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Chemical Weapons in Syria: Has a Red Line Been Crossed?

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On April 23, 2013, at the INSS annual conference "Security Challenges of the 21st Century," Brig. Gen. Itai Brun, head of the Research Division of IDF Military Intelligence, said that Israel has information indicating that Assad's forces used a lethal chemical weapon several times against the rebels, likely sarin, along with incapacitating chemical agents. This statement, the first time such an assertion was made by a senior official Israeli source, made waves in Israel and internationally. The following day, senior American sources confirmed that there is preliminary evidence that Assad used chemical weapons, though absolute verification is still needed.

Several questions emerge from the announcement. What evidence is there of chemical weapons use? How extensive was it? What kinds of attacks were launched, and by whom? Who was targeted?

For the past year the topic of Syria's chemical weapons has made frequent headlines. Syria has an arsenal of chemical weapons, including all its components, as well as a full array of operational capabilities, including artillery shells, aerial bombs, and missiles. The main substance of the chemical weapons arsenal is sarin, a lethal nerve gas. In light of events in Syria, various sources have speculated about the possible use of this arsenal, be it through use by Assad's forces against the rebels, transfer to terrorist groups such as Hizbollah, use by Assad against Israel in a move of desperation, and other scenarios. This past year, there were several reports of Syria moving chemical weapons components from base to base, along with talk of operational preparations and states of high alert. These reports motivated several nations, first and foremost the United States but also Russia, to issue stern warnings to Assad not to use his chemical arsenal. Moreover, President Obama and other senior administration officials declared that changes in the chemical arsenal would be tantamount to crossing a red line and constitute a "game changer," and therefore prompt actual measures. No clear definition of this red line was issued, nor were the steps spelled out that the United States would take in response. In the meantime, there were reports of the United States, together with friendly nations in the region,

making plans for a military takeover of the chemical weapons and securing them or even bombing them from the air should certain dangerous conditions emerge on the ground.

In recent months several reports asserted that chemical weapons had been used in practice. The most significant allegation concerned the attack in Aleppo on March 19, with reportedly about 25 civilians killed along with other casualties. There were mutual recriminations over the incident: the Assad government accused the rebels of using chemical weapons and the rebels made identical counter-accusations against the regime.

To verify with absolute certainty what happened in Aleppo and whether chemical weapons were used, several types of data are needed:

1. Reliable, first-hand testimony from the time of the attack and immediately thereafter from people or survivors who were there concerning how the attack was carried out, how the chemical material was dispersed, its shape and characteristic odor, the size of the affected area, and a description of the victims and their clinical symptoms. Sarin is exceedingly fast acting and lethal. Symptoms appear within minutes and death occurs quickly, usually within a few hours of exposure.
2. Discovery and identification in real time by means of automatic or manual detection and identification devices of the attack and the type of material scattered. The window of opportunity for this is very narrow (at most a few hours in the case of sarin, a highly volatile chemical).
3. A description of the victims seeking medical treatment in clinics and hospitals, the clinical symptoms, and the required antidotes. The window of opportunity for this is days to a few weeks.
4. Lab analysis of soil, water, and surface samples. Chemical analysis requires sophisticated equipment and a great deal of knowledge and experience in the field. In the case of a chemical as volatile as sarin, the window of opportunity for positive, direct identification by means of environmental samples is quite narrow. Sarin derivatives can be identified later, providing either full or partial verification.
5. Lab analysis of victims' bodily fluids (blood, urine) or hair, biopsies, etc. Such sampling within hours, days, or possibly more could reveal changes in biological markers or traces of chemical weapons and/or degradation products indicating exposure to the toxin.
6. Autopsies.

The closer the testing and assessments to the time of the attack, the higher the chances of collecting reliable data in all of the six categories described above, resulting in verification and assessment of the attack.

Non-classified information published by the various media seems to have been based primarily on eyewitness accounts from the scene of the event, as well as film clips on television depicting victims being treated in clinics and hospitals. Descriptions from the scene do not provide clear testimony that chemical weapons were involved. One cannot rule out the possibility that these descriptions pertain to industrial chemicals or other toxins associated with the battlefield. One hypothesis is that the event involved poisoning using industrial chlorine, but this idea lacks credibility. The film clips showing victims treated in hospitals are not unequivocal evidence of chemical weapons. Surprisingly, those around the victims were protecting themselves with mouth and nose breathing masks only, rather than NBC respirators. One would have expected that this would cause secondary casualties, yet there was no evidence this occurred. Similarly, myosis (constricted pupils) and foam from victims' mouth that were observed are not conclusive evidence of sarin, as other chemicals can cause similar phenomena.

If Assad's forces did indeed use chemical weapons, it is hard to understand the motivation, as this was an isolated small scale strike with a relatively small number of victims and could not have made a major impact on the fighting from an operational perspective. It could have been a warning or signal issued by Assad to the rebels, or an attempt on Assad's part to push the envelope in order to test local and international response

A recent report stated that professional labs in the UK and France had discovered significant findings using samplings from the scene (no details of the types of samples or the findings were reported) indicating the use of chemical weapons, apparently sarin. While Brig. Gen. Brun claimed that the IDF has further evidence (beyond what was published in the media), it is not known what this evidence is or if it indicates with absolute certainty that sarin was used.

The current official American stance is that there is preliminary evidence that must be verified to determine conclusively that chemical weapons were used, and there are efforts afoot to collect more data. Is this the American position because, technically speaking, there is still no conclusive evidence for the use of chemical weapons, or is it the American position because of political considerations? An American admission that there is conclusive proof of the use of chemical weapons would require the United States to respond, as not doing so would damage the President's credibility.

The response options open to the administration are not simple; some of them require "boots on the ground," a situation the Americans are keen to avoid. When speaking of the chemical weapons alone, plans have been made for the forcible seizure of sites and stockpiles. These plans are complex and apparently require the deployment of many forces in Syria, a risky endeavor fraught with possibilities of unforeseen developments.

Aerial bombing and the destruction of chemical weapons sites is operationally and technically possible and could result in high rates of destruction of Assad's chemical array, but is unlikely to provide complete neutralization of the threat. There is also a certain risk to the civilian population near these sites.

Last but not least, one should remember that Assad's massive chemical (and biological?) weapons arsenal was built over many decades to serve as a strategic balance to Syria's conception of Israel's conventional and nonconventional weapons. But this structure was under the complete control of Assad and his inner circle. Now the future of Syria as a state is unclear. There is certainly a risk that in the end, and regardless of whether the chemical weapons are used or not, the whole structure of the chemical weapons or significant parts thereof will be seized by radical elements liable to win control of Syria or large parts of it. Therefore, the international community, led by the United States, must make comprehensive plans for the destruction of Syria's entire chemical and biological weapons array as part of stabilizing the situation in Syria. Otherwise, this array of nonconventional weapons will continue to represent a continuous potential threat both to the world at large and especially to the region, including Israel.

