



# Timeline IRAQ

## *Challenges & Lessons Learned from Nuclear Inspections*

by Jacques Baute

**U**nder a dramatic and far-reaching global spotlight, the International Atomic Energy Agency's experience in Iraq reached a turning point in March 2003. Its nuclear inspection team — together with teams of the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) and the rest of the UN organisations operating in Iraq — had to withdraw ahead of announced military operations. The diplomatic route to disarming Iraq had reached an impasse.

Today, international inspection teams tracking weapons of mass destruction (WMD) programmes in Iraq work in the wings, ready to resume operations in Iraq at the UN Security Council's call. The mandate of international inspection stands, with the IAEA's Iraq Nuclear Verification Office (INVO) in Vienna in charge of the nuclear file.

The IAEA's nuclear inspection and verification experience in Iraq stretches over a span of three decades, addressing activities from the mine to the weapon. Agency inspectors led the discovery and dismantlement of Iraq's secret nuclear weapons programme in the 1990s, and after the 1990s round

of inspections had stopped, they had found no evidence, up to March 2003, that the programme had been revived since 1998.

Since the first Iraq inspections under Security Council mandate in early 1991, the road of nuclear verification in Iraq has proved to be long and hard, and valuable lessons were learned that have benefitted the international community and strengthened the IAEA inspectorate. This article highlights the IAEA's extensive experience in Iraq, the main challenges, and selected key lessons drawn from them.

### **Limits & Loopholes: The Early Years**

Much is known in the nuclear verification community about the limitations of IAEA safeguards in the 1980s and of the corrective steps that were taken. Until then, the nature of the

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*Photo: The remains of facilities used for Iraq's clandestine nuclear weapons programme. (Iraq, 1991-1998).*

*Credit: Action Team 1991-1998/IAEA*

traditional approach, thought to be adequate by the international community, had enough loopholes for Iraq to begin a clandestine nuclear weapons programme and remain undetected for a decade.

It is unfortunate that in some arenas some continue to portray the early safeguards limitations as an indicator of the IAEA's inability to provide credible assurance of a State's adherence to its obligations under non-proliferation agreements. Iraq had joined the global Nuclear Non-Proliferation Treaty (NPT) in the 1970s as a non-nuclear-weapon State and had concluded the required NPT safeguards agreement with the Agency.

Back then, it seemed that the international community was convinced that NPT non-nuclear-weapon States would remain committed to their pledges, and thus, the Agency's role would simply be the verification of the State's declared nuclear materials and installations. The mistake of the whole community was not to acknowledge that a meaningful verification system must implement measures aimed at detecting if a State was trying to deceive the system via the conduct of undeclared activities.

Addressing these loopholes — i.e. developing the lessons learned of the initial discovery of Iraq's undeclared programme under the tougher inspection regime mandated by the Security Council in the 1990s — was the main objective of the IAEA's programme for strengthening safeguards, and ultimately led, in 1997, to the adoption of the Additional Protocol to NPT safeguards agreements. The Protocol gave IAEA inspectors more authority, broadening the scope of information and access that States had to provide to the IAEA for nuclear safeguards and verification.

If inspectors had such authority in 1991, for instance, Iraq would not have been able to develop most of its clandestine activities in undeclared buildings at its Tuwaitha Nuclear Research Centre, as turned out to be the case. Had the Agency been able to put together and analyse information from an extended declaration required from the inspected country, from the quite numerous open sources in the late 1980s, and from information from other States, they would have known more about Iraq's apparent intentions and the world would not have waited for Iraq's invasion of Kuwait before zeroing in on the clandestine nuclear programme.

## **Detection & Deception: On the Weapons Trail 1991-95**

The adoption of resolution 687 by the UN Security Council, in April 1991, was an important milestone. In this cease-fire resolution of the first Gulf war, the Agency was requested to map out and neutralise Iraq's nuclear programme and ensure Iraq's compliance with its NPT and resolution-related obligations through a far-reaching and ongoing monitoring and verification system.

Could a verification body dream of better conditions than being provided unconditional access to any individual, documents and technology that would help strengthen the conclusions? But despite such excellent conditions, our job was still far from easy.

The challenge at that time started with a learning phase — learning about Iraq's covert programme, including its most sensitive aspects, its weapons development; learning how to use the tremendous rights provided by the resolution; and learning how to team with UNSCOM, the United Nations Special Commission on Iraq. UNSCOM was tasked with a similar mandate for chemical and biological weapons and missiles and was requested to provide “assistance and cooperation to the Agency” (a vague definition, at best, to prevent possible variations on the understanding).

For the IAEA, one challenge was establishing the right structure for tackling Iraq's nuclear file. The first — perhaps too modest — response was to start with an IAEA Action Team made up of three professionals, reporting directly to the Director General, relying on the roster of inspectors from the Department of Safeguards, and calling on Member States to provide the expertise not readily available in-house. Gradually, however, the team grew in order to meet the challenges and, by December 2002, had become the Iraq Nuclear Verification Office (INVO) with more than 20 professional staff members.

Perhaps the biggest misconception was the time the “Iraq project” was expected to last. The timeframe cited by the Security Council in resolution 687 was expressed in days. Apparently, it was generally expected that the task could be completed in no more than a few months. As a result, the team went through a serious struggle when, at the end of 1993, a major turnover of personnel occurred, leaving only the Action Team leader to provide continuity. Newcomers had to rebuild the institutional knowledge with an innovative attitude. Major effort was made to develop a team approach, with a high priority in securing vital information through advanced structured databases, avoiding unnecessary restriction to information circulation, unless its sensitivity demanded a strict “need to know” approach.

That lesson, learned the hard way in 1994, was certainly a pillar of the success of the Agency's resumption of activities in November 2002. By then, staff turnover had once again led to a situation where INVO's Director was almost the only survivor of the senior staff involved in the preceding four (1994-98) years of inspections.

As IAEA inspections moved on in 1991, it became clear that Iraq's initial reaction certainly did not match the expectation in terms of transparency set by the Security Council. During the first months of inspections, Iraq's obvious objective was to hide as much as possible of its past programme. Unannounced intrusive inspections, in an attempt to cir-

cumvent concealment actions — such as Iraq’s cleanup of enrichment facilities and its efforts to hide sensitive information from inspectors — became a powerful tool that forced Iraq to readjust its approach, and reveal some of its programme components by the summer of 1991. The extent of Iraq’s clandestine programme was broadly uncovered, well before Iraq’s forthcoming (and revised) declaration in 1995.

This was due to various inspection techniques, including for instance particle analysis of swipe samples, that has become since then one of the most effective verification tools in the nuclear area. Other factors behind the progress made were the realization of Member States that sensitive information provided to the Agency can lead to dramatic discoveries, the thorough and professional approach of experienced safeguards inspectors mixed with experts in non-traditional areas, and the development of systematic and comprehensive analytical approaches, in particular to gain understanding of the depth of Iraq’s procurement effort during the 1980s.

The Agency’s mandate for the destruction, removal or rendering harmless of Iraq’s proscribed materials, equipment and facilities was practically completed by early 1994 (but not in 45 days as foreseen in Security Council resolution 687). At that time, there was no more weapon useable material, i.e. plutonium or high-enriched uranium (HEU), left in the country, no single use equipment was intact (even dual use items linked to the prohibited programme were destroyed) and all buildings with dedicated features had been destroyed. Even facilities that Iraq had not yet acknowledged as being linked to prohibited activities were destroyed, such as Al Atheer, the weaponisation centre, denied to be such until the summer 1995.

In August 1994, after having operated for three years on a campaign mode (sending teams of inspectors from headquarters for inspections that were limited in time), the Agency began its permanent presence in Baghdad. Fully unannounced inspection subsequently became the order of the day. The Agency had the possibility to inspect anyplace, at anytime, which proved to be a far more effective inspection regime.

## Conclusions & Credibility: The Coherent Picture Emerges 1995-98

An important event occurred in August 1995 through the departure from Iraq of General Hussein Kamel - the Iraqi President’s son-in-law and former supervisor of all WMD programmes. Iraq pre-empted his expected revelations by coming forward with additional declarations. In particular, Iraq provided details on its attempt to recover HEU from reactor fuel and handed over large quantities of documents related to the centrifuge enrichment and weaponisation areas. Additionally, the counterpart demonstrated

a level of transparency that was unseen until that point in time. Because we had fully understood Iraq’s documentation procedures, we completed our collection of original Iraqi documents by convincing the counterpart that providing the missing original reports was inescapable. They gained access to all relevant Iraqi personnel, while, prior to August 1995, Iraq had tended to give us access only to a “spokesperson” in the relevant technical areas.

Follow-up on Iraq’s most damaging concealment action — the unilateral destruction of equipment and documents in the summer of 1991 — was implemented. This led to a campaign of digging in the desert to recover and take inventory of what had been hidden. Member States, or, more specifically, those communities in Member States that worked closely on the “Iraq case”, also became more supportive. They had finally realised that the IAEA inspection team was strong in its technical approach, reliable in handling sensitive information, and that the IAEA had become the most knowledgeable organisation on Iraq’s past programme and remaining capabilities. A tremendous amount of information of all kinds began to flow to us, allowing the team to become confident that, as all sources of credible information were being consistent, we had reached an accurate understanding of Iraq’s nuclear past programme and remaining capabilities.

The lesson to be learned from that period is the following: It is possible for a nuclear verification body to provide the international community with an accurate estimate of the past and present situation provided that:

- ◆ the inspection team is technically strong and thorough, in particular in its analysis of documentation down to a detailed level and in its dealings with all relevant personnel;
- ◆ the team remains politically independent, i.e. relying on facts only, away from bending to political pressure;
- ◆ Member States are supportive of its action, both politically through the support of the Security Council and technically through the provision of information and expertise;
- ◆ the inspected State fulfils the verification body’s requests.

Although, accuracy can never be 100%, by the end of the 1990s the world had a clear “coherent picture” of what was Iraq’s nuclear programme. It was documented in comprehensive reports to the UN Security Council.

Unfortunately, one of the key problems, in retrospect, was that the Agency’s approach and results remained unpublished. In 1997-1998, only UNSCOM, and its problematic relations with Iraq, was reported in the media. In view of this lack of publicity, along with the fact that four years had passed during which, in capitals, many of the staff dealing with the Iraq file had moved on, it was hardly surpris-

ing that, by 2002, many people, including policy makers, were more inclined to consider worrisome declarations on major television networks than thorough but rather lacklustre, technical reports to the Security Council. The promoters of the “inspections do not work” line could easily surf on the majority’s short and selective memory.

The key lesson for the Agency was that it should not only successfully fulfil its mandate, but also make better use of the media to convey its achievements to the public and decision makers.

## **Blindspots & Skyshots: The Inspection Gap 1998-2002**

In the fall of 2002, the world had not yet come to grips with the ramifications of nearly four years without inspections on the ground in Iraq, following operation Desert Fox in mid-December 1998. Consequently, as the “experimental results” normally provided by field activities were no longer available, every possible speculation, including the most pessimistic interpretation of fuzzy intelligence or worst case scenarios extrapolated from procurement attempts, were taken at face value.

Four years without inspections is certainly of significance in the development of a nuclear programme, especially considering what Iraq was able to do in the four years between 1987 and 1990. On the other hand, it is clear that, contrary to what was possible during the 1980s and early 1990s, sanctions were in place.

Moreover, there is no comparison of Iraq’s available assets at the end of 1986 and the situation at the end of 1998. In the absence of inspections, high-resolution commercial satellite imagery which became available at the end of 1999, provided a useful tool to try to remain in contact with the reality in the field (it is now widely used to prepare safeguards inspections worldwide). Overhead imagery had been utilized by the Agency in Iraq since 1991, in the form of photographs from U2 planes. Unfortunately, while allowing us to prepare well for inspections, imagery, as expected, proved to be far from sufficient to assess the existence or absence of nuclear activities.

The use of human intelligence proved to be an even greater challenge, given the possibility for anyone to embellish, if not create stories that end up being unverifiable. How many of the concerns raised by defector’s reports, or as the result of imagery observations, could have easily been resolved had inspectors been in the field?

Moreover, while it is difficult to measure the deterrence induced by an inspection regime, the broad conditions provided by Security Council resolution 687 and other resolutions, together with their implementation aimed at optimising inspection effectiveness, were clearly providing a level



IAEA Inspectors assess the ruins of a facility used to produce highly enriched uranium. (Iraq, 1991-1998)

of deterrence quite effective in preventing any prohibited activity of significant scale.

The adoption of Security Council resolution 1409, in May 2002, provided the Agency with a new mandate, resulting in developing a novel type of advanced experience: The process of reviewing all contracts to export goods to Iraq in order to identify what items might be of relevance for a hidden nuclear programme would allow the Agency to build an understanding of procurement networks, reflect on what items would be choke points and identify areas of possible concerns, based on the procurement of humanitarian or infrastructure rehabilitation goods.

But again, even that detailed information, compiled with clandestine procurement attempts, was far from enough to assess what was actually occurring in the country.

## **The Last Round: Under the Magnifying Glass 2002-03**

The last period of inspections, between November 2002 and March 2003, was of a quite different nature, with regard to global attention and what seemed to be at stake. Some perceived that war or peace were now firmly resting on the shoulders of the IAEA and UNMOVIC inspectorates.

While it was clear that the decision would ultimately not be in the hands of the inspectorate but in those of the of Security Council members, it was vital that the Agency do its best to provide the Council with all possible facts and reliable conclusions in a timely fashion to support its decisions.

The IAEA relied on four years of preparation, including its comprehensive databases on sites, equipment and personnel, its refined “coherent picture”, and former inspectors to benefit from the experience accumulated before December 1998. Thus, the Agency was able, within three months, to address most of the concerns raised by Member States.

## IAEA, UN Inspections in Iraq Worked

**I**AEA and UN inspections of Iraq's weapons of mass destruction programmes worked, *Newsweek* magazine reported in February 2004. The magazine cites the record of international inspections and of the US-led Iraq Survey Group, whose past leader, David Kay, reported his findings.

*Newsweek's* Fareed Zakaria writes:

"We were all wrong," says weapons inspector David Kay. Actually, no. There was one group whose prewar estimates of Iraqi nuclear, chemical and biological capabilities have turned out to be devastatingly close to reality — the U.N. inspectors. Consider what Mohamed ElBaradei, head of the U.N. nuclear agency, told the Security Council on March 7, 2003, after his team had done 247 inspections at 147 sites: "no evidence of resumed nuclear activities... nor any indication of nuclear-related prohibited activities at any related sites." He went on to say that evidence suggested Iraq had not imported uranium since 1990 and no

longer had a centrifuge program. He concluded that Iraq's nuclear capabilities had been effectively dismantled by 1997 and its dual-use industrial plants had decayed. All these claims appear to be dead-on, based on Kay's findings... The real lesson is that international bodies like ElBaradei's can work.

The magazine features an interview with IAEA Director General ElBaradei on the role of IAEA and international inspections.

"I think the sanctions worked, and more importantly, the inspections worked," Dr. ElBaradei says. "A combination of sanctions and inspections managed to disarm Iraq."

Dr. ElBaradei underlined the importance of having IAEA and international inspectors return to Iraq. "We still have a request by the Security Council to verify that Iraq has no nuclear weapons."

On 7 March 2003, Director General Mohamed ElBaradei told the Security Council that the IAEA had found no evidence or plausible indication of the revival of a nuclear weapons programme in Iraq. However, he added that more time was still needed for the Agency to complete its investigations on whether Iraq had attempted to revive its nuclear programme between 1998 and 2002. Neither the changes in Iraq over the past year nor the investigations by the Iraq Survey Group set up to complete Iraqi disarmament have done anything to contradict the Agency's assessment of the situation. However, conclusions should certainly not be drawn before the IAEA team has had a chance to complete its assessment, once the Security Council revisits its mandate, as foreseen in resolution 1483 and 1546, and teams can return to Iraq.

As highlighted in major newspapers and magazine editorials, the IAEA seems to have been right in its assessment of Iraq's nuclear capabilities. In my view, this was no coincidence, but the result of a well thought out and reliable approach. It is the Agency's role to provide the international community, in a timely fashion, with facts and conclusions when, and only when, they become indisputable, and to inform them about uncertainties as long as they exist.

This is what the IAEA's Iraq teams did routinely, but more spectacularly in October 1997 and March 2003. The fact that the Agency has 137 Member States forces it to put great distance from any single political agenda and its associated pressure (which is not the case for national analysts who, at a given point in time, may feel under the pressure, explicit or implicit, from a single political line).

But if the ethics of the approach provide the framework for the work, it does not provide the end product. The method-

ology that leads to the "credible assurance" that the international community expects from the verification body relies first on assembling top quality personnel, whose contribution is required to be disconnected from any "a priori" belief that would lead to preconceived conclusions. Experts must be of geographical diversity, and redundancy of expertise is certainly mandatory in sensitive areas, again to avoid unwanted bias. Then, it is fundamental to remember that the information that leads to a conclusion cannot be limited to a declaration taken at face value, "the last HUMINT" (human intelligence) or the "last sample analytical result". Rather, it has to include data that is as comprehensive as possible in nature, origin and time. Another key parameter is certainly to keep in mind one's own limitations, to avoid excessive extrapolating far from the facts and forgetting the inherent presence of uncertainties.

Of course, no verification is meaningful, unless the inspectors have, on a continuous basis, the appropriate level of authority that enables drawing credible conclusions while limiting the uncertainties. Absence of inspections, like in Iraq from 1999-2002, turns the whole community blind. Providing the IAEA inspectorate with the right level of authority (even short of the dream conditions as in Iraq) is a win-win situation. It benefits the international community, which receives the level of assurance it seeks, and also the inspected party, which is given the opportunity to demonstrate the reality of its compliance. As proven in Iraq, inspections work, and they have no substitute.

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