

The IAEA and Iran: No smoking guns so far, but the smell of gunpowder lingering in the air

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Summary

A report dated 24 February by the Director-General of the IAEA on the atomic activities of Iran has been leaked to the media and NGOs. On Monday, 8 March, the IAEA Board meets to consider the report.

The IAEA still has not received written confirmation from Iran that its domestic requirements for entry into force of the additional protocol signed in December 2003 have been met. Other concerns about the Iranian nuclear programme, include:

- The irradiation of Bismuth metal samples, which Iran claim was part of an experiment for civilian purposes. However, the evidence suggests that civilian applications would be severely limited.
- The possibility that uranium enrichment might be resumed in the future, despite the deal with the European governments.
- Traces of highly enriched U-235 found in a workshop in Iran, which is far more enriched than what is necessary for use in civilian light water reactors.

While the IAEA report is positive about Iranian cooperation and claims to be making good progress on verification, a number of questions remain to be answered.

However, there are still IAEA analyses to be done and some findings are dependent on the cooperation of 'other states'. Thus, a confrontational strategy with Iran at this stage would be premature.

Recommendations

- Iran should immediately commence parliamentary procedures with a view to ratifying the IAEA additional protocol.
- Iran must give an unequivocal guarantee not to resume its uranium enrichment programme.
- Iran should take definitive steps to separate its civil nuclear programme from its military establishment.
- The IAEA Governors should grant the Director-General an additional three months (to the next Board meeting in June) to verify that the Iranian nuclear programme is intended solely for peaceful purposes.
- The US Administration, and other states, should refrain from threatening direct or indirect UN Security Council involvement. They should, however, prepare for that contingency, provided that the next IAEA report is inconclusive.

Background

On Monday 8 March 2004, the International Atomic Energy Agency (IAEA) Board of Governors¹, the organisation's prime policy-making organ, will convene for a week-long meeting in Vienna, Austria. On the agenda will be a follow-up report by the Director-General on the atomic activities of the Islamic Republic of Iran. The 24 February report, which was supposed to be restricted, was leaked to the media and various non-governmental organisations. What were the key findings of the report and what can we expect from the upcoming meeting?

During the autumn and winter of 2002, the US Administration accused Iran of breaching its obligations under the 1970 Nuclear Non-Proliferation Treaty (NPT) by seeking to develop nuclear arms. Iran sternly rejected these allegations and said that only the IAEA is legally authorized to deal with nuclear issues. An IAEA team was dispatched to the country in February 2003 and detected that Iran had introduced some uranium hexafluoride into gas centrifuges. This activity had not been declared by Iran. Iranian officials explained that Iran had decided to generate some 6,000 megawatts of electricity from a civilian nuclear programme, which they were developing.

The admission raised serious questions about the legality of Iran's nuclear programme. Hence, during the summer and early autumn of 2003, their nuclear activities came under increased scrutiny. Widespread concern that Iran was trying to develop nuclear weapons, despite its official standpoint that the use and possession nuclear weapons were contrary to international law and

that such weapons would never constitute part of Iran's defence strategies, began to be shared by the international community.

In June 2003, the IAEA reported that Iran had some undeclared nuclear materials. The situation was tense, especially since a US-led coalition had recently invaded Iraq and toppled the regime there under the pretext that the Iraqis had 'weapons of mass destruction' (WMD), and were prepared to use them. The threat of armed force against a country in breach of its obligations under the NPT was also implied during the 2003 NPT preparatory committee. The United States declared that Iran "provides perhaps the most fundamental challenge ever faced by the NPT" and that there "must be serious consequences for those who violate their NPT commitments". The term 'serious consequences' mirrors the term used in the Security Council resolution invoked by the US-led coalition as the legal basis for war.²

Iran initially adopted a confrontational strategy towards the IAEA and, in particular, the United States. Then, less than four months ago, on 10 November 2003, Iran agreed to sign the Additional Protocol to its safeguards agreement. This was facilitated after extensive negotiations between the United Kingdom, France and Germany and Iran.³ In a subsequent letter to the IAEA Director-General, the government of Iran agreed to:⁴

- Suspend all uranium enrichment-related and reprocessing activities in Iran;⁵
- Suspend all activities on the specific site of Natanz;⁶
- Abstain from producing feed material for enrichment processes; and
- Eschew the import of enrichment-related items.

The US Administration was not convinced and continued to threaten to bring the question of Iranian non-compliance before the UN Security Council. For a while, it seemed as if the United States would indeed press the issue at the IAEA and that the Bush Administration wouldn't be satisfied with anything less than a referral to the Security Council. However, ten days later, on 20 November 2003, the IAEA Board of Governors adopted a resolution on the implementation of the NPT Safeguards Agreement in Iran,⁷ which merely decided that the IAEA Board would reconvene immediately to assess Iranian non-compliance if such failures in the future "would come to light".

Thus, this resolution was merely reiterating the responsibilities of the IAEA Board of Governors.⁸ More importantly, the Board requested the Director General to submit a comprehensive report on the implementation of the resolution by mid-February 2004. Meanwhile, the Board approved a draft additional protocol and a few weeks thereafter, on 18 December 2003, Iran signed it, granting Agency inspectors greater authority in verifying the country's nuclear programme.⁹ It is important to note that the Agency still has not received written confirmation from Iran that its domestic requirements for entry into force of the protocol have been met. Therefore, at this stage, Iran is merely bound by the spirit and not the letter of the additional protocol.

New revelations

On Monday 8 March 2004, the Board will consider the Director-General's report of 24 February.¹⁰

Of concern is the discovery that Iran has irradiated Bismuth metal samples. While the metal can be used as a carrier for U-235 or U-233 fuel in nuclear reactors,¹¹ it can also, when irradiated, produce Polonium-210, which, together with Beryllium, can be used as an 'initiator' in nuclear weapons of an early design.¹² Iran has claimed that these experiments are for civilian purposes. However, given that Polonium 210 has a half-life of 138 days, it would seem that any civilian applications would be severely limited.¹³ According to a declassified Los Alamos document, the occurrence of Polonium-210 is an indication of a nuclear weapons programme in its early stages.¹⁴

The United States is not satisfied with these revelations. On 23 February 2003, the State Department stated:

... What we've said is [that the Iranian information] was not complete ... Remember, the IAEA asked for a correct, complete and final picture of Iran's past and present program. So they have, indeed, indulged in -- they have talked about some -- divulged some parts of that program. But

*they still have a long way to go, and we -- it's not clear to us at this point that Iran has made a strategic decision to abandon its efforts at nuclear weapons production.*¹⁵

The Iranian Foreign Minister referred to the information revealed as merely a 'misunderstanding', soon to be cleared:

*The few cases that the Agency has expressed concern about, are not related to the content of the issue, and does not make doubtful the peaceful nature of Iran's nuclear activity. What has been published about an unfinished research work on plutonium related to 13 years ago, is merely a misunderstanding that will be resolved soon.*¹⁶

This is not the first time the Iranian government has attempted to understate the seriousness of the situation. Immediately after the agreement between Iran and the Europeans, senior Iranian officials stated that it was their prerogative to decide whether or not uranium enrichment should be resumed in the future. While that is legally correct, the position gives rise to serious questions since the Russian Federation already has guaranteed delivery of enriched uranium as fuel for the Iranian reactors. Why, one might ask, would Iran want to acquire further quantities of enriched uranium if their needs are met from another source?

Therefore, another serious concern is the traces of highly enriched U-235 found in a workshop in Iran. Natural uranium is enriched to increase the concentration of U235 to three to five percent in order to make fuel for light-water reactors. Generally, uranium for nuclear weapons is enriched to greater than 90%. However, uranium enriched beyond 20% is considered weapons-useable. The material found is far more enriched than what is necessary for use in civilian light water reactors.¹⁷ These concerns are not lessened by the revelation that these workshops are mostly owned and controlled by military industrial organisations.¹⁸

The Iranian claim that highly enriched uranium traces were due to contamination of the imported components is simply not credible. The IAEA report clearly highlights that:

Analyses of samples taken from domestically manufactured centrifuge components show predominantly LEU contamination, while analysis of samples from imported components show both LEU and HEU contamination. It is not clear why the components would have different types of contamination if, as Iran states, the presence of uranium on domestically manufactured components is due solely to contamination originating from imported components.

The types of uranium contamination found at the Kalaye Electric Company workshop differ from those at Natanz, even though Iran states that the source of contamination in both cases is the imported centrifuge components.

Environmental samples showing uranium enriched to 36% U-235 have come almost entirely from one room in the Kalaye Electric Company workshop, which seems to be predominantly contaminated with that material. Only negligible traces of 36% enriched uranium have been found on imported centrifuge components. The level of contamination suggests the presence of more than just trace quantities of such material

*... Iran has been asked to provide comments on the above issues, particularly in light of its declaration that it has not enriched uranium to more than 1.2% U-235 using centrifuge technology.*¹⁹

Thus, even though the report in its assessment is positive about the Iranian cooperation and states that the Agency is making good progress on verification, there are still questions that need to be answered.²⁰ One of them is why Iran apparently possesses blueprints for a centrifuge of a 1970's design? Another is why there are discrepancies in the amount of plutonium produced? Although small, these experiments demonstrate that Iran scientists have gained valuable experience in handling and working with plutonium. A third is why there are traces of HEU on the centrifuge devices?

Since this is the third inconclusive report by the IAEA, the Iranians still haven't built sufficient international confidence in their good intentions. Iran needs to come clean. And it needs to do it promptly. On the other hand it is premature, and quite possibly counterproductive, to speak of Iranian deceit and deception. There are still IAEA analyses to be done and some findings are

dependent on the cooperation of 'other states'²¹. The members of the IAEA Board have shown patience in continuing the inspections. This line, however, may not hold since John Bolton, the US undersecretary for disarmament, has already said, "We are absolutely determined not to reduce the pressure on Iran ... We think the pressure they have been under has been critical to their revealing the pieces about their nuclear program that they have already revealed".²²

Nevertheless, the Iraqi case shows that a confrontational strategy may trigger Iranian defiance. It created a standard of a reversed burden of proof: that it is the accused that has to prove its innocence rather than the accuser. Such an approach alienates potential allies and trade partners in the region and stirs up anti-western sentiment. Therefore, the US Administration and other concerned governments should show continued restraint. However, such restraint should not be interpreted as a sign of weakness. Indeed, it is very much in the interests of the 'accused' Iranian state to prove its innocence to the 'accuser', namely the international community.

Recommendations

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Endnotes

1. Member States represented on the IAEA Board for 2003-2004 are Argentina, Australia, Brazil, Belgium, Canada, China, Cuba, Czech Republic, Denmark, Egypt, France, Germany, Hungary, India, Italy, Japan, Republic of Korea, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, Pakistan, Panama, Peru, Poland, Russian Federation, Saudi Arabia, South Africa, Spain, Sudan, Tunisia, United Kingdom, United States, and Vietnam. (Permanent members of the Security Council underlined).
2. United Nations Security Council Resolution 1441 (2002), operative paragraph 13
3. See statement by the French Ministry of Foreign Affairs Spokesperson, Paris, 22 October 2003
4. 'Iran to Sign Additional Protocol and Suspend Uranium Enrichment and Reprocessing', IAEA Press Release 2003/13
5. For a technical background to uranium enrichment, see 'Uranium Enrichment', World Nuclear Association, Information Brief, June 2003
6. Natanz is a large fuel enrichment plant located in central Iran. For a detailed description of the plant, see Natanz [Kashan] at Global Security.org
7. Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Resolution adopted by the Board on 26 November 2003, IAEA GOV/2003/81
8. Article XII (C) of the IAEA statute reads: "...The Board shall call upon the recipient State or States to remedy forthwith any non-compliance which it finds to have occurred. The Board shall report the non-compliance to all members and to the Security Council and General Assembly of the United Nations."
9. 'Iran Signs Additional Protocol on Nuclear Safeguards', IAEA Staff Report, 18 December 2003
10. Report by the Director General, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran', IAEA doc GOV/2004/11 (24 February 2004)

11. Bismuth brief, Los Alamos National Labs, Chemistry Division.
12. The 'Fat Man' nuclear device (1945) was constructed in this way. Although there are usually a few neutrons present in fissile material at any given time, due to occasional spontaneous fissions for example, it is necessary to be sure that there are plenty of neutrons near the centre of the core at precisely the right moment in order to be sure of initiating an optimal chain reaction. In the Trinity device this was achieved by placing a grape-sized device at the centre of the core. This initiator device contained Polonium-210 and beryllium separated by metal foils. Polonium-210 is radioactive and emits copious alpha particles, whilst beryllium emits neutrons when irradiated by alpha particles. It was arranged that the implosion of the core should break the foils so that alphas from the Polonium-210 could reach the beryllium. More modern bombs are said to use a neutron gun mounted outside the main bomb assembly to fire a burst of neutrons into the core at the right moment. See 'The Making Of The Atomic Bomb', R Rhodes, Simon & Schuster, London, 1986
13. 'ChemGlobe'. The short half-life of Polonium was one reason why its use was dropped by the original nuclear weapons states, as it required constant production. It is interesting to note that Iraq also investigated Polonium initiators in its clandestine weapons programme.
14. 'Nuclear Weapons Proliferation: Indications and Observables', Los Alamos document OA-12430-MS at p. 14. Declassified and published in December 1992.
15. U.S. State Department Daily Press Briefing, Washington, DC, 23 February 2004
16. 'Dr. Assef's Reaction to IAEA's Report', Iranian Ministry of Foreign Affairs, 25 February 2004
17. The U.S. Nuclear Regulatory Commission's 'Fact Sheet on Uranium Enrichment'
18. IAEA, n 8 op. cit., para. 37
19. IAEA, n 8 op. cit., para. 39. For more information on the Kalayeh Electric Company, please visit 'Global Security's briefing' on the site.
20. IAEA, n 8 op. cit., paras. 71-78
21. Pakistan is likely to be one of the 'other states'. However, President Musharraf has clearly stated that he will not allow IAEA inspectors to enter the country. For instance see 'Transcript of interview with Pervez Musharraf' published in the Financial Times, 17 February 2004
22. 'US will not refer Iran to Security Council for hiding weapons', AFP News Agency, 4 March 2004