

SYMPOSIUM ON NEW CHALLENGES IN WEAPONS INSPECTION

LESSONS FROM WEAPONS INSPECTIONS IN IRAQ AND SYRIA

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Weapons inspections in Iraq and Syria have drawn considerable attention from the international community in recent decades. This essay summarizes the key events associated with those inspections and draws upon my personal experience as a UN weapons inspector in both countries to identify lessons learned and future challenges. Those challenges include distrust among non-Western states, the difficulty of detecting much of the illicit activity, disinformation, and deficiencies in inspector training.

The Iraqi Experience

In April 1991, at the end of the Persian Gulf War, the UN Security Council (UNSC) passed Resolution 687. In this resolution, the UNSC “[d]ecided that Iraq shall unconditionally accept the destruction, removal and rendering harmless, under international supervision,” of “[a]ll chemical and biological weapons and all stocks of agents and all related subsystems and components and all research, development support and manufacturing facilities,” along with “[a]ll ballistic missiles with a range greater than 150 kilometres and related major parts and repair and production facilities[.]”¹ The United Nation Special Commission (UNSCOM), with the Swedish Ambassador Rolf Ekéus as chairman, was formed to oversee implementation. I was active with UNSCOM as Chief Weapons Inspector between 1994 and 2000, dealing with the chemical and biological weapons programs.

When UNSCOM commenced its activity in 1991, Iraq’s various programs for weapons and delivery systems were still in a dynamic state. Iraq had effectively used “first generation” chemical weapons in its conflict with Iran, which ended in August 1988, and this experience had encouraged the Iraqi government to make new investments and long-term plans for weapons of mass destruction (WMD) and their delivery systems. Following Resolution 687, Iraq produced a very short account of its weapons inventory and handed over its first-generation chemical weapons but held on to the rest of its programs. UNSCOM’s first task was, accordingly, to verify numbers and oversee the destruction of large quantities of chemical weapons and their delivery systems. The next task was to find out the status of ongoing activities and future plans within the rest of the WMD programs. Sometimes this meant uncovering hidden production activities. Other times it entailed advanced R&D and testing. On and off, we also investigated illegal imports of strategic material. Most of UNSCOM’s efforts over eight years were spent “helping” Iraq to fully declare its programs.

Extensive efforts were undertaken to incentivize Iraq’s compliance. UNSC issued resolutions 699, 707, 949, and 1194, repeatedly condemning Iraq’s non-cooperation in the strongest words. Sanctions were enforced, and at times, U.S. and British forces launched air strikes to increase pressure. These efforts eventually produced results:

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¹ [S.C. Res. 687](#), at para. C(8) (Apr. 3, 1991).

Iraq's initial three-page attempt at a declaration in 1998 became the Full, Final and Complete Disclosure, a document of over ten thousand pages. But in spite of brilliant investigative work, many ingenious ideas, occasional access to good intelligence, and military pressure on the Iraqi government, UNSCOM was never in a position to guarantee that Resolution 687 was fully implemented.

In the fall of 1999, UNSC replaced UNSCOM with the UN Monitoring, Verification and Inspection Commission (UNMOVIC). UNMOVIC's role was to inspect and oversee critical infrastructure and imports of dual-use equipment as sanctions against Iraq were lifted. Among other things, that role required UNMOVIC to monitor activities at dual-use production sites by cameras, sensors, periodic sampling, and no-notice inspections in order to prevent Iraq from resuming any illegal activities.

Finally, in March 2003, a U.S.-led coalition invaded Iraq. The possibility that the country retained a biological weapons capability was one of the motivating factors for this invasion. But in October 2003, David Kay, heading the Iraq Survey Group, reported that he found no such WMD. In March 2005, a Commission on the Intelligence Capabilities of the United States reported that the intelligence community had been "dead wrong" in its assessments of Iraq's WMD capabilities before the U.S. invasion.²

UNSCOM identified two questions that remained unresolved. One was whether Iraq retained a limited capability with regard to WMD. A handful of Scud missiles filled with the most effective nerve agent (VX) or very dangerous anthrax spores in dry powdered form would have been considered militarily significant and a threat to Iraq's neighbors. The other question concerned the relative success of Iraqi R&D in relation to chemical weapons, biological weapons, and delivery systems. Together, these questions meant that inspection activities needed to be able to detect small volumes of agents and a small number of delivery systems. The questions also meant that R&D and small-scale production became very significant and had to be explored. As a UN body with limited resources, UNSCOM was unable to guarantee that Iraq was free of all WMD.

The Syrian Experience

In March 2013, I was asked by the UN Secretary-General, Ban Ki-moon, to investigate allegations of the use of chemical weapons in the domestic conflict of the Syrian Arab Republic. Secretary-General Ban arranged for this investigation through the UN Secretary-General Mechanism (UNSGM)—i.e., the privileges and obligations entrusted to him by the General Assembly to initiate weapons inspections following allegations of the use of chemical or biological weapons. The legitimacy of the UNSGM stems from mandates of both the UN General Assembly³ and the UN Security Council.⁴ My primary task was to investigate critically the allegations of use, not to find a perpetrator.

Syria was known to have an arsenal of chemical weapons, and this arsenal was supposedly a strategic counterbalance to the nuclear capability of Israel. Following the start of the Syrian domestic war, there were frequent rumors of incidents involving chemical weapons, and in March 2013, reports surfaced indicating that their use was actually taking place. The nerve agent sarin likely killed twenty and intoxicated an additional one hundred victims west of Aleppo in northern Syria. Several member states, including Syria, called on the UN Secretary-General to arrange for an inspection. Throughout our investigation we used open sources, intelligence from member states, satellite imagery, interviews, sampling of the environment and of humans, and more. Ultimately, the

² Comm'n on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, [Report to the President of the United States](#) (Mar. 31, 2005).

³ [G.A. Res. 42/37 C](#) (Nov. 30, 1987).

⁴ [S.C. Res. 620](#) (Aug. 26, 1988).

investigation reported on several incidents involving the use of chemical weapons. We reported on victims, on both sides of the ongoing conflict, and on use.⁵

Following our investigation, the Syrian government, a likely perpetrator, responded to international pressure by acceding to the Chemical Weapons Convention (CWC). The declaration of its chemical weapons and their destruction thereafter became a task for the Organisation for the Prohibition of Chemical Weapons (OPCW). By the end of October 2013, representatives of the OPCW found a total of 1,300 metric tons of chemical weapons within Syria. Some experts believed that Syria had around three hundred metric tons of sulfur mustard-related chemicals and around seven hundred metric tons of nerve agent-related chemicals.

Impressive logistical efforts followed. In late 2013 and the first half of 2014, all known elements of Syrian chemical-weapons capability were dismantled. Yet the use of chemical weapons continued to occur in the conflict. Indeed, OPCW reported the repeated use of chemical weapons, mainly chlorine, in Syria in 2014 and onwards. The UNSC reacted sharply to this fact and, following repeated condemnation of ongoing chemical-weapons activity, adopted Resolution 2235 in 2015. This resolution led to the establishment of an “OPCW-United Nations Joint Investigative Mechanism [JIM] to identify to the greatest extent feasible individuals, entities, groups, or governments who were perpetrators, organisers, sponsors or otherwise involved in the use of chemicals as weapons, including chlorine or any other toxic chemical.”⁶ The JIM was to work for one year and report back to the UNSC with its findings.

The JIM produced results. In 2016, it investigated ten different incidents in which chlorine barrels were dropped from helicopters and one incident involving the delivery of sulfur mustard by mortars. Taken together, the JIM’s third and fourth reports concluded that the Syrian Arab Republic was responsible for using chlorine cylinders dropped from overflying helicopters in Talmenes on April 21, 2014, and in Sarmin and Qmenas on March 16, 2015.⁷ The JIM also concluded that the Islamic State in Iraq and the Levant (ISIL) was responsible for using sulfur mustard in an attack on Marea on August 21, 2015.

The JIM’s mandate was thereafter extended for another year. In 2017, the JIM investigated the use of sulfur mustard on September 15 and 16, 2017 at Umm Hawsh in northeast Syria and the use of sarin on April 4, 2017 at Khan Shaykhun in central Syria. In its seventh report, the JIM concluded that enough evidence existed to show that ISIL was responsible for the incident in Umm Hawsh and that the Syrian government was responsible for the incident in Khan Shaykhun.⁸ Despite several attempts thereafter, UNSC never extended the JIM investigations.

I was active in these investigations as a Senior Scientific Advisor. As a relatively experienced inspector, I had influence primarily over analysis, reporting, and the application of solid standards for methods and conclusions. The investigations resembled complex criminal investigations; in each case, we tested a number of hypotheses against the information collected—i.e., open-source material, intelligence, samples, forensic investigations, site visits, interviews, satellite imagery, and more. This process relied heavily on the special knowledge and skill of the weapons inspectors. There had to be an understanding of the chemistry of both the production and the

⁵ UN Mission to Investigate Allegations of the Use of Chemical Weapons in the Syrian Arab Republic, [Report on the Alleged Use of Chemical Weapons in the Ghouta Area of Damascus on 21 August 2013](#); [UN General Assembly & UN Security Council Joint Report](#), UN Doc. A/67/997–S/2013/553; UN Mission to Investigate Allegations of the Use of Chemical Weapons in the Syrian Arab Republic, [Final report](#), UN Doc. A/68/663 & S/2013/735.

⁶ [S.C. Res. 2235](#) (Aug. 7, 2015).

⁷ [Third Report of the Organization for the Prohibition of Chemical Weapons, United Nations Joint Investigative Mechanism](#), UN Doc. S/2016/738; [Fourth Report of the Organization for the Prohibition of Chemical Weapons, United Nations Joint Investigative Mechanism](#), UN Doc. S/2016/888.

⁸ [Seventh Report of the Organization for the Prohibition of Chemical Weapons, United Nations Joint Investigative Mechanism](#), UN Doc. S/2017/904.

degradation of the chemical agent; the agent's delivery and spread in the environment; and the agent's effect on humans, nature, and man-made materials. In short, this work required the skill of experienced crime-scene investigators and clever analysts, along with expertise pertaining to the weapons themselves.

Although the JIM investigations were valuable, two problems hindered their success. The first was their short duration. The entire experience spanned from August 2015 to November 2017. Having no permanent, trained staff and no president to lead the investigations, it took considerable time for each JIM to become functional. As a result, each one is likely to have spent no more than roughly six months as an effective investigative body. The second problem, encountered particularly during the JIM's initial work, was the difficulty of performing a proper investigation when the guilty party was already obvious to many of the investigators from the outset. Some investigators even refused to consider alternative scenarios.

Contemporary Challenges

Today, the main body to house the daily activities of “chemically competent” weapons inspectors is the OPCW—i.e., the organization that verifies state parties' compliance with the CWC. The OPCW has served well, overseeing the worldwide eradication of state-controlled chemical weapons capability. Accordingly, the “old” OPCW has nearly fulfilled expectations, and the world is almost free of chemical weapons capabilities. The challenges that remain are to handle “uncooperative” state parties and to handle the “unwilling” governments of the few non-state parties that remain outside the OPCW's mandate. At the time of this writing only four countries remain outside the CWC—Israel, Egypt, North Korea, and South Sudan.

Unlike the CWC, the Biological Weapons Convention (BWC) does not have an organization for verification. The only verifying instrument applicable to biological weapons is the UNSGM. Moreover, compared with the OPCW, the UNSGM stands relatively naked when it comes to necessary resources—i.e., permanent staff, accredited laboratories, and logistical support. Several member states to the United Nations have sought to compensate for the UNSGM's meager organizational support to improve verification with respect to BWC. Today, however, there is no internationally recognized instrument to address the very difficult task of ferreting out covert activities aimed at maintaining or acquiring a biological-weapons capability.

The inspections in Iraq and Syria highlight several of the challenges faced by weapons inspections in this context. First, in spite of the near-universality of the CWC, there is genuine distrust in many regions outside the Western Hemisphere for supranational structures like the United Nations and the OPCW. Nonproliferation treaties and their supporting organizations are considered to be instruments for maintaining Western control. Qualified staff are frequently recruited from the West, as experienced personnel and supporting intelligence services cannot be found everywhere. As a result, the nonproliferation regime is often perceived as using double standards and biased processes to implement law and order for the benefit of the West. In the case of Iraq, for example, the main intelligence support came from the West. Being highly influenced by the West's ambition to topple Saddam Hussein, the intelligence community lost its objectivity and fed the verification process of UNSCOM with never-ending stories of non-compliance. The resulting distrust complicated the task of verification.

Second, while activities requiring large and cumbersome logistics are difficult to hide and, accordingly, relatively easy to inspect and detect, modern technology is likely to rationalize and even miniaturize processes. This challenge is already evident in the domain of biological weapons. As the Iraqi experience illustrates, the detection of a “garage”-type undercover biological-weapons program, or of small yet strategically significant weapons, is quite challenging. For nuclear and chemical weapons inspectors, this challenge is likely to grow as the miniaturization of production and improvements in the effectiveness of the weapons become reality.

Third is the problem of fake news or propaganda, which is capable of influencing opinions and redirecting interests. Indeed, the significance of fake news is likely to become even more important as it becomes harder

for society to ascertain what is true. Small programs or events, with a signature that is hardly detectable, will become even harder to detect and scrutinize in the face of skillfully crafted campaigns of disinformation. Both the Iraqi and the Syrian experience were highly political. Important values were at stake and the issue of WMD was intimately connected with the survival of the existing government. During the Iraqi encounter, the primary source of fake news / propaganda was the West. During the Syrian experience, the primary source was the Syrian government, its allies, and, to a lesser extent, the opposition. Disinformation badly undermined trust in the JIM's inquiry into the use of chemical weapons in Syria in 2017 and led eventually to the non-renewal of the JIM's mandate.

Finally, weapons inspections, like any other activity, require a continuous process of development and improvement. This is true in relation to staff, methods, processes, and equipment. I had no training in inspection activities before I started. I had a good background in chemical weapons, following extensive research into their medical aspects, but I had only a superficial understanding of biological weapons and almost no knowledge of nuclear weapons and/or delivery systems, so I learned primarily on the job. Fortunately, formal training for weapons inspectors has since become an established activity, but improvements are needed. In particular, verifying bodies like the OPCW and the Comprehensive Test Ban Treaty Organization should adapt their staff to the multi-disciplinary demands of contemporary inspections by continuously cultivating new expertise in fields such as chemistry, biology, forensics, and criminal investigation. OPCW has a highly qualified Scientific Advisory Board that deals with development and improvement, but the underpinning R&D activity is not under the control of OPCW and is instead financed and performed by industry and/or state parties. To prepare for new challenges, a body like OPCW needs to receive more dedicated support with R&D from state parties. For biological weapons, the problem is even larger, since the only verifying body is the United Nations. In this context, there is in reality no one to oversee and coordinate responses to future challenges. Nor is there anyone to influence member states' R&D activity to better meet those challenges.

Conclusion

The strength of international weapons control treaties is substantially “trust-related.” A large component of this is political trust in neighbors, member states, and/or state parties. But such trust has its own trajectory, and when it vanishes, there has to be a robust system of declarations and verification to fill the gap. Weapons inspections have played a critical role in this regard, but their future success is not guaranteed. Well-trained and experienced staffing, together with modern equipment and methods, will be necessary to withstand modern challenges such as “micro” programs and fake news, and to preserve trust in arms control activities going forward.