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**Weapons of Mass Destruction Programs in Iraq**

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Thank you for the opportunity to appear before your Committee. I would like to make my presentation in two parts. The first part will address the motivations, concepts and organizations supporting the Iraqi WMD programs. The second will discuss the ensuing programs and their probable status today.

UNSCOM had long pressed Iraq to provide information and documents describing the requirements and operational concepts for the BW, CW, Ballistic Missile and nuclear programs. Iraq refused until shortly after Saddam Hussein's son-in-law, Hussein Kamal defected to Jordan in August 1995. Hussein Kamal was the most senior regime official with control over these weapons programs. Baghdad was concerned about what Kamal would reveal and sought to limit the damage by a burst of controlled cooperation and admissions.

On September 18, 1995, I had a long, late night meeting with several senior Iraqi ministers and other officials. The meeting was arranged to discuss the Iraqi concepts and requirements for their WMD development and production programs. Previously, Baghdad had refused to engage in such a discussion. I remember the meeting quite well, not simply because there was an unusual amount of candor, but because I suddenly realized how unlikely it was that the government would ever comply fully with the UN demand to completely give up all WMD capabilities forever. Consequently, the UNSCOM inspectors had an ultimately hopeless task under the conditions it was permitted to operate.

Iraq revealed that evening how weapons of mass destruction were viewed from the position of the Presidency. (They even provided selected presidential documents.) Partial descriptions of the origin of WMD efforts were discussed. They also discussed how these programs had been used and their importance to the regime. In essence, the possession of WMD had saved the regime on two occasions. The first was in the war with Iran in the 1980's when Iranian human wave infantry attacks were repelled with chemical munitions (UNSCOM learned that 101,000 were reported "consumed" during this period).

The second instance where WMD preserved the regime was more surprising. I had asked about the decision by the Iraqi leadership not to employ WMD in the 1991 Gulf War. In a carefully worded response, the impression was conveyed that the President thought if Iraq used chemical or biological weapons against the coalition, retaliation would end his regime and probably him personally. He was successfully deterred. However, my interlocutors went on to describe how they had loaded BW and CW agent into various missile warheads and bombs before hostilities began 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.

Whether the Iraqi leadership believes this was the only reason the United States did not go to Baghdad in 1991 is unknown. However, clearly they are convinced that the possession of WMD contributed to keeping the Americans away and thus was vital to their survival.

The Iraqi WMD programs, which were begun in the mid-1970's, and consumed large material and human resources throughout the 1980's were well worth the investment from the perspective of the leadership. It was difficult then and more difficult now, to imagine circumstances under which this regime would end these programs. Deputy Prime Minister Tariq Aziz said on more than one occasion, "You are not McArthur. You did not occupy Iraq. Therefore, there are limits to what you can do." He was absolutely correct. Inspectors would be inherently limited in what they could do and accomplish. Nevertheless, we did eventually obtain a pretty good picture of the extent of Iraq's programs. From that, and from evidence that continues to be available even now, it is possible to make a reasonable judgment about Iraq's current capabilities and intentions.

**Organizations** The key organizations of the Iraqi programs included not just the Ministry of Defense, military services and Military Industrial Corporation, but also the intelligence services. The role of the latter was particularly relevant to the BW program and contributed to our lack of understanding in that area. The military services had clear roles in the chemical area. Air Force and Army forces stocked and used a variety of munitions for battlefield purposes. The long-range missiles were in a separate unit and had special warheads that could be loaded with chemical or biological agents. The Military Industrial Corporation (or organization) was and is now the ministry that coordinates all military research, development, and production. A special department of the Iraqi Intelligence Service or Mukhabarat plays an important supporting role, especially in arranging overseas procurement of weapons-related items. They coordinate purchasing missions and establish front companies or work through companies who conduct largely legitimate business.

The Special Security Organization (Amn al Khass) had a special role in the BW program that was carefully concealed. UNSCOM only obtained fragmentary information on this but it was clear that much of the original work on agent development was at the instigation of this security organization. The purposes of such research were therefore uncertain, but not related to military requirements. The Special Security Organization and the elite military units of the Special Republican Guard are responsible for protecting and concealing WMD elements.

The place where all these programs came together was in the office of the President (or Diwan). Only top presidential advisors had the full picture and gave direction and committed the resources to these programs. Key among them is Presidential Secretary Abid Hamoud who plays a role like the US national security advisor, but more so. (He has more command authority.)

Incidentally, the reason UNSCOM pressed so hard to gain access to presidential sites, including palace areas, was because this is where we believed we could find the program and planning data that would allow us to verify the full extent of the Iraqi programs. The top-level control of these programs will not have changed today.

**Long Range Ballistic Missile Status.** The bulk of Iraq's long range surface to surface missiles derived from imported SCUDs from the former Soviet Union. They imported 819 missiles and eleven mobile launchers. Many were expended: against Iran, for testing, and in the 1991 war. Iraq unilaterally destroyed others in an elaborate ruse to preserve a limited force in 1991. UNSCOM pursued a long and tortuous process to account for these missiles, which was made more difficult by the discovery in 1995 that Iraq had a program to produce such missiles indigenously. This program was at least somewhat successful. At the end of our work in Iraq there remained uncertainty over the disposition of a relatively small number of SCUD missiles. In my view it is likely Iraq retains a small long range missile force (perhaps 12-14 missiles) that would serve the purpose of a strategic reserve.

However, Iraq also retained a missile development and production infrastructure. This is permitted under UN resolutions for missiles up to 150 kilometers. Iraq has an active development program for a liquid fueled missile dubbed the al Samoud which utilizes engine technology from the anti-aircraft missile SA-2 (Iraq had over 1400 of these missiles) and some technology derived from its SCUD missiles. This program continues today and there are reports that Iraq may be seeking the ability to extend its range and develop longer-range missiles.

Key areas Iraq needed to work on included, warhead fusing (their CW/BW missile warheads in 1991 had impact fuses which would greatly limit their effectiveness), guidance, and engine production. Another area where Iraq is undoubtedly working is on staging. The Iraqi surface to surface missiles in 1991 were single staged. However, they were doing research on ways to add stages and increase range. It should be noted that Iraq continued these research and development efforts even while UNSCOM was inspecting during the early 1990's.

**Chemical Weapons Status.** While UNSCOM attempted to obtain documentation covering missions and requirements from the Ministry of Defense we never succeeded--despite some very intrusive inspections. Nevertheless, we gained a general picture of the chemical weapons programs up until 1988, or the end of the Iran-Iraq war. The agents and munitions developed and used were nerve and mustard agent. They had clear battlefield applications and we were able to account for much of the weapons and production capacity. Remaining issues included such matters as discrepancies about munitions consumed. (A key document found by UNSCOM in the Iraqi Air Force headquarters in July 1998 was seized back by Iraq. Inspectors had copied the data, which contradicted earlier Iraqi declarations accounting for nerve and mustard munitions.) There also was production equipment which UNSCOM had evidence existed in Iraq, but never located. There also was no way of verifying the disposition of much of the stocks of precursor chemicals Iraq had acquired.

It was certainly the case that the work Iraq pursued in CW after 1988 was the most tightly protected by Iraq. The one document that Ministry of Defense document UNSCOM did receive provided guidance to continue to develop the types of Chemical Weapons, attempting to manufacture the most dangerous types in large quantities. It was in this period that development and production of the advanced nerve agent VX was conducted. There remains considerable uncertainty about the extent of this program and its disposition. There was a pattern to Iraqi revelations that they gave up the oldest and least advanced projects and materials most readily.

UNSCOM accounted for and destroyed huge amounts of chemical agent, munitions, production equipment, and precursors. Yet, there certainly remained unaccounted materials for the production of both precursors and final agent. Iraq can make munitions indigenously and can probably make need chemical production equipment indigenously. The expertise for such work remains.

Areas where Iraq could be expected to be doing development would be in producing stabilized VX and improving their munitions and dispersal systems. In particular, the aerial bomb designs Iraq had in the early 1990s were not efficient for dispersing nerve agent. Fusing was a problem. It was apparent that Iraq was beginning to look into cluster munitions. Such munitions could be much more effective battlefield weapons. Aerial spray devices, possibly attached to remotely piloted vehicles, were under development and had application for both chemical and biological agents.

**Biological Weapons Status.** The biological weapons program was the least well verified of all Iraq's WMD programs. Part of the reason is because, as noted earlier, it emerged from the security organizations. The original purposes probably were not military in nature. This program was also not admitted until 1995, or four years after UNSCOM began work in Iraq. We know that the BW program largely shared the same munitions as CW. However, the production levels and disposition of both agent and production equipment has significant uncertainty.

The three biological agents Iraq states it produced for weapons were anthrax, botulinum toxin and aflatoxin. There were many other biological agents on which Iraq conducted research and development. These included clostridium perfringens (causes gangrene), ricin, wheat cover smut and some early work on viruses. Iraq had begun some early genetic engineering work as well. Iraq conducted experiments mixing lethal and non-lethal agents such as CS, commonly used as a riot control agent.

Iraq never made clear the purposes of many of these programs and experiments, extensive though they were. It seemed probable that military use was not the only purpose. In fact, the military seemed to have almost no interest or relationship to the program. It is difficult to understand why Iraq would produce and put into aerial bombs, aflatoxin. It has the effect of causing cancer over a period of several years. Experiments Iraq conducted in mixing aflatoxin with riot control agent appear particularly insidious as they would mask the exposure of individuals to this cancer causing agent.

The experiments with wheat smut are evidently aimed at developing economic weapons.

It was clear that Iraq understood that depending on the method of dispersal, the origin of the agent could be concealed. In other words, they understood the potential for conducting an attack that would be near impossible to connect to Baghdad as the responsible actor.

The sites where Iraqi BW work was known to have occurred were accounted for by UNSCOM. The largest, al Hakam was destroyed under UNSCOM supervision in 1996. Another, the Daura Foot and Mouth disease facility is being used for civilian purposes according to public accounts. There were elements of production equipment that UNSCOM understood were shipped into Iraq, but which were never located.

**Nuclear Weapons Status.** The nuclear weapons program is the most critical and most difficult for Iraq to achieve. While successful in all other WMD areas, Iraq did not quite achieve a nuclear weapon capability before invading Kuwait. Iraq had a huge sustained investment in nuclear weapons development throughout the 1980's. The IAEA accounted for most of the program and key facilities were destroyed. However, the intellectual capital remains, as does the will of the leadership to achieve a nuclear capability. Even during the time UNSCOM and IAEA were still in Iraq, there was a pattern of the former staff of the nuclear program being reassembled in common locations according to their expertise, e.g. specialists from former centrifuge enrichment program can be found clustered at one facility. Of course Iraq claimed they were engaged in activities allowed by the UN resolutions, but coincidences like these occurred too often.

Key facilities where personnel congregated included Al Majd Center, the Ibn Sina Center, Al Raya Center, Sa'ad Center (right across from the Rasheed Hotel familiar to all visitors) and the Al Tahaddi Center. These centers have legitimate rationales for their on-going work, but the presence of teams of alumni from the nuclear weapons program is a key tip-off.

A recent defector who worked as a design engineer (evidently in the Al Majd Center) stated that an explicit order to reconstitute the nuclear teams was promulgated in August 1998, at the time Iraq ceased cooperation with UNSCOM and IAEA.

The key hurdle for Iraq to surmount to obtain a nuclear weapon is the acquisition of fissile material. Iraq had a viable weapon design and the capacity to produce all the elements of a weapon. Predictions on when Iraq will achieve a weapon depend on whether Iraq can obtain fissile material by smuggling or they have to produce it themselves which will take much longer. Predictions are particularly uncertain. The German intelligence authorities made an oft-quoted estimate last year in which it was stated that Iraq could, in the worst case, have a nuclear weapon in 3-6 years. German intelligence noted the growth in Iraqi procurement efforts in particular for weapons-related items. However, how this projection was made is not public and it may include significant uncertainty.

While precise estimates of the Iraqi nuclear program are impossible, what is certain is that Baghdad has the desire, the talent, and the resources to build a nuclear weapon given the time to do so.

**Where are they headed?** Typically, the regime in Baghdad will devote full resources to its weapons programs. All evidence suggests this has not changed even under sanctions and while the Iraqi civil society has been decaying. The regime has ruthlessly used a combination of reward and punishment to achieve all of its objectives, whether protecting itself internally or expanding its influence internationally. The use of force comes naturally and weapons of mass destruction are a vital element of the spectrum of power the regime applies. The regime exhibits a fundamental view that if you are not feared, you are nothing.

The regime seeks to dominate the region. It generates fear in its neighbors but also has the inherent capacity to reward them due to its oil wealth. It has skillfully played these two levers. Its influence in the region has steadily and incrementally grown since the debacle of 1991.

**The Current and Future WMD Threat.** Iraq has significant WMD capabilities in all areas with the exception of nuclear. It is probable that a small force of SCUD derived missiles remain in Iraq. Defectors have reported their existence and this is consistent with the remaining uncertainties of UNSCOM's work. Moreover, the ongoing Al Samoud liquid propellant missile is proceeding quite actively. Iraq has also been active in developing solid propellant engines. Iraq had a project called Badr 2000 which aimed to import non-SCUD missile technology. UNSCOM eliminated much of this program, but it embodied an objective Iraq retained in its missile programs-a multi-stage surface to surface missile. It is a reasonable assumption that such development work continues. Even during the time UNSCOM was in Iraq, a facility for the production of Ammonium Perchlorate, a key ingredient in solid missile propellant, had been established (to eliminate the need to smuggle such material).

Key things to look for in the Iraqi missile program will be testing of separating warheads, fusing for detonation above ground, and perhaps employment of supersonic parachutes to retard warheads. Evidence of Iraqi interest in these areas before UNSCOM left and such testing would indicate important advances in CW and BW missile warheads.

The chemical weapons program must be assumed to remain albeit in a diminished state from the huge industrial production of the 1980's. Dual-use facilities, even at known locations such as the production plants at Falluja, have the ability to produce chemical agents clandestinely. Chemical weapons have proven utility to Iraq on the battlefield against large troop concentrations. Iraq will retain the capacity to produce significant amounts of agent and fill munitions in a period of strategic warning. Storable, persistent VX agent may well have been produced since UNSCOM left in 1998. CW munitions for the battlefield can be produced in existing Iraqi munition factories.

The biological program is the most problematic for a number of reasons. First, it is the least visible. Facilities can be hidden or made mobile. UNSCOM had received reports of mobile BW facilities. Unlike nuclear programs, BW programs have a small signature. The best window into the Iraqi program will be from defectors. Some have been providing such information. Another key concern about the biological programs is that Iraq can accomplish everything indigenously. They can produce all the production equipment (fermenters, dryers, centrifuges, etc.). Iraq is also quite able to produce dispersal weapons of various sorts. Finally, they have access to seed stocks for a whole range agents.

The types of research Iraq is known to have conducted points to their interest in BW not just as a battlefield weapon, but as a strategic weapon, an economic weapon, a terror weapon, and possibly a genocide weapon. It remains to be learned precisely what agents were used in Kurdistan and whether they were strictly chemical agents.

BW is the most difficult present threat posed by Iraq. They certainly have the capacity to deploy it clandestinely or through surrogates should the regime so decide. Moreover, it is possible that

such things as wheat smut could be spread without any way of tracing the source. It is not impossible to imagine an economic disaster like the British Foot and Mouth disease outbreak that could be secretly directed from Baghdad and we would never be able to prove the source.

Biological weapons remain a high priority for the regime. Defector information indicates recruitment efforts among top Baghdad University biology students. It is also interesting to note that people associated with the biological weapons programs have been promoted. One key individual is now deputy director of the Military Industrial Corporation-the state run defense research, development and production center.

Saddam Hussein has stated his policy on weapons himself. In a televised meeting with top officials of the Military Industrial Corporation on 12 June 2000, he said, "If the world tells us to abandon all our weapons and keep only swords, we will do that. We will destroy all the weapons, if they destroy their weapons. But if they keep a rifle and then tell me that I have the right to possess only a sword, then we would say no. As long as the rifle has become a means to defend our country against anybody who may have designs against it, then we will try our best to acquire the rifle."

Finally, and most recently, the official newspaper of the Iraqi Bath party, Ath-Thawra wrote that "Acquiescing to Israel's, but not Arab, possession of such weapons (WMD) is a case of double standards. But no matter how much those who pursue double standards try to obstruct the Arabs, they will not stop their efforts to achieve this goal, be they overt or covert, in future. Acquiring weapons of mass destruction is consistent with "the right to self-defense and the requirements of national security, irrespective of the nature of a ruling regime."

Of course, the difference in the regime is everything. The present regime in Baghdad will not give up WMD even if inspectors go in again. The present regime will also remain quite willing to use them.