstances and are turning to the default of "asymmetric" warfare, to include chemical warfare, to compensate for conventional force shortcomings.

CHEMICAL WARFARE IN THE MIDDLE EAST

Officials and diplomats from the greater Middle East with their public faces will deny that their countries have chemical warfare programs, but privately they might argue that their nation-states primarily have chemical weapons as a "poor man's deterrent" to counterbalance an adversary's superior conventional or nuclear forces. To be sure, this is an important dimension of the proliferation problem, but that observation fails to take into account the perception in the Middle East that chemical weapons offer important benefits on the battlefield and may offer potential war winning capabilities to the possessor.

States in the Middle East in many respects are retracing the experiences of European states in the World Wars. As Frederic Brown discovered, the Europeans came to realize by 1918 — after about one million chemical weapons casualties in the course of World War I — that chemical warfare was extremely versatile, usable in tactical situations, but that logistic requirements complicated the battlefield and their employment demanded sophisticated training, and was effective only if it could be used unilaterally.⁹ John Ellis van Courtland Moon confirms that latter finding in his

7. Steven L. Spiegel, "Arms Control: In the Region's Future?," Chapter 10 in Judith S. Yaphe (ed.), *The Middle East in 2015* (Washington, DC: National Defense University Press, 2002), pp. 197-198.

8. Susan B. Martin, "The Role of Biological Weapons in International Politics: The Real Military Revolution," *The Journal of Strategic Studies*, Vol. 25, No. 1 (March 2002), p. 85.

9. Frederic J. Brown, *Chemical Warfare: A Study in Restraints* (Princeton, NJ: Princeton University Press, 1968), pp. 3, 33, and 37. For a more recent treatment, see Richard M. Price, *The Chemical Weapons Taboo* (Ithaca, NY: Cornell University Press, 1997).

The report found that "fixed-wing aircraft and helicopters were usually employed to disseminate CW agents by rockets, bombs, and sprays. Chemical-filled landmines were also reportedly used by the Soviets."¹⁶ In a 1983 analysis, the CIA concluded that the "the Soviets have continued selective use of chemical agents throughout the past year against resistance forces and against villages that did not cooperate with the Afghan authorities."¹⁷

BACKDROP TO IRAQ'S CHEMICAL WEAPONS CAPABILITIES

The use of chemical weapons for both deterrence and war fighting are striking features of conflicts in the Persian Gulf over the last 25 years. The Iran-Iraq war witnessed the most massive use of chemical weapons in the modern world. And the perceived threat of chemical weapons use hung over the United States' armed conflicts with Iraq in 1991 and 2003. The study of chemical weapons in Persian Gulf conflict—specifically Iraq's possession of the most robust chemical weapons program and inventory and most sophisticated use of chemical agents on the battlefield — benefits from a richer documentation than the earlier cases of chemical weapons use in Yemen, Chad, and Afghanistan.

Iraq took many tactical pointers from Egypt's experience with chemical warfare in Yemen. As Terrill explains, "Iraq paid careful attention to the Egyptian use of chemical weapons in Yemen, and the Iraqis appear to have been impressed with the military potential of these systems. Accordingly, in the late 1960s, the Iraqis began research on chemical weapons and even appear to have developed preliminary plans to produce mustard gas. This program was later expanded to include an effort to produce nerve agents by the 1970s."¹⁸ According to Terrill, "after a series of temporary setbacks, the Iraqis were able to find European suppliers for the equipment to produce massive amounts of these agents. This acquisition was accelerated greatly at the beginning of the Gulf War in September 1980."¹⁹

The Iraqis obtained substantial and direct assistance from the Egyptians — as well as from the Soviets — in establishing Baghdad's chemical weapons program. Dany Shoham recalls that in the late 1970s "Cairo began secretly to cooperate with Iraq. Baghdad offered considerable financial support to increase Egypt's output of CW agents and chemical munitions. In the 1980s Egypt began modernizing its military chemical warfare production capabilities centered at Military Plant No. 801 at

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Supporting Analysis, February 1982, p. 22. The document is made available by the National Security Archive, a library and archive of declassified US documents obtained through the Freedom of Information Act, at <http://nsarchive.chadwyck.com/>.

16. *Use of Toxins and Other Lethal Chemicals*, Supporting Analysis, p. 22.

17. Directorate of Central Intelligence, *Use of Toxins and Other Lethal Chemicals in Southeast Asia and Afghanistan*, Special National Intelligence Estimate Memorandum to Holders, March 1983, p. 4. This report is also made available by the National Security Archives.

18. Terrill, "The Chemical Warfare Legacy of the Yemen War," p. 116.

19. Terrill, "The Chemical Warfare Legacy of the Yemen War," p. 117.

Abu Za'abal with the aid of West European companies for key nerve-agent precursors, and built an enlarged manufacturing facility for nerve gas.²⁰ In a secret 1981 agreement, Iraq gave Egypt \$12 million to expand its CW capabilities and, in return, Egypt assisted Iraq in the production and storage of CW agents, the establishment of chemical manufacturing facilities in Iraq, and the purchase of raw materials for the production of CW agents.²¹ The Iraq Survey Group assessed that during the early 1980s, Egyptian scientists provided "consultation, technology, and oversight allowing rapid advances and technological leaps in weaponization."²² The ISG also judged that some of the most prominent Iraqi chemical weapons engineers received their PhDs from the Chemical Warfare Academy in Moscow from 1973 to 1979.²³

THE 1980-88 IRAN-IRAQ WAR: BAGHDAD'S CHEMICAL WEAPONS ADVANTAGE

Iraq, during its eight-year war with Iran, set an international precedent for modern chemical weapons use in fighting against Iranian troops and Kurdish insurgents. By Iraqi accounts, they used almost 19,500 chemical bombs, over 54,000 chemical artillery shells and 27,000 short-range chemical-filled rockets from 1983 to 1988. These munitions consumed about 1,800 tons of mustard gas, 140 tons of tabun, and more than 600 tons of sarin. Almost two-thirds of the CW munitions, moreover, were used in the last 18 months of the war.²⁴ Iraq also distinguished itself by becoming the first nation-state to use a nerve agent on the battlefield when it used tabun against Iran in 1984.²⁵

Iraq turned to chemical weapons during the Iran-Iraq war for several reasons. Baghdad was facing a numerically superior foe, which at the earliest stages of the war lacked the means to retaliate against Iraqi chemical weapons with chemical weapons of its own. CIA analysis judged from the Iran-Iraq war that CW's effectiveness was maximized when surprise was used against unprepared troops.²⁶

Iraqi tactical chemical weapons doctrine probably was influenced by Iraq's Egyptian chemical warfare mentors. And the Egyptians, in turn, might have received a fair amount of chemical warfare training from their Soviet patrons. The Soviets too were in a position to provide direct chemical warfare training assistance to the Iraqis. Former United Nations weapons inspectors in Iraq assessed that Iraqi chemical warfare doctrine was "heavily influenced by Soviet thinking and training, Iraqi chemical warfare doctrine stresses that the use of chemical weapons to demoralize and provoke

20. Dany Shoham, "Chemical and Biological Weapons in Egypt," *The Nonproliferation Review* (Spring-Summer 1998), p. 50.

21. Shoham, "Chemical and Biological Weapons in Egypt," p. 51.

22. ISG, "Iraq's Chemical Warfare Program," p. 63.

23. ISG, "Iraq's Chemical Warfare Program," p. 61.

24. ISG, "Iraq's Chemical Warfare Program," p. 10.

25. ISG, "Iraq's Chemical Warfare Program," p. 9.

26. GulfLink, CIA, Director of Intelligence, Intelligence Assessment, "Impact and Implications of Chemical Weapons Use in the Iran-Iraq War," Undated.

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fear in an enemy is as important as inflicting battlefield casualties."²⁷

Counterintuitively, chemical warfare may yield greater battlefield results if chemical fires produce more casualties than fatalities. "Iraqi military strategists understood that it is more debilitating to the adversary to injure rather than kill troops, because dead soldiers require far less attention than wounded ones."²⁸ CIA reporting during the war indicated that "Iranian rear area support troops occasionally sustain large numbers of casualties because they are less prepared and equipped to cope with chemical attacks. In this regard, rear area chemical attacks may be a force multiplier for Iraq."²⁹

The Iraqis sought to use chemical weapons in the earliest stages of the war to make up for manpower shortcomings to cover the defense of large swaths of territory. Anthony Cordesman and Abraham Wagner observe that "chemical weapons offered a potential solution to the problem of mountain or rough-terrain warfare, and in many cases, it allowed Iraq to secure a mountainous area with relatively few troops."³⁰ CIA analysts judged that "Saddam Husayn's initial political and military decision to use chemical weapons against Iran seems to have been made in an effort to compensate for Iraq's limited military manpower pool. Iraq was able to use CW to minimize personnel and territorial losses by stalling or preventing Iranian human wave attacks and because Iran had only limited CW protective capabilities and could not retaliate in kind."³¹ The CIA wrote, "in our judgment, the Iraqis perceive chemical weapons to be an effective complement to their conventional arsenal."³² Indeed, post-2003 war investigation reveals from debriefings of senior Iraqi officials that Saddam concluded that Iraq's use of chemical weapons prevented Iran, with its much greater population and tolerance for casualties, from completely overrunning Iraqi forces.³³

Iraq's combat use of chemical weapons against Iranian forces evolved over the course of the eight-year war, moving from defensive tactical purposes to offensively orientated tactical uses in the later stages of the war. CIA analysts in evaluating chemical weapons use in the Iran-Iraq war judged that "Iraqi use of chemical weapons against Iran can be divided into three distinct phases. The first phase, which continued until 1986, involved the use of CW agents in a strictly defensive role, to disrupt or halt Iranian offensives. In a transitory phase lasting from late 1986 to early 1988, Iraq used chemical weapons preemptively against staging areas prior to Iranian offensives, while continuing to rely on CW to disrupt these offensives. Finally, and

27. Timothy V. McCarthy and Jonathan B. Tucker, "Saddam's Toxic Arsenal: Chemical and Biological Weapons in the Gulf Wars," Chapter 2 in Peter R. Lavoy, Scott D. Sagan, and James J. Witz (eds.), *Planning the Unthinkable: How New Powers Will Use Nuclear, Biological, and Chemical Weapons* (Ithaca, NY: Cornell University Press, 2000), p. 61.

28. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 62.

29. GulfLink, "Impact and Implications of Chemical Weapons Use in the Iran-Iraq War."

30. Anthony H. Cordesman and Abraham R. Wagner, *The Lessons of Modern War*, Volume II (Boulder, CO: Westview Press, 1990), p. 516.

31. GulfLink, "Impact and Implications of Chemical Weapons Use in the Iran-Iraq War."

32. GulfLink, "Impact and Implications of Chemical Weapons Use in the Iran-Iraq War."

33. ISG, "Regime Strategic Intent," p. 24.

most significantly, Iraq used massed nerve agent strikes as an integral part of its well-orchestrated offensives in the spring and summer of 1998. The success of these offensives prompted Iran to accept a cease-fire in August 1988.³⁴

These phases show that with the benefits of trial and error, experience, practice, and time, Iraqi forces progressively became more sophisticated in meeting the demands of waging chemical warfare. Iraq's initial use of chemical warfare was poor and ineffective in the earliest trial stages in the first Gulf War. "When Iraq first used chemical weapons in February and March 1984 during operations in the Majnoon Marshes, for example, the wind shifted and blew back mustard gas against the Iraqi forces, causing casualties."³⁵ "As the war went on, Iraqi forces learned to tailor the delivery of chemical agents to the specific tactical situation. For example, the Iraqis learned to launch chemical strikes to maintain the momentum of ground engagements or to deny terrain to the enemy. Nonpersistent, volatile agents such as sarin (GB) were used to attack targets that would be overrun quickly by advancing forces, while more persistent agents such as mustard gas or cyclosarin (GF) were used for missile or aerial-bomb attacks against supply depots, assembly areas, and command-control nodes in the Iranian rear, causing poorly protected rear-echelon soldiers and volunteers to flee."³⁶

The Iraqis in the earliest stages of the war held tight political reins over chemical weapons fires. Foremost in Saddam's mind was the security of his regime, and he no doubt worried that too free a delegation of command and control over chemical weapons could be turned against him by elements within the Iraqi armed forces. "From the initial use of chemical weapons in August 1983 through late 1986, chemical release authority was held exclusively by Saddam Hussein. The General Staff could request chemical fires — as could corps and division commanders in the event they were in imminent danger of being overrun or defeated — but Saddam would approve or deny the request."³⁷

But as time wore on, the tight command and control of chemical fires proved to be too cumbersome to react to the fluidity of the battlefield. Saddam consequently loosened the command reins on chemical fires, fearing more Iranian battlefield successes than potential internal Iraqi military-dissidents. The lessening of tight control gave Iraqi operational commanders greater leeway and flexibility in integrating chemical fires into offensive battle plans. The CIA assessed that "in 1986, CW release authority was delegated to corps-level commanders as the result of Iraqi losses during the Al Faw and Mebran [*sic*, presumably meaning Mehran] campaigns and after the military apparently convinced President Husayn to change release authority for chemical weapons to permit better integration of CW into battle plans."³⁸

As the tight political control over chemical fires loosened, Iraqi combat capa-

34. GulfLink, CIA Research Paper, "Iraq's Chemical Warfare Program: More Self-Reliant, More Deadly," August 1990.

35. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 64.

36. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 64.

37. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 63.

38. GulfLink, "Impact and Implications of Chemical Weapons Use in the Iran-Iraq War."

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bilities increased. CIA analysts assessed that "Iraq appears to have become more competent in its capability to integrate chemicals into its conventional battle strategy. As chemical weapons have become more available and have been successfully employed, Iraqi political and military leaders appear to have accepted them as a tactically useful and effective weapon. We believe that chemical munitions, in a few cases, have been significant in the context of specific battles."³⁹

Towards the end of the Iran-Iraq war, Baghdad was making effective and extensive use of chemical weapons and integrating them into battle plans. CIA analysts assessed that "in 1988 Iraq began to fully integrate CW into its successful offensives. In the battles of Al Faw, Fish Lake, and Majnoon Islands during the final months of the war, Iraq made heavy use of chemical weapons. For example, in the April 1988 battle to recapture the Al Faw Peninsula, we estimate that the Iraqis used well over 100 tons of CW agent. The suddenness and severity of this attack disrupted Iranian command and control, decimated key units, and threw the Iranian defenders into disarray. The resulting victory took only 30 hours, which surprised even the Iraqi military planners. Subsequent offensives were preceded by massed chemical attacks and met with similar success."⁴⁰ "During the final offensives of 1988, Iraqi commanders integrated chemical weapons into their offensive battlefield operations. The Iraqis first laid down persistent mustard agent in the Iranian force's rear area and then bombarded the front with the nonpersistent nerve agent sarin, so that Iranian troops retreating from the sarin-contaminated area would be exposed to the mustard agent as well."⁴¹

What then were the overall effects of Iraqi chemical warfare against Iranian forces? In an analysis of chemical warfare in the Iran-Iraq war, CIA analysts wrote "overall, we believe the frequency of chemical weapons use, initially constrained by availability, has increased while the effectiveness of Baghdad's CW employment in major battles is improving."⁴² As Cordesman and Wagner assess, "as for the overall impact of chemical weapons, it is clear that Iraq had substantially greater success in using such weapons after 1987. While 45,000 casualties from gas was a relatively minor part of the well over one million military and civilian casualties that resulted from the war, chemical weapons also seem to have had a critical effect on Iranian military and civilian morale in the Iraqi counteroffensives and 'war of the cities' in 1988. Sheer killing power also is not the issue. Troops that feel they are defenseless may well break and run after limited losses."⁴³

The Iraqis, while waging war with Iran, were also waging a brutal counterinsurgency campaign against the Kurds. From Baghdad's perspective, the Kurds were a "hidden column" of Iran-backed opposition to Saddam's regime. The Iraqi turn to chemical weapons to wage a counterinsurgency campaign against the

39. GulfLink, "Impact and Implications of Chemical Weapons Use in the Iran-Iraq War."

40. GulfLink, "Iraq's Chemical Warfare Program: More Self-Reliant, More Deadly."

41. McCarthy and Tucker, "Saddam's Toxic Arsenal," pp. 64-65.

42. GulfLink, "Impact and Implications of Chemical Weapons Use in the Iran-Iraq War."

43. Cordesman and Wagner, *The Lessons of Modern War*, p. 518.

Kurds was reminiscent of the Egyptian, Libyan, and Soviet resort to chemical weapons in their counterinsurgency campaigns in Yemen, Chad, and Afghanistan, respectively. The Iraqis, however, used chemical weapons on a greater scale, sophistication, and with greater brutality against civilians.

The Iraqis used chemical weapons against the Kurds for a variety of tactical purposes, including to attack base camps and Kurdish force concentrations, to harass and kill retreating Kurdish forces, to inflict exemplary collective punishment on Kurdish civilians who supported Kurdish *peshmerga* forces, and to cause terror among civilian populations to force them from villages for capture, relocation, and killing.⁴⁴ The Iraqis also used chemical weapons delivered by aircraft bombs to kill civilians and prepare for invasion and occupation by Iraqi ground forces.⁴⁵ Avigdor Haselkorn also notes that Iraqi CW use against the Kurds was used "as a deliberate effort to spread fear among the opposition."⁴⁶

Iraqi chemical weapons use during the Anfal campaign in 1987-88 was particularly extensive and brutal against the Kurds, and to a lesser extent against Iranian Revolutionary Guards, in and around Halabja in Kurdistan. Based on eyewitness testimony and field interviews, Human Rights Watch determined that at least 60 villages, as well as the town of Halabja, were attacked with mustard, nerve agents or a combination during Anfal operations from 1987 to 1988.⁴⁷ Human Rights Watch estimates that up to 5,000 Kurdish civilians were killed in chemical attacks on Halabja in March 1988.⁴⁸ A Kurdish survey team found that more than 200 towns and villages in the Kurdish region of Iraq were attacked by chemical weapons.⁴⁹ The Iraqis in many attacks used a combination of mustard gas and nerve agents, including sarin and VX, and some suspect that a biological weapon, aflatoxin, which causes long-term liver damage, was also used.⁵⁰

Many segments of Saddam's security apparatus were charged with orchestrating the Anfal campaign. Human Rights Watch researched extensive Iraqi government documents that established that "the central actors in Anfal were the First and Fifth Corps of the regular Iraqi army, the General Security Directorate, and Military Intelligence."⁵¹ Human Rights Watch determined that "the main military thrust of Anfal was carried out by regular troops of the First and Fifth Corps, backed by units from other corps as they became available from the Iranian front. The elite Republican Guards took part in the first phase of Anfal; other units that saw action included the special forces, commando forces, and the emergency forces — the Ba'ath party-

44. Human Rights Watch/Middle East, *Iraq's Crime of Genocide: The Anfal Campaign against the Kurds* (New Haven, CT: Yale University Press, 1995), pp. 264-265.

45. Quoted in Jeffrey Goldberg, "The Great Terror," *The New Yorker*, March 25, 2002.

46. Avigdor Haselkorn, *The Continuing Storm: Iraq, Poisonous Weapons, and Deterrence* (New Haven, CT: Yale University Press, 1999), p. 22.

47. Human Rights Watch/Middle East, *Iraq's Crime of Genocide*, p. 262.

48. Human Rights Watch/Middle East, *Iraq's Crime of Genocide*, p. xvii.

49. Goldberg, "The Great Terror."
50. Goldberg, "The Great Terror."

and Soviet resort to chemical weapons in Chad, and Afghanistan, respectively on a greater scale, sophistication,

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they were charged with orchestrating the extensive Iraqi government forces in Anfal were the First and Fifth Armies, Directorate, and Military Intelligence. The main military thrust of Anfal was the Fifth Corps, backed by units from the front. The elite Republican Guard units that saw action included the Special Forces — the Ba'ath party-

Genocide: The Anfal Campaign against the Kurds, p. 265.
New York Times, March 25, 2002.
Chemical Weapons, and Deterrence (New York: Oxford University Press, 1998), p. 1.

Genocide, p. 262.
Genocide, p. xvii.

Genocide, p. 1.

controlled urban counterterrorism squads. Finally, a wide range of support activities such as preceding regular army units into populated areas, burning and looting villages, tracking down fleeing villagers, and organizing their surrender — were handled by the Kurdish paramilitary *jahsh*.⁵²

The campaign — with the brutal and deliberate targeting of civilians — was intended to terrorize the Kurds and even to threaten their very existence. Saddam's cousin, Ali Hasan al-Majid, was heard on a tape, which was captured by Kurds and later obtained by Human Rights Watch, addressing members of Iraq's ruling Ba'ath Party that "I will kill them [the Kurds] all with chemical weapons!"⁵³ Human Rights Watch conservatively estimates that fifty thousand Kurds were killed — in conventional as well as chemical attacks — in the Anfal campaign.⁵⁴

1990-1991 GULF WAR AND MUTUAL DETERRENCE

The Iraqi track record of chemical weapons use in the Iran-Iraq War lent strong empirical evidence to the judgment by American intelligence that Iraq could use chemical weapons to counter an American military bid to dislodge Iraqi forces occupying Kuwait. Despite this anticipation, there is no solid evidence that Iraq employed chemical weapons during the 1991 Gulf War. The Iraqis appear to have been deterred by the threat of massive American retaliation from employing them in defense of Iraqi positions in Kuwait. Saddam, however, might have jettisoned reservations had American forces pushed on to Baghdad instead of halting offensive operations in the Kuwaiti theater of operations.

In the run-up to the war over Kuwait, the George H. W. Bush Administration was concerned that the Iraqis would resort to the asymmetrical response of chemical and biological attacks to compensate for their conventional military inferiority vis-à-vis American and coalition forces. Secretary of State James Baker conveyed the American retaliatory warnings to Iraqi Foreign Minister Tariq Aziz from a letter from President Bush to Saddam Husayn in a meeting in Geneva in January 1991 prior to the war. President Bush wrote, "the United States will not tolerate the use of chemical or biological weapons or the destruction of Kuwait's oil fields and installations." Bush warned, "the American people would demand the strongest possible response. You and your country will pay a terrible price if you order unconscionable acts of this sort."⁵⁵ Parenthetically, it is worth noting that Iraqi forces torched and destroyed Kuwait's oil and civilian infrastructure as they were retreating from Kuwait, but the US military campaign was not escalated in any appreciable way, as Bush had warned in his letter to Saddam. Although Bush did not explicitly warn of nuclear retaliation, the threat was ambiguously implied.

52. Human Rights Watch/Middle East, *Iraq's Crime of Genocide*, p. 35.

53. Goldberg, "The Great Terror."

54. Human Rights Watch/Middle East, *Iraq's Crime of Genocide*, p. 12.

55. George H. W. Bush, "Letter to Saddam Hussein," January 5, 1991, Gulf War Exhibit, George Bush Presidential Library, Texas A&M University.

And the Iraqis received Bush's implied threat and appear to have been deterred from using chemical and biological weapons, at least over the war for Kuwait. Former UN weapons inspectors in Iraq report that senior Iraqi officials "stated that they were deterred from using unconventional weapons by fears that the United States or Israel would retaliate with nuclear weapons."⁵⁶ Likewise, former UN weapons inspector Charles Duelfer gathered from his 1995 discussions with Iraqi officers the impression that Husayn thought that "if Iraq used chemical or biological weapons against the coalition, retaliation would end his regime and probably him personally."⁵⁷

American intelligence reporting and analysis supports the conclusions of former UN inspectors that the Iraqis were deterred by the fear of American nuclear retaliation for Iraqi chemical or biological attacks. CIA analysts judged that "the prospect of coalition retaliation probably deterred Saddam from employing weapons of mass destruction as part of Iraq's initial defense against a coalition ground advance."⁵⁸ According to CIA analysts, "a variety of reporting indicates that Baghdad initially was probably deterred from employing chemical or biological weapons as part of its first line of defense because of the expectation that the coalition might retaliate massively, possibly even with nuclear weapons."⁵⁹ CIA human intelligence reporting indicated that former Iraqi Minister of Industry and Minerals Husayn Kamil Hasan al-Majid claimed that "the Iraqi command became convinced that the United States would use tactical nuclear weapons against Iraq if Iraq used chemical or biological weapons against the coalition."⁶⁰

Fear of Israeli nuclear retaliation may have also worked to deter Saddam from launching his ballistic missiles armed with chemical and biological weapons against Israel. CIA analysts judged that "Saddam was probably similarly dissuaded from launching his Scuds with chemical or biological warheads out of fear of US or Israeli nuclear retaliation. Once Saddam realized that conventional missile attacks had failed to drag Israel into war, he may have calculated that even if Israel was finally drawn into the war, resorting to weapons of mass destruction would have caused disproportionate damage to Iraq."⁶¹ Amatzia Baram assesses that "the Iraqi leaders had to consider the possibility that a WMD strike on Israel could lead to the destruction of Baghdad, Mosul, Basra, and his own hometown, Tikrit, and environs. There was no reason to take such a huge risk, as long as there was no immediate danger that Baghdad would be occupied and the regime toppled."⁶²

56. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 69.

57. Charles A. Duelfer, Testimony before the Subcommittee on Emerging Threats and Capabilities, Armed Services Committee of the United States Senate, 27 February 2002, available on the Center for Strategic and International Studies' website at <http://www.csis.org>.

58. GulfLink, CIA Memorandum, "Why WMD Were Withheld," March 1991.

59. GulfLink, "Why WMD Were Withheld."

60. GulfLink, CIA Intelligence Report, "Comments on Iraq's Non-Use of Chemical or Biological Weapons During the Gulf War," August 1995.

61. GulfLink, "Why WMD Were Withheld."

62. Amatzia Baram, "An Analysis of Iraqi WMD Strategy," *The Nonproliferation Review*, Vol. 8, No. 2 (Summer 2001), p. 33.

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and appear to have been deterred over the war for Kuwait. Former Iraqi officials "stated that they were sure that the United States or Israel would not use chemical or biological weapons against them personally."⁵⁷

It supports the conclusions of former members of American nuclear retaliation programs who judged that "the prospect of employing weapons of mass destruction as a coalition ground advance."⁵⁸ This indicates that Baghdad initially viewed biological weapons as part of its deterrent. A human intelligence reporting officer, Husayn Kamil Hasan al-Muniri, was convinced that the United States would use chemical or biological

On the other hand, the Iraqis judged that their possession of chemical and biological weapons deterred the United States from staging a ground invasion of Iraq after defeating Iraqi forces in the battle for Kuwait. Duelfer notes from his exchanges about the war with Iraqi officers that "my interlocutors went on to describe how they had loaded BW and CW agent into various missile warhead and bombs before hostilities in 1991. Moreover, they dispersed these weapons and *pre-delegated the authority to use them if the United States moved on Baghdad*. The Iraqis stated that these actions apparently deterred the United States from going to Baghdad."⁶³ Duelfer assesses that "clearly they are convinced that the possession of WMD contributed to keeping the Americans away and thus was vital to their survival."⁶⁴

Baghdad might have also concluded that the fear of Iraqi chemical and biological weapons retaliatory strikes deterred Israel from retaliating with WMD for Iraqi ballistic missile attacks that were armed with conventional payloads. In a February 1990 meeting with visiting US senators, Saddam said that he had predelegated authority to launch a retaliatory chemical attack in the event of an Israeli nuclear strike on Baghdad. He stated that "I repeat now, in your presence, that if Israel strikes, we will strike back. I believe this is a fair stand. *A stand known in advance is what helps peace...For if Israel realizes it will be struck, it might refrain from striking...If Israel uses atomic bombs, we will strike it with binary chemical weapons...We have given instructions to the commanders of the air bases and the missile formations that once they hear Israel has hit any place in Iraq with the atomic bomb, they will load the chemical weapon with as much as will reach Israel and direct it at its territory...we have told them that if they do not receive an order from higher authority and a city is struck with an atomic bomb, they will point toward Israel any weapons capable of reaching it.*"⁶⁵

The Iraqis may have planned to wage chemical and biological warfare to defend Baghdad notwithstanding the fear of nuclear retaliation. According to Kenneth Pollack, in 1994 the head of the Iraqi Intelligence Service who defected from Iraq told "UNSCOM that despite what it had been led to believe, Iraq had developed VX nerve agent (one of the most lethal forms of chemical warfare) and loaded it onto missiles during the Gulf War for use if the coalition had marched on Baghdad or used nuclear weapons; it had a far more advanced and extensive biological warfare program than inspectors knew, and this program was largely intact and operating; and Iraq had held on to a secret stash of chemical and biological munitions along with more than forty modified Scud ballistic missiles."⁶⁶ The defection in August 1995 of Husayn Kamil, Saddam's son-in-law and a key figure in Saddam's WMD programs, revealed more details of Iraqi clandestine WMD programs. According to Pollack, inspectors learned from Kamil that "Iraq had an offensive BW program, but also that it had weaponized

63. Duelfer, Testimony before the Subcommittee on Emerging Threats and Capabilities. Emphasis in original.

64. Duelfer, Testimony before the Subcommittee on Emerging Threats and Capabilities.

65. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 58. Emphasis in original.

66. Kenneth M. Pollack, *The Threatening Storm: The Case for Invading Iraq* (New York: Random House, 2002), p. 71.

Emerging Threats and Capabilities, July 2002, available on the Center for Strategic Studies website, "March 1991.

Non-Use of Chemical or Biological

Nonproliferation Review, Vol. 8, No.

biological agents and had loaded them into 166 bombs and 25 missile warheads for use during the Gulf War if the coalition marched on Baghdad.⁶⁷ The ISG discovered audio recordings of a January 1991 meeting in which Saddam ordered his lieutenants to be ready to use missiles and aircraft armed with chemical and biological weapons at targets to include Riyadh and Jidda, Saudi Arabia and Tel Aviv, Israel.⁶⁸

A variety of intelligence sources indicated that the Iraqis were preparing for chemical and biological warfare in the run-up to the war. The CIA assessed that "it is clear that the risk of Iraqi employment of at least chemical weapons during the war had been very high. Baghdad's preparations for chemical warfare indicate that use of chemicals was considered an option early in the crisis."⁶⁹ The Iraqis had been prepared for the potential use of chemical weapons in the aftermath of the 1990 invasion of Kuwait, perhaps in preparatory moves for a possible follow-on thrust into Saudi Arabia. According to Kenneth Pollack, a CIA military analyst at the time of the war, in early August 1990 there was "unmistakable evidence that the Iraqis were loading CW munitions onto strike aircraft at several of their airfields in southern Kuwait."⁷⁰ The Iraqis also had prepared ground forces for the use of chemical weapons. Pollack reports that "Baghdad moved thousands of CW-filled artillery shells and 122 mm rockets to storage facilities, one of which was located in the Kuwaiti Theater of Operations. Most were left in depots about 100 kilometers back, however, where they could be moved quickly to the frontline troops if Saddam ordered it but where they were unlikely to be fired accidentally."⁷¹

Based on analysis of the Iran-Iraq war, CIA analysts in weighing Iraqi options for further pressing the attack into Saudi Arabia after the successful invasion of Kuwait speculated that "Sarin would be the agent of choice for targets that Iraq wants to occupy quickly — including oilfields and other key objectives — as well as on battlefield defenses. Mustard might be used to protect Iraqi flanks and, against key transportation nodes, to hinder movement and resupply of opposing forces. The semipersistent nerve agent GF could be used in place of Sarin if the target need not be captured immediately."⁷²

The Iraqis had a robust inventory of chemical and biological weapons on which to draw for fighting American forces. Iraq filled 13,500 artillery shells (155mm) with mustard agent before October 15, 1990; between December 1990 and January 1991, Iraq filled 8,320 12mm rockets with a sarin/cyclosarin (GB/GF) mixture; and, in January 1991, Husayn Kamil (presumably at Saddam's request) asked the Ministry of Defense to provide 31 trailers to forward-deploy these munitions to depots in southern Iraq.⁷³ United Nations inspectors determined that Iraq on the eve of the war

67. Pollack, *The Threatening Storm*, p. 77.

68. ISG, "Regime Strategic Intent," pp. 98-99.

69. GulfLink, "Why WMD Were Withheld."

70. Pollack, *The Threatening Storm*, p. 37.

71. Pollack, *The Threatening Storm*, pp. 170-171.

72. GulfLink, "Iraq's Chemical Warfare Program: More Self-Reliant, More Deadly," August 1990.

73. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 70.

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bombs and 25 missile warheads for Baghdad." 67 The ISG discovered that Saddam ordered his lieutenants to produce chemical and biological weapons at Baghdad and Tel Aviv, Israel. 68

That the Iraqis were preparing for the war. The CIA assessed that "it is clear that the Iraqis were producing chemical weapons during the war. Chemical warfare indicate that use of chemical weapons was a serious possibility." 69 The Iraqis had been preparing for the aftermath of the 1990 invasion of Kuwait. A possible follow-on thrust into Saudi Arabia was a primary analyst at the time of the war. Evidence that the Iraqis were loading up their air airfields in southern Kuwait. 70 The use of chemical weapons. Pollack reported that 122 mm artillery shells and 122 mm rockets were located in the Kuwaiti Theater of Operations, 100 kilometers back, however, where they were hidden. Saddam ordered it but where they

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Iraqi "special" chemical and biological missile warheads that were produced in late 1990. Fifty were chemical warheads — 16 of which were filled with live agent (GB or GB/GF mix) and 34 were Iraqi-type binary (precursors mixed manually shortly before launch) — and 25 were biological warheads, some were filled with anthrax while others contained botulinum toxin and aflatoxin. 74

With the benefits of UN inspections after the Gulf war, a sharper image of Iraqi chemical weapons programs came into focus. Iraq was able to produce several chemical weapons agents, including mustard gas and the nerve agents tabun (GA), sarin (GB), cyclosarin (GF), and VX. Baghdad could also fill these agents into a variety of delivery systems to include artillery and mortar shells, 250- and 500-kilogram bombs for combat aircraft, 122mm surface-to-surface rockets, and 90mm air-to-surface rockets for attack helicopters. The United Nations also destroyed an enormous amount of Iraqi chemical agents from 1991 to 1994; 28,049 Iraqi chemical munitions and more than 481,000 liters of chemical warfare agents and precursors, although the United Nations was unable to find or eliminate Iraq's suspected VX stockpile. 75

Despite these massive inventories of chemical and biological weapons during the 1991 Gulf War, numerous tactical factors might have worked against the effective delivery of Iraqi chemical and biological warfare had American forces marched on Baghdad after liberating Kuwait. CIA analysts assessed that "the battle developed so rapidly that Baghdad probably was never able to effectively target coalition forces. In the war with Iran, aircraft and guard [Republican Guard] artillery were Baghdad's principal chemical delivery means. Total coalition air supremacy precluded air-delivered chemical weapons and much of the Guard artillery was destroyed by air attack or overrun by coalition ground forces. Reports indicate that Iraqi chemical attacks during the war with Iran were normally planned in advance prior to drawing chemical rounds from theater reserves. The disruption of Iraqi supply lines and the lightning speed of the coalition campaign made this impossible." 76 In Pollack's analysis, "the vast majority of Iraq's chemical munitions were not filled before the war because filled munitions begin to degrade fairly quickly. Thus the Iraqis would have had to have filled large numbers of shells and then moved them into the theater and up to the frontline units for them to have been used. This process would have required several days for any tactically significant use of chemical warfare. However, US forces moved so fast and overran Iraqi defensive lines so quickly that the special Iraqi units tasked with filling, moving, and ensuring the firing of the WMD munitions could not have done so in time." 77

Saddam exercised restraint with his chemical and biological weapons against coalition forces, but used chemical weapons against the southern Shi'i uprising that erupted in the wake of the 1991 combat. The ISG discovered that in March 1991 the regime used multiple helicopter sorties to drop sarin-filled bombs on Shi'i opposition

74. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 72.

75. McCarthy and Tucker, "Saddam's Toxic Arsenal," p. 52.

76. GulfLink, "Why WMD Were Withheld."

77. Pollack, *The Threatening Storm*, pp. 264-265.

in the Karbala area. One participant estimated that over a period of weeks, the regime used about 200 CW bombs against the Shi'i insurgents.⁷⁸ Much as the Iraqi regime had done earlier with chemical weapons against Kurdish forces in the north, Saddam and his lieutenants knew that they could use chemical weapons with impunity to smash internal opposition unprepared to fight in a chemical weapons environment and unable to retaliate against regime forces in kind.

THE 2003 GULF WAR AND SADDAM'S LACK OF A CHEMICAL WEAPONS OPTION

The Iraqi regime had strong political-military incentive to employ WMD against US and British forces during the 2003 war. Evidence collected by American intelligence and UN weapons inspectors from the 1991 war strongly suggested that Iraq was contemplating use of biological and chemical weapons had American forces staged an offensive on Baghdad after liberating Kuwait. In contrast to the 1991 Gulf War, the 2003 war against Iraq was not for limited objectives, but to remove the regime. Saddam had ample strategic reason to unleash clandestine biological and chemical weapons if only to slow and derail the operational tempo of American ground forces, as well as to inflict American casualties to undermine tenuous American domestic and international political support for the bid to oust Saddam's regime.

American intelligence judged that Saddam, notwithstanding a decade of international sanctions, was still harboring WMD programs and weapons in violation of the ceasefire arrangements that ended combat in 1991. The American intelligence community assessed in the October 2002 National Intelligence Estimate (NIE) that "Baghdad has begun renewed production of mustard, sarin, GF (cyclosarin), and VX; its capability probably is more limited now than it was at the time of the Gulf war, although VX production and agent storage life probably have improved."⁷⁹ The intelligence community further judged that "all key aspects — R&D [research and development], production, and weaponization — of Iraq's offensive BW program are active and that most elements are larger and more advanced than they were before the Gulf war."⁸⁰

Saddam's prohibited-WMD activities and capabilities, however, were revealed in post-war light to be significantly less than American and British intelligence had suspected on the eve of the war. The ISG determined that "while it appears that Iraq, by the mid-1990s was essentially free of militarily significant WMD stocks, Saddam's perceived requirement to bluff about WMD capabilities made it too dangerous to

78. ISG, "Regime Strategic Intent," p. 25.

79. Excerpts from "Key Judgments: Iraq's Continuing Programs for Weapons of Mass Destruction," National Intelligence Estimate, October 2002 made available in a White House background briefing on July 18, 2003. The text is available from the Federation of American Scientists at <http://www.fas.org/irp/cia/product/iraq-wmd.html>. Also see the NIE with graphics at http://www.cia.gov/cia/reports/iraq_wmd/Iraq_Oct_2002.htm.

80. "Key Judgments," National Intelligence Estimate.

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incentive to employ WMD against the intelligence collected by American intelligence strongly suggested that Iraq was aware that American forces staged an invasion in contrast to the 1991 Gulf War, the invasion, but to remove the regime. Instead, it destined biological and chemical weapons to the tempo of American ground forces, the tenuous American domestic and Saddam's regime.

Notwithstanding a decade of international arms and weapons in violation of the 1991. The American intelligence intelligence estimate (NIE) that Iraq had sarin, GF (cyclosarin), and VX; that Iraq was at the time of the Gulf war, probably have improved.⁷⁹ The key aspects — R&D [research and development] of Iraq's offensive BW program are advanced than they were before the

capabilities, however, were revealed by American and British intelligence had found that "while it appears that Iraq, significant WMD stocks, Saddam's capabilities made it too dangerous to

reveal this clearly to the international community, especially Iran."⁸¹ There can be no gainsaying that the American intelligence community suffered from numerous shortcomings regarding Iraq's WMD programs. The NIE even explicitly acknowledged glaring gaps in intelligence. "We judge that we are seeing only a portion of Iraq's WMD efforts, owing to Baghdad's vigorous denial and deception efforts... We lack specific information on many key aspects of Iraq's WMD programs."⁸² Nevertheless, the American and British intelligence communities shared a broad consensus that Iraq was harboring banned WMD programs and weapons stocks in violation of the ceasefire agreements that ended the 1991 war.

In retrospect, the impact of internal insecurity coupled with longstanding economic sanctions and UN weapons inspections was greater than anticipated by many Iraq observers and caused Saddam to change Iraq's strategy for preserving WMD capabilities. Kenneth Pollack speculates that "Saddam switched from trying to hang on to the maximum production and research assets of his WMD programs to trying to keep only the minimum necessary to reconstitute the programs at some point after the sanctions had been lifted."⁸³ Similarly, David Kay believes that "Saddam in the mid-1990s decided to get rid of his weapons on the theory that they were too easy to find. Instead, he maintained the program at a level below the production of actual weapons. Ultimately at some point, he planned to resume production, of course."⁸⁴ The ISG assessed that "there is an extensive, yet fragmentary and circumstantial, body of evidence suggesting that Saddam pursued a strategy to maintain a capability to return to WMD after sanctions were lifted by preserving assets and expertise."⁸⁵

Saddam might have judged that the priority for the reconstitution of his WMD programs was ballistic missile production. Indeed, the ISG has found the most prohibited activity in the ballistic missile arena. According to reports from ISG officials, "when Hussein asked scientists how long it would take to restart sarin and mustard gas production, he learned the timelines 'were all so sufficiently short' that he could afford to hold off until the missile program was further along."⁸⁶

The regime appears to have been suffering from dry rot and was too corrupt and disorganized to resurrect Iraqi WMD programs from the 1991 war. As Barton Gellman has found, in an extensive report based on coalition investigations and interviews with Iraqi scientists associated with Iraq's once substantial WMD programs, in 2003 "the remnants of Iraq's biological, chemical and missile infrastructures were riven by internal strife, bled by schemes for personal gain and handicapped by deceit up and down lines of command. The broad picture emerging from the investigation to date suggests that, whatever its desire, Iraq did not possess the wherewithal to build a

81. ISG, "Regime Strategic Intent," pp. 34-35.

82. "Key Judgments," National Intelligence Estimate.

83. Kenneth Pollack, "Spies, Lies, and Weapons: What Went Wrong," *The Atlantic Monthly*, Vol. 293, No. 1 (January-February 2004), p. 82.

84. David Kay, "Iraq's Weapons of Mass Destruction: Lessons Learned and Unlearned," *Miller Center Report*, Vol. 20, No. 1 (Spring/Summer 2004), p. 8.

85. ISG, "Regime Strategic Intent," p. 59.

86. ISG, "Regime Strategic Intent," p. 59.

Plans for Weapons of Mass Destruction,"
in a White House background briefing on
American Scientists at <http://www.fas.org/irp/>
http://www.cia.gov/cia/reports/iraq_wmd/

forbidden armory on anything like the scale it had before the 1991 Persian Gulf War."⁸⁷

Saddam also appears to have perpetuated the perception of harboring WMD to maintain his leverage in the region and in Iraq. "Several high-ranking detainees have said they believe that Hussein was afraid to lose face with his Arab neighbors. Hussein concluded, these prisoners explained, that Saudi Arabia, Kuwait, the United Arab Emirates and other countries paid him deference because they feared he had weapons of mass destruction. Hussein was unwilling to reveal that his cupboard was essentially bare, these detainees said, according to accounts from officials."⁸⁸ Saddam apparently also bluffed his own military officers into thinking that chemical weapons were at the ready. According to a US official involved in debriefing Iraqi officers, "the only consistent pattern we've gotten — 100 percent consistent — is that each commander says, 'My unit didn't have WMD, but the one to my right or left did.'"⁸⁹ Saddam might have leveraged the perception of chemical weapons stocks among his general officers to nurture loyalty to his regime as well as to stiffen their resistance against invading US and British forces.

WIDER IMPLICATIONS TO BE GLEANED FROM IRAQ'S EXPERIENCE

Iraq's incentive to build-up its chemical warfare program was fueled by battlefield demands in the war with Iran. Baghdad faced a numerically superior force and turned to chemical weapons as a battlefield "force multiplier." By the end of the war in 1988, Iraqi forces had been quite proficient in integrating chemical fires into offensive operations against Iranian forces. Iraq later had hoped that chemical weapons would deter the United States from militarily intervening in the aftermath of Iraq's 1990 invasion of Kuwait. Saddam and his lieutenants might have concluded from the course of the 1991 Gulf War that American forces were deterred by Iraqi chemical weapons from marching on Baghdad and limited the American campaign to the Kuwaiti theater of operations. Baghdad too may have been deterred by ambiguous American threats to retaliate massively if Iraq resorted to WMD in the battle for Kuwait. Despite American and British assessments that Saddam was harboring a clandestine chemical-weapons stockpile in the run-up to the 2003 war, post-war investigations showed that Iraq's chemical weapons program had substantially decayed or was abandoned in the aftermath of the 1991 war.

Nation-states in the Middle East and elsewhere, given the burdensome demands and costs of modernizing conventional military forces, will look for any possible "short cuts" to military capabilities and advantage, to include chemical weapons. They will draw from the history of chemical weapons use in the Iraq-Iran war the lesson that chemical weapons are potentially powerful contributions to combat effectiveness

87. Barton Gellman, "Iraq's Arsenal of Ambitions," *Washington Post*, January 7, 2004, p. A1.

88. Steve Coll, "Hussein Was Sure of Own Survival," *Washington Post*, November 3, 2003, p. A1.

89. Coll, "Hussein Was Sure of Own Survival," p. A1.

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reception of harboring WMD to al high-ranking detainees have th his Arab neighbors. Hussein bialia, Kuwait, the United Arab se they feared he had weapons l that his cupboard was essen- ts from officials."⁸⁸ Saddam nking that chemical weapons d in debriefing Iraqi officers, ent consistent — is that each one to my right or left did."⁸⁹ cal weapons stocks among his ll as to stiffen their resistance

THE IRAQI EXPERIENCE

rogram was fueled by battle- merically superior force and plier." By the end of the war rating chemical fires into of- hoped that chemical weapons ng in the aftermath of Iraq's ight have concluded from the e deterred by Iraqi chemical merican campaign to the Ku- een deterred by ambiguous l to WMD in the battle for at Saddam was harboring a he 2003 war, post-war inves- had substantially decayed or

en the burdensome demands will look for any possible de chemical weapons. They he Iraq-Iran war the lesson ons to combat effectiveness

⁸⁸ *Post*, January 7, 2004, p. A1.

⁸⁹ *Post*, November 3, 2003, p. A1.

on the battlefield, especially in counterinsurgency campaigns, and look to the Iraqi example as a model for their own programs. The Iraq-Iran War shows that chemical weapons can serve as force multipliers against forces — to include those of internal opposition as well as external adversaries — that are unprepared and under-equipped to fight in a chemical environment.

Nation-states may also come to judge chemical weapons as potentially useful tools for wreaking havoc in an adversary's civilian population. Such an assessment would be reminiscent of that of Western airpower enthusiasts who argued that strategic air bombardment of civilian populations during World War II was necessary to undermine civilian morale and support for the regimes in Germany and Japan. Strategists in the Middle East and elsewhere might in the future draw the same mistaken conclusion, to the tragic detriment of vast populations of innocent civilian noncombatants. The increasing ballistic missile payloads and ranges in the greater Middle East region may add incentive to nation-states to hold at risk the civilian populations of adversaries. Such a strategic rationale would bolster the bureaucratic power and influence of the ballistic missile programs in many states.

Even if Saddam had had a robust chemical weapons inventory in the run-up to the 2003 war and he had waged chemical warfare against American forces, it would have slowed, but not stopped, US advances. Coalition forces had anticipated Iraqi use of chemical weapons and had made appropriate defensive preparations. While American and British forces did not have perfect defenses against chemical weapons, they had far more robust and sophisticated capabilities than Iranian forces had during the 1980-88 war in which Iraq demonstrated its prowess with chemical warfare.

The risks and dangers of chemical warfare for American forces will be mitigated as the professional military and civilian strategists study and plan for future contingencies in the region in which use of chemical weapons is possible. The preparation for waging war in the chemical weapons-littered battlefield would bolster the confidence of American forces to operate with greater effectiveness in a chemical weapons environment. Such preparation and capabilities, moreover, would dampen the confidence of potential adversaries to use chemical weapons effectively against US forces on the battlefield. The examination of the Iraq case studies suggest that American national policy can successfully cope with the threat posed by chemical weapons on the battlefield.

The United States needs to underscore to political leaders and military officers in the Middle East and other regional trouble spots such as Asia that chemical weapons are not an "easy fix" for the shortcomings of conventional forces. That the United States was not militarily paralyzed by formidable Iraqi chemical and biological weapons capabilities in 1991 should be parlayed into a powerful demonstration that conventional warfare trumps chemical and biological warfare. A regional recognition of this lesson would substantially lessen the incentive to embark on chemical weapons programs at the expense of conventional military capabilities. Such a reverse trend, moreover, might lessen the acuteness of regional security dilemmas that could spark armed conflict with chemical and biological weapons to the detriment of the lives and welfare of thousands, and potentially millions, of innocent civilians caught in the

crossfire of strategic folly.

Nation-states in the Middle East, on the other hand, may draw dangerous conclusions from observing US campaigns against Iraq in 1991 or 2003. They might assess that chemical, as well as biological weapons, are insufficient deterrents and conclude that nuclear weapons are the only pillar of WMD that offers the prospect of deterring American intervention. They might judge that had Iraq had nuclear weapons in either 1991 or 2003, the Americans would have been profoundly more reluctant, or even unable, to put their forces and interests at risk in war. Saddam's strategic failure was that he moved too slowly to acquire a nuclear weapons deterrent, and got caught midstream in the 1991 war and was not able to rebound fast enough before the 2003 war. Iran, in particular, is likely to look at Pakistan, where its nuclear weapons acquisition was delivered as a *fait accompli*, and to the standoff on the Korean Peninsula, where North Korea's suspected nuclear weapons arsenal apparently is holding forceful American options at bay, as cases of successful bids to acquire nuclear deterrents.

Some observers reason that the US must hold out the threat of retaliation with nuclear weapons — in lieu of chemical and biological tit-for-tat retaliation — in order to deter and lessen the chances of adversaries employing chemical and biological weapons against US forces and citizens.⁹⁰ The United States has destroyed its biological weapons and is in the process of destroying its chemical weapons stocks, both acquired during the Cold War. That view overlooks the fact that the United States's formidable conventional forces could serve as an even more effective deterrent. In the event that an adversary uses chemical and biological weapons, US forces could ably respond with conventional retaliation and not need to resort to American nuclear weapons. The United States could sufficiently retaliate with massive conventional military power for ambitious political ends to punish or destroy an adversary as well as to reestablish the American deterrent posture. Conversely, American nuclear weapons employment, even if used in retaliation for chemical and biological weapons strikes, would substantially undercut the nascent international norm or taboo against nuclear weapons use. The central goal for American nonproliferation policy needs to be raising the threshold for the use of chemical, biological, and especially nuclear weapons by demonstrating that political, military, and moral costs far exceed the advantages-of-resorting-to-WMD.

90. For a treatment of this issue, see Scott D. Sagan, "The Commitment Trap: Why the United States Should Not Use Nuclear Threats to Deter Biological and Chemical Weapons Attacks," *International Security*, Vol. 24, No. 4 (Spring 2000), pp. 85-115 and William M. Arkin, "Calculated Ambiguity: Nuclear Weapons and the Gulf War," *Washington Quarterly*, Vol. 19, No. 4 (Autumn 1996), pp. 3-18.

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