

SYRIA'S CHEMICAL AND BIOLOGICAL WEAPONS: ASSESSING CAPABILITIES AND MOTIVATIONS

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In the Middle East, the military dimension of the Arab-Israeli conflict remains prominent. Without an agreement by Israel to withdraw peacefully from the Golan Heights, which it has occupied since the 1967 war, or from the zone in southern Lebanon it has controlled since 1978, another war between Syria and Israel is possible. Syrian leaders regard the Israeli occupation of both areas as an affront to Syria's honor, an encroachment on its sovereignty, and a serious threat to its security.¹ The Syrian chief of the general staff has suggested that "...we seek peace with all legitimate means including, of course, diplomatic ones as well as any other options if it is imposed on us..."² Thus, until a negotiated settlement is reached, Israel and Syria will remain locked in a tense confrontation.

This report examines the role of chemical and biological weapons (CBW) in Syria's strategic outlook and military posture. The analysis is organized into sections dealing with Syria's putative CBW capabilities, motivations for acquiring CBW, perception of their military utility, and the implications of the entry into force in April 1997 of the Chemical Weapons Convention (CWC).

SYRIA'S PUTATIVE CBW CAPABILITIES

Syria is a party to the 1925 Geneva Protocol, which bans the use of chemical and bacteriological methods of warfare. Unlike Israel, Syria ratified the Geneva Proto-

col in 1968 without reservations, except for the proviso that the Protocol did not represent recognition of Israel. Thus, Syria has formally renounced both first and retaliatory use of chemical or biological weapons against any state. Syria is also a party to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and has signed but not ratified the 1972 Biological and Toxin Weapons Convention (BWC).

To date, however, Syria has declined to accede to the CWC until all weapons of mass destruction have been eliminated from the Middle East first. (Israel has signed but not ratified the CWC.) Since the CWC bans the development, production, stockpiling, transfer, and use of chemical weapons, Syria is apparently preserving its options in this category of weapons without officially admitting their possession. Syria will presumably become a party to the CWC if and when Israel accedes to the NPT and the BWC.

In 1973, Syria reportedly obtained chemical artillery shells from Egypt prior to the October War against Israel, but did not use them.³ The purpose of this transfer may have been to establish a deterrent in-kind in case Israel resorted to chemical warfare or Syria's defenses collapsed completely, although neither of these scenarios materialized. Since then, Syria appears to have acquired an indigenous chemical weapons (CW) capability, although it is difficult to assess its size and sophistication.

When the putative Syrian chemical program started in the late 1970s or the early 1980s, the NPT was already in force but serious negotiations on a CWC were just getting underway. Thus, by acquiring CW, Syria was not engaging in an activity banned under international law.

Although the Syrian government has never admitted possessing CW agents for offensive military use, a number of official statements have implied the existence of CW or production facilities. In a 1990 speech, Syrian President Hafez al-Assad said:

Israel is still superior technologically; and it is capable of inflicting on the Arabs human disasters in case of war. But the Arabs can, with what they have, inflict the same disasters on it.⁴

If the word "disasters" in the Assad statement is given a broad interpretation, one can infer that it means hitting civilian and strategic targets with CW.

In November 1996, Syrian Ambassador to Cairo Issa Darwish gave a lecture and was quoted to have said that Syria would retaliate with CW if Israel attacked it with nuclear weapons. The following day, realizing perhaps that his statement was inconsistent with official policy (or he might have been misquoted), the ambassador issued a denial in which he claimed that the Arab states, particularly Syria, "do not possess weapons of mass destruction and do not threaten anyone with them."⁵ Perhaps significantly, the ambassador did not refer specifically to CW but kept his denial in general terms.

Finally, President Assad, after meeting with Egyptian President Hosni Mubarak on May 1, 1997, replied to a journalist's question about Israeli allegations that Syria was manufacturing CW by saying:

Those who have nuclear weapons do not have the right to criticize others regarding any weapon which they possess. If they want disarmament, we should start with nuclear ones. We, the Arabs, are ready to get rid of other weapons.⁶

This oblique statement could be read as a confirmation that Syria possesses CW.

DETAILS OF THE SYRIAN CW PROGRAM

When it comes to details of the Syrian CW program, contradictions start to emerge. Most of the information about Syria's alleged possession of chemical weapons comes from Israeli, American, and other Western sources

in official statements and leaks to the media.⁷ For this reason, possible elements of bias and exaggeration should be taken into account. According to the U.S. Assistant Secretary of State for Intelligence and Research, Syria "has had a chemical warfare program since the mid-1980s."⁸ In 1988, a U.S. analyst described Syria's CW capability as more advanced than that of Iraq, while noting that the latter had a larger stockpile.⁹ Yet, in 1989, Israeli Foreign Minister Moshe Arens alleged that Syria was producing CW agents and had the "potential for chemical warfare, but not more than that."¹⁰

U.S. and Israeli analysts claim that the Center for Scientific Studies and Research, under the auspices of the Syrian Ministry of Defense, conducts research and development on CW, and that CW production facilities are located in the vicinity of Damascus, Homs, and Aleppo.¹¹ An Israeli analyst writes that "chemical warheads are produced in Syria with the assistance of North Korean and West European technicians and engineers" and that "Syria is not able to attain full independence of foreign suppliers and aid, at least for now."¹²

The Middle East Military Balance, 1994-1995, published by the Jaffee Centre for Strategic Studies in Israel, describes Syria's CW capabilities as follows: personal protective equipment and Soviet-type unit decontamination equipment; stockpiles of various CW agents including mustard gas and the nerve agents sarin and VX (the latter "unconfirmed"); chemically filled aerial bombs and chemical warheads for surface-to-surface missiles.¹³ According to a 1996 Israeli report, Syria's CW stockpile comprises thousands of aerial bombs filled with chemical agents and between 100 and 200 chemical warheads for Scud-B and Scud-C surface-to-surface missiles.¹⁴ It could be reasonably assumed that Syrian land forces are equipped with basic gas masks and decontamination units and that troops are trained for the possible battlefield use of CW, whether by Syria or Israel. How efficiently Syrian troops can perform these tasks is difficult to judge, as there has been no experience with chemical warfare in previous wars with Israel.

FOREIGN ASSISTANCE TO THE SYRIAN CW PROGRAM

Allegations of foreign assistance to the Syrian CW program are murky and difficult to assess. In early 1996, retired Russian Lt. Gen. Anatoliy Kuntsevich was charged with illegally shipping 800 kilograms of pre-

cursor chemicals to Syria. Kuntsevich dismissed the accusation by citing the 800-kilogram figure as peculiar. "It would be a completely different matter if it was 800 tons," he said. "You cannot make a chemical weapon with 800 kilograms."¹⁵ Later, Russian authorities dropped the charges against Kuntsevich.¹⁶ In May 1996, the German magazine *Stern* claimed that U.S. intelligence officials had informed their counterparts in Germany that German firms were involved in building a poison-gas factory near the northern Syrian city of Aleppo.¹⁷

In November 1996, the Israeli Defense Minister, General Yitzhak Mordechai, claimed that Russian scientists were helping Syria manufacture the nerve gas VX.¹⁸ Mordechai did not specify whether the Russians were cooperating with Syria under an official agreement or a private contract. The timing of the Mordechai statement was puzzling because *The Middle East Military Balance, 1993-1994* had asserted in 1994 that Syria had stockpiled VX-filled munitions, but had not mentioned Russian assistance.¹⁹ Mordechai's allegation may have been part of the escalation of verbal threats and provocative military maneuvers between Israel and Syria in the fall of 1996. The Russians, for their part, denied any involvement and described Mordechai's allegation as baseless.²⁰

Whatever Russia's actual involvement, Syria appears to have imported CW precursors and dual-use production equipment from various European countries, China, India, and North Korea. In testimony on the Syrian CW program, former U.S. Central Intelligence Agency (CIA) Director William Webster said, "West European firms were instrumental in supplying the required precursor chemicals and equipment. Without the provision of these key chemicals, Damascus would not have been able to produce chemical weapons."²¹

BIOLOGICAL WEAPONS

Syria has signed but not ratified the BWC banning possession of biological weapons, but little is known about its capabilities in this area. Although one can assume the existence of a Syrian CW capability, only U.S. sources refer to a Syrian biological weapons (BW) program. In 1990, Defense Secretary Dick Cheney mentioned Syria as among the 10 countries that "have, or may have, biological warfare programs."²² The U.S. Arms Control and Disarmament Agency's 1996 *Annual Report* claimed that Syria was "developing an offensive biological war-

fare capability."²³ Israeli sources, in contrast, have been more cautious. For example, the Jaffee Center's 1994 yearbook stated, "By mid-1994 not much was known about this program, and there was no evidence that any biological agents had actually been weaponized. Research with anthrax bacteria has been mentioned."²⁴ A year later, the Jaffee Center still described Syrian BW capabilities as unconfirmed.²⁵

While the U.S. government may possess secret information to back up its claim of an offensive Syrian BW capability, there is no hint of its existence from open sources. Syrian armed forces are equipped with defensive equipment but there are no reported exercises involving the offensive use of biological weapons, making it unlikely that they have been integrated into Syrian military doctrine. If security concerns have encouraged Syria to acquire and retain a CW capability, these motivations may not necessarily apply BW. Both Israel and Syria presumably recognize the negative military utility of BW because of the geographical proximity of the two states. Moreover, there is no modern precedent of employing BW on the battlefield, and the moral revulsion surrounding biological warfare is also far stronger than for nuclear or chemical weapons. Since the military utility of BW is uncertain, the functions of denial and punishment in Syria's deterrent posture could be met more efficiently with CW. Indeed, what advantage could be gained from threatening the use of a completely untested method of warfare?

At the same time, it would arguably be foolish for the leadership of a country involved in a serious military conflict not to research the effects of BW, if only to hedge against possible enemy use. Furthermore, the BWC currently lacks verification provisions, and until this deficiency is remedied, states engaged in military conflicts may wish to maintain at least a basic defensive research program. If a BW program exists in Syria, it may be motivated by the desire not to lag behind Israel in every field of military research and to retain the option to develop such weapons should the need arise.

SYRIAN INCENTIVES TO ACQUIRE CW

Syrian government decisionmaking with respect to CBW is opaque for several reasons. First, because of the conflict with Israel, the sensitive nature of these activities demands the strictest military secrecy. Second, there are no political pressure groups in Syria that either oppose or support the acquisition of these weapons. Third, since the Syrian chemical and related petrochemi-

cal industries are government-owned, the question of competing commercial interests does not arise. As for bureaucratic interests, one can assume that the decision to proceed with a CW program must have originated with the military establishment, bearing in mind that President Assad is Commander in Chief of the Armed Forces. The Syrian military command is highly centralized and the primary role is assigned to the army. Operationally, one can assume that the General Staff would order the distribution of chemical munitions to the various combat units and services.

What are Syria's incentives to acquire a CW capability? Prestige can be discounted as a prime motivation because the Syrian CW program is veiled in secrecy. Instead, national security requirements appear paramount in this area.

Syria's primary security concern is the military balance with Israel. A strong relationship exists between Israel's nuclear capability and Syria's efforts to acquire a sizeable chemical arsenal. During the 1970s, new information came to light on Israel's nuclear potential. Although CW cannot compare in destructive power to nuclear weapons, Syria may have had little choice in its quest to acquire a countervailing deterrent. A nuclear capability is currently beyond Syria's resources on every level, and if it chose to pursue a nuclear program, it would encounter severe political pressure from the United States. There is also the possibility that Israel might engage in a preemptive strike against its nuclear facilities, as it did against Iraq's Osirak reactor in June 1981.

Hence, Syria's primary motivation in pursuing chemical weapons is to acquire a mass-destruction capability that could serve as a means of retaliation in the event of Israeli use of nuclear weapons against Syria. In fact, Israeli nuclear escalation in a limited war over the Golan Heights is extremely unlikely because of the geographic proximity of Israeli population centers and the fact that meteorological conditions in the region could expose Israeli territory to radioactive fallout. Nevertheless, the Israeli nuclear threat has a significant psychological impact. For this reason, Syria seeks to neutralize Israel's ability to employ nuclear blackmail to coerce it into accepting unfavorable conditions for a peace settlement. Syria's increased bargaining leverage with Israel as a result of its CW capability has been demonstrated by Israel's inability to dictate its terms in the peace negotiations between the two sides. Indeed, the late Israeli Prime Minister Yitzhak Rabin recognized that a condition of

strategic stalemate had emerged between Israel and Syria.²⁶

Syria's strategic preoccupations also include its rivalry with Iraq, although this conflict is largely confined to the political arena. A war between Iraq and Syria is unlikely because of the ethnic and social ties between their populations, and for ideological reasons, since both regimes claim to be vanguards of Arab nationalism and view Israel as a common enemy.

Turkey is another of Syria's regional security concerns. Although the possibility of a military clash cannot be excluded, Syria has pursued negotiations with Turkey over several issues, notably sharing water from the Euphrates River. At the same time, Syria may be seeking leverage by providing indirect support to the military wing of the Kurdish Workers Party (PKK), which demands independence or at least autonomy from Turkish rule, according to Turkish claims that are denied by Syria. For this reason, the deterrent role of a chemical and missile force in Syria's strategic relationship with Turkey cannot be discounted.

Syria's regional security concerns have led it to pursue any available means of mass destruction, including a chemical capability. After the 1973 October War against Israel, Syria decided to pursue self-sufficiency by building up its defense capabilities, both because of Egypt's failure to implement the agreed joint strategic plan and Iraq's delay in sending forces at the start of the war.²⁷ Whether Syria's decision involved planning the development of CW is not known, but it is possible that Damascus attempted to acquire or manufacture CW in the 1970s. The crucial political decision to build a substantial CW program appears to have been taken after the signing of the Egyptian-Israeli Peace Treaty of 1979. At this time, Syria sought to make up for the loss of Egypt's military weight and preserve the Arab-Israeli "strategic balance" by achieving military parity with Israel.²⁸

Undoubtedly, Syria's military motivations to acquire chemical weapons were strengthened considerably when Israel invaded Lebanon in 1982 and engaged the Syrian forces stationed there with near-disastrous consequences for the Syrian side had the clashes not stopped after three days.²⁹ The failure of the Syrian Air Force to limit the effectiveness of Israel's air power, and fears that Israeli armor would outflank Syrian defenses through Lebanon, exposed serious military vulnerabilities. Since it was clear from the Israeli invasion of Lebanon that the Syrian Air

Force could not be relied on to neutralize Israeli superiority in this sphere, Syria decided to build a substantial missile force to deter an Israeli strategic bombing campaign. It can be assumed that the decision to equip these missiles with chemical warheads, as well as conventional ones, was taken at that time. Evidence for a 1982 Syrian decision to build up its CW capability is supported by the publication in 1983, in the leading Syrian military journal *Al-Fikr al-Askri*, of two translated articles: one from a French military journal on chemical and biological weapons and a second from a German military journal on CBW decontamination procedures.³⁰

There appears to be no connection between Iraq's use of CW during the 1980-1988 Iran-Iraq War and Syria's incentives to acquire these weapons. As mentioned above, Syrian interest in CW goes back to the 1970s. The fact that the Syrian CW program has intensified since the beginning of the 1980s was caused mainly by the defection of Egypt from the anti-Israeli coalition and the Israel's 1982 invasion of Lebanon. Whether any military lessons could be learned from Iraq's use of chemical weapons is doubtful. Iraqi use of CW was not decisive in the war with Iran, although the combined use of missiles and CW did adversely affect Iranian morale. Iraq resorted to CW because it was outnumbered by Iranian troops on the battlefield and wanted to terrorize civilians. In contrast, Syria's military problem with respect to Israel is not being outnumbered but rather the latter's qualitative edge in air power and advanced tanks, together with Israel's ability to field more armored units because of the availability of trained manpower. For this reason, the lessons of the 1991 Persian Gulf War are more relevant, including the central role of advanced conventional weapons and Iraq's restraint in resorting to CW because it feared severe retaliation by the United States. Nevertheless, Coalition forces did not have the objective of occupying Iraq and imposing total strategic surrender. It is still a matter of speculation whether the Iraqi leadership would have resorted to CW if such a situation had materialized.

A number of contextual factors in Syria have encouraged the acquisition of a CW capability. The authoritarian nature of the regime can be discounted because Israel, which has a democratic system of government, has also developed a CW capability. More important is the lack of a security regime or an alliance that offers Syria an assurance against strategic defeat by Israel. As described above, the military thinking of the Syrian leader-

ship has been shaped by the bitter experiences of the 1973 October War and the 1982 clash in Lebanon, and the fact that the Arab Defense Pact of 1950 has time and again proved to be ineffective. Syria's feeling of military vulnerability was exacerbated by Egypt's defection from the Arab-Israeli military balance.

One can discount the effect of a superpower patron for the simple reason that even after the signing in 1980 of a Friendship Treaty with the Soviet Union, Syria continued to develop its CW program. Syrian leaders always understood that the Soviets would not fight Syria's wars, and that Moscow was prepared to provide military hardware and expertise but not combat soldiers. Since the end of the Cold War and the demise of the Soviet Union, Syria presumably feels more vulnerable than ever. This insecurity provides a strong incentive for Damascus to retain its CW capability until a peace agreement is reached with Israel or a zone free of weapons of mass destruction has been established in the Middle East. Both scenarios appear remote under current conditions.

SYRIAN CW USE DOCTRINE

According to an Israeli study of Syrian CW doctrine, three principal scenarios for CW use are envisaged: "(1) A first strike to neutralize key military positions and achieve military goals; (2) a last resort to prevent a decisive Israeli victory; and (3) a general deterrent." The accompanying analysis concludes that a general-deterrent role is most likely and a first-strike role least likely.³¹

The 1990 address by President Assad cited above could be interpreted as an attempt to establish a chemical deterrent involving elements of both denial and punishment. During the summer of 1996, after the Likud Party returned to power in Israel and the two countries exchanged threats of war, Syrian Chief of Staff Lt. Gen. Hikmat al-Shihabi declared in a speech: "We say to Israel's rulers that a return to the road of escalation, tension, and aggression will not only cause damage to the others but will also cause damage, perhaps the worst damage, to Israel itself."³²

While this statement did not mention CW, one can deduce from it a few indications of Syria's strategic doctrine. First, Syrian leaders are quite aware of Israel's military superiority. To counter it, they have developed a retaliatory missile strike force that could, in their view, inflict sufficient damage on Israel to dissuade it from starting a war with Syria. Since the Syrian Air Force is hardly

in a position to strike at Israeli population centers on a massive scale, Syria must rely on missiles armed with conventional or chemical warheads to maintain a minimum credible deterrent posture. In the Syrian strategic calculus, Israel's Achilles heel is its extreme sensitivity to casualties, large numbers of which could be inflicted by CW because of the concentration of the Israeli population in a few major urban centers.

In the event war breaks out and Syrian defenses collapse, Damascus might resort to any means available to avoid the condition of strategic surrender. This "weapon of last resort" scenario has gained more weight since the end of the Cold War and the disintegration of the Soviet Union in 1991. During the Cold War, the United States and the Soviet Union stopped Arab-Israeli wars when the Arab side started to lose in order to minimize the risk of a direct superpower confrontation. At least for now, however, Russia has redefined its interests in the Middle East and opted for cooperation with the United States.

How the present situation of mutual deterrence will function in the future depends on the strategic objectives of both sides. It is unlikely that Israel would seek to impose strategic surrender on Syria simply to force it to concede the Golan Heights permanently. At the same time, Syria has shown no intention of invading Israel within its 1967 borders, which might provoke Israeli use of nuclear weapons. Such limits on Syrian war aims were already apparent during the October War of 1973.³³ The current deterrence balance, therefore, would likely confine any future war between Syria and Israel to the Golan Heights and southern Lebanon. Such limits would not rule out escalation to strategic strikes against civilian and economic targets if one side believed the war was not going in its favor. Even so, it is doubtful that Syria would resort to CW unless the prospect of strategic defeat were high, particularly given Israel's doctrine of massive retaliation as enunciated by the late Prime Minister Rabin: "If Israeli population centers are attacked with nonconventional weapons, Israel will respond massively against the population centers of the attacking country."³⁴

Israeli doctrine makes it unlikely that Syria would initiate chemical warfare at the start of a conflict, but it does not eliminate the possibility of a Syrian missile strike with conventional warheads against Israeli military targets such as airfields, mobilization centers, and rear echelons. Another disincentive for a Syrian resort to chemical warfare is that it might invite Israeli retaliation in-kind. Unlike Israel, Syria has not equipped its entire

civilian population with gas masks, which to some extent would blunt the strategic impact of these weapons. Despite these disincentives for strategic CW use, however, rational calculations could well be overwhelmed by emotions once war breaks out.

TACTICAL MILITARY UTILITY OF CW AND BW

A more complicated situation pertains to the tactical use of CW, either at the outset of an offensive or to stop the advance of Israeli forces. Although Syrian forces are equipped with field protection and decontamination measures (protective suits, masks, and decontamination vehicles), it is not known whether all Syrian troops have such defenses. A more important disincentive for the offensive use of CW is that if Syria launched a surprise attack, its massed armor would have to advance rapidly to reach the 1967 border line (set by the Armistice Agreement of 1949) within 48 to 72 hours, before Israel had time to mobilize reserve units. Yet chemical protective measures are cumbersome and would significantly slow the tempo of military operations. Moreover, the geographic proximity of Syrian population centers, the relatively small size of the likely theaters of operations in the Golan Heights and southern Lebanon, and unpredictable weather conditions (particularly wind direction) would place many constraints on CW use at the start of a Syrian offensive.

Similar obstacles also militate against use of CW by Syrian forces in defensive positions to repulse an Israeli counterattack. In this case, the proximity of Israeli settlements in northern Israel means that Syria would risk a massive retaliatory strike, which would not be to its advantage. Thus, the only realistic scenarios for Syrian tactical use of CW are: 1) if Israel launches an offensive involving first use of CW, forcing Syrian units to retaliate in-kind; or 2) if the defensive perimeter of Damascus, the Syrian capital, collapses as a result of an Israeli incursion through the Golan Heights or a flanking maneuver through the Bekaa Valley in Lebanon.

The French article on CBW doctrine translated and published in *al-Fikr al-Askri* in 1983 describes three types of targets for chemical weapons.³⁵ First, targets of opportunity may appear in the course of battle, such as defensive positions established by the opponent in forests or on hills. The aim would be to put out of action the maximum number of combat troops defending these positions. In this case, the chemical agents employed would

be volatile or semi-volatile.

A second set of possible targets includes bridges, airfields, railway hubs, and other logistical facilities. Again, the CW agents recommended in this case are volatile or semi-volatile, depending on the time required to reach these targets while preventing the defender from deploying reinforcements.

A third chemical warfare tactic is to neutralize a certain area for a long time by employing persistent chemical agents. The article mentions the use of persistent agents to hit economic infrastructure targets such as transport centers, power stations, and fuel storage sites. Enemy cities might also be attacked with chemical-tipped missiles, not to annihilate the population but to demoralize them and force them to flee, thereby obstructing the enemy's logistics and operations.³⁶ It could be argued that the tactical use of CW by both sides has more credibility than strategic use, since an exchange is not likely to escalate to the strategic level.

To what extent the French article reflects Syrian CW doctrine is not known. Nevertheless, the fact that the article was published in an official military journal suggests that Syria understood the tactical utility of CW and perhaps sought to send Israel a signal to this effect after the 1982 Lebanon War.

If the U.S. claim that Syria has an offensive BW program is accepted, one can only surmise that in the event Israel uses them, Syria will retaliate in-kind. Thus, Syria may have acquired BW as a deterrent. Nevertheless, the problems noted with tactical use of CW are even greater in the case of BW. The fairly predictable effects of CW on the battlefield or against a civilian population give them a kind of limited credibility that BW do not possess. Population density and geographic proximity would present serious problems in containing the effects of BW agents. Moreover, if Syria were to attack Israeli cities with BW, the attack would kill tens of thousands of Arab Palestinians living in Israel proper and in the occupied territories. Furthermore, a Syrian first strike with BW could provoke Israeli retaliation with nuclear weapons, and hence would be tantamount to national suicide. Since Syria could not expect to gain any military advantage from deploying and using BW, their deterrent value is doubtful, not to mention the moral revulsion against their use.³⁷

THE IMPACT OF CW ARMS CONTROL

How can one reconcile Syria's current possession of CW with its adherence to the Geneva Protocol of 1925, since it did not reserve the right to retaliate in-kind? The answer could be that at the time Syria ratified the Geneva Protocol in 1968, the country's political and military leadership did not fully understand the strategic implications of Israel's acquisition of chemical and nuclear capabilities. It was only after Egypt signed a peace treaty with Israel in 1979 that Syria embarked on an intensive military buildup to maintain the strategic balance and to seek military parity with Israel.

To what extent the entry into force of the CWC in April 1997 will create a disincentive to Syria's putative CW program remains to be seen. The outcome will depend largely on how much priority Syria gives to building its commercial chemical industry, since the CWC imposes restrictions on chemical trade with non-parties. As a developing country with oil and natural gas resources, Syria aspires to develop this important industrial sector. Yet, a counterbalance to this aspiration is the perceived threat to Syrian security posed by Israel's occupation of the Golan Heights and southern Lebanon.

The CWC also contains a loophole in that it allows the import of certain chemical weapons precursors (with end-use certificates) for a period between three to five years.³⁸ Although chemical export controls harmonized by the Australia Group—an informal coordinating mechanism of 30 supplier countries—will presumably still be in effect, non-Group members may well sell precursors to Syria. In addition, the CWC cannot impose verification measures on non-members. For these reasons, the CWC will not have an immediate impact on Syria's presumed CW capabilities. Even if Syria changes its position and accedes to the CWC without waiting for Israel to join the NPT, it will have up to 10 years to destroy its CW stockpile. Thus, since both Israel and Syria are presumed to possess CW, these weapons will remain a reality for some time in the military equation between the two countries.

The CWC may discourage states from pursuing CW capabilities and make it more difficult for them to do so, but it is not sufficient by itself to bring about the elimination of these weapons in the Middle East as long as the Arab-Israeli conflict persists. The only real incentive for Syria to get rid of its alleged CW capability would be to

conclude a peace treaty with Israel that guaranteed the recovery of its occupied territory, along with a similar treaty between Lebanon and Israel. If a Syrian BW program exists, it would probably be discontinued when Israel joins the BWC and an effective verification mechanism is added to the regime.

In sum, Syria regards the arms race in all types of weapons, conventional and unconventional, as symptomatic of the underlying conflict with Israel. History suggests that international nonproliferation regimes are not particularly effective while nations are engaged in confrontations that threaten their core national security interests. In the Syrian case, the only strong incentive to renounce its weapons of mass destruction will arise when Israel accedes to the NPT and the BWC. Since Israel will probably only do so in the context of a comprehensive peace settlement in the Middle East, we will have to await such a development.

¹ M. Zuhair Diab, "Have Syria and Israel Opted for Peace?" *Middle East Policy* 3, No. 2 (1994), pp. 77-90; interview with Syrian Ambassador to the United States, Walid al-Moualem, *Journal of Palestine Studies* 15 (Winter 1997), pp. 81-94.

² Interview with Syrian Chief of General Staff Lt. Gen. Hikmat al-Shahabi, *Al-Ba'ath* (Damascus), August 1, 1996.

³ Gordon M. Burck and Charles C. Flowerree, *International Handbook on Chemical Weapons Proliferation* (New York: Greenwood Press, 1991), p. 213.

⁴ Hizb al-Ba'ath al-Arabi al-Ishtraki, al-Qiyadh al Qawmiyah, Maktab al-Amanh al-Amh, Circular No. 474, June 11, 1990, pp. 14-15.

⁵ "Syria: A Chemical Response Against Israel's Nuclear Threat" (in Arabic), *Al-Arab International* (London) November 28, 1996, p. 2; Abdul Ra'ouf Daoud, "Israel Sees Small Probability of War with Syria" (in Arabic), *Al-Hayat* (London), November 29, 1996, p. 5.

⁶ Assad quoted in *Al-Hayat* (London), May 2, 1997, pp. 1, 6.

⁷ W. Seth Carus, "Chemical Weapons in the Middle East," *Policy Focus* No. 9 (Washington, D.C.: The Washington Institute for Near East Policy, December 1989), pp. 4-5; Burck and Flowerree, *International Handbook on Chemical Weapons Proliferation*, pp. 209-215.

⁸ Assistant Secretary of State for Intelligence and Research, "Statement Before the Senate Select Committee on Intelligence, Hearing on Current and Projected National Security Threats to the United States," February 5, 1997, p. 18.

⁹ Burck and Flowerree, *International Handbook on Chemical Weapons Proliferation*, p. 209.

¹⁰ *Ibid.*, p. 212.

¹¹ *Ibid.*; Shlomo Gazit, ed., *The Middle East Military Balance, 1993-1994* (Boulder, CO: Westview Press for the Jaffee Center for Strategic Studies, 1994), p. 229.

¹² Dany Shoham, quoted in *Ha'aretz*; in FBIS-NES-95-104 (26 May 1995).

¹³ *The Middle East Military Balance, 1994-1995*, p. 361.

¹⁴ Dany Shoham, quoted in *The Jerusalem Post*, November 22, 1996.

¹⁵ Mark Urban, London BBC TV Network; in FBIS-TAC-96-002 (12 February 1996).

¹⁶ *Jamestown Foundation Monitor* 2, No. 217, November 19, 1996.

¹⁷ AFP, "Stern: Syria Builds a Plant for Producing Chemical Gas in Aleppo" (in Arabic), *Al-Hayat* (London), June 5, 1996, p. 6.

¹⁸ 'zi Mahmami, "Syria Builds Nerve Gas Arsenal," *The Sunday Times* (London), November 17, 1996, pp. 1-17.

¹⁹ *The Middle East Military Balance, 1993-1994*, p. 229.

²⁰ Moscow Bureau, "Moscow Replies to Mordechai's Accusations about Helping Damascus to Build Chemical Weapons" (in Arabic), *Al-Hayat* (London), November 21, 1996, p. 5.

²¹ Quoted in Burck and Flowerree, *International Handbook on Chemical Weapons Proliferation*, p. 214.

²² Quoted in W. Seth Carus, "The Poor Man's Atomic Bomb?" *Biological Weapons in the Middle East*, Policy Papers No. 23 (Washington, D.C.: The Washington Institute for Near East Policy, 1991), p. 24.

²³ U.S. Arms Control and Disarmament Agency, *Threat Control Through Arms Control: Annual Report to Congress* (Washington, D.C.: U.S. Government Printing Office, 1995), p. 68.

²⁴ *The Middle East Military Balance, 1993-1994*, p. 229.

²⁵ *The Middle East Military Balance, 1994-1995*, p. 361.

²⁶ Quoted in Rafiq Khalil al-Ma'alauf, "Clinton Supports a Comprehensive Settlement and Rabin Warns Against Syrian Missiles" (in Arabic), *Al-Hayat* (London), June 23, 1994, pp. 1, 4.

²⁷ Interview with Syrian Defense Minister Lt. General Mustafa Tlas in *Al-Fikr al-Askri* 3 (1975), p. 37. See also, Muhammad Zuhair Diab and A'mid Khouli, *Al-Muna'ataf al-Kabir* (Damascus: Moasaset Tishreen Lilsahaf w'al-Nasher, February 1979), pp. 28-35; and Marshal Muhammad Abdul-Ghani al-Gamsi, *Muzakarar al-Gamsi: Harb Aktober 1973* (Paris: Al-Manshurat al-Sha-Rqyh, 1989), pp. 382-395.

²⁸ President Assad interview with ABC News, *Al-Thawra* (Damascus), April 26, 1984, pp. 3, 11; Assad address on March 8, 1986, *Al-Ba'ath* supplement, March 9, 1986, p. 25.

²⁹ Trevor N. Dupuy and Paul Martell, *Flawed Victory: The Arab-Israeli Conflict and the 1982 War in Lebanon* (Fairfax, VA: Hero Books, 1986), Chapters 9, 10, and 13; Lt. General Mustafa Tlas, ed., *Al-Ghazou al-Israeli Lilbnan* (Damascus: Dar Tlas Lilderat w'al-Tarjamh w'al-Nasher, 1985), Chapters 6 and 7; and W. Seth Carus, "The Military Lessons of the 1982 Israel-Syria Conflict," in Robert E. Harkavy and Stephanie G. Newman, eds., *The Lessons of Recent Wars in the Third World: Approaches and Case Studies, Vol. 1* (Lexington, MA: D.C. Heath and Co.), Chapter 12.

³⁰ "Weapons of Mass Destruction and Decontamination Procedures," translated by Kamal Kashat, *Al-Fikr al-Askri*, No. 3 (May-June 1983), pp. 177-192; and "The Issue of Chemical War -Part I," *Al-Fikr al-Askri*, No. 4 (July-August 1983), pp. 57-90, and Part 2, *Al-Fikr al-Askri*, No. 5 (September-October 1983), pp. 59-87.

³¹ Burck and Flowerree, *International Handbook on Chemical Weapons Proliferation*, p. 208.

³² "Syria Warns Israel Against Escalation and Tension" (Arabic), *Al-Arab International* (London), August 8, 1996, p. 2.

³³ Diab and Khouli, *Al-Muna'ataf al-Kabir*, pp. 28-35.

³⁴ Quoted in Gerald M. Steinberg, "Israeli Responses to the Threat of Chemical Warfare," *Armed Forces and Society* 20 (Fall 1993), p. 98.

³⁵ *Al-Fikr al-Askri*, No. 4 (July-August 1983), pp. 72-74.

³⁶ *Ibid.*

³⁷ Carus, "The Poor Man's Atomic Bomb?" *Biological Weapons in the Middle East*, Chapter 5.

³⁸ "The CWC Loophole," *Mednews*, January 25, 1993, p. 3.