

SIPRI YEARBOOK 2013

Armaments, Disarmament and International Security

Iran and nuclear proliferation concerns

SHANNON N. KILE



Iran and nuclear proliferation concerns

SHANNON N. KILE

Contents

Renewed international negotiations on Iran's nuclear programme	337
Impasse between Iran and the IAEA	340
The IAEA Director General's assessment of Iran's nuclear programme	342

This is an offprint of section I of chapter 7 of

SIPRI Yearbook 2013: Armaments, Disarmament and International Security

Oxford University Press, 2013, ISBN 978-0-19-967843-3, hardback, xxii+574 pp., £100/\$185

The SIPRI Yearbook is published and distributed in print and online by Oxford University Press—more information is available at <<http://www.sipriyearbook.org>>

OXFORD
UNIVERSITY PRESS

www.sipriyearbook.org

I. Iran and nuclear proliferation concerns

SHANNON N. KILE

During 2012 there was a renewal of international diplomatic efforts aimed at resolving the controversy over the scope and nature of Iran's nuclear programme. The controversy had arisen in 2002, when evidence of undeclared Iranian nuclear facilities was first made public.¹ The discussions during 2012 made some procedural progress in outlining an approach to further negotiations but failed to achieve a breakthrough on any of the substantive issues of concern. At the same, Iran and the International Atomic Energy Agency (IAEA) remained unable to agree on a work plan for resolving the agency's questions about Iranian nuclear activities with possible military dimensions.

Renewed international negotiations on Iran's nuclear programme

In 2012 Iran and the P5+1 states (the five permanent members of the UN Security Council—China, France, Russia, the United Kingdom, and the United States—plus Germany) resumed negotiations on a long-term agreement to ensure that Iran's nuclear programme remained solely for peaceful purposes.² On 14 April the parties met in Istanbul, Turkey, to hold talks for the first time since January 2011. The talks, which were headed by the High Representative for Foreign Affairs and Security Policy of the European Union (EU), Catherine Ashton, and the Secretary of Iran's Supreme National Security Council, Saeed Jalili, were described by both sides as positive and constructive.³ US officials attributed the improved atmosphere to an apparent change in Iran's approach to the talks, in which it no longer insisted on the lifting of international sanctions as a precondition for discussing its nuclear programme.⁴ In a statement issued at the end of the meeting, Ashton said that the parties agreed to establish a 'sustained process' of negotiations, based on the 1968 Treaty on the Non-proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), 'to ensure all the obligations under the NPT are met by Iran while fully respecting Iran's right to the peaceful use of nuclear energy'.⁵ According to one Iranian

¹ On developments in earlier years see Kile, S. N., 'Iran and nuclear proliferation concerns', *SIPRI Yearbook 2012*; and other relevant editions of the SIPRI Yearbook.

² See Davenport, K., 'History of official proposals on the Iranian nuclear issue', Fact Sheet, Arms Control Association, Aug. 2012, <http://www.armscontrol.org/factsheets/Iran_Nuclear_Proposals>.

³ 'Iran talks in Istanbul "constructive"', BBC News, 15 Apr. 2012, <<http://www.bbc.co.uk/news/world-middle-east-17716241>>.

⁴ Peterson, S., 'Iran nuclear talks: why all sides kept positive', *Christian Science Monitor*, 15 Apr. 2012.

⁵ European Union, 'Statement by High Representative Catherine Ashton on behalf of the E3+3 following the talks with Iran, Istanbul, 14 April 2012', Press release A 173/12, 14 Apr. 2012, <<http://>

negotiator, the acceptance of the NPT framework for future talks reflected the P5+1 states' new-found 'respect' for Iran's nuclear technology capabilities and rights under the NPT.⁶

The optimism following the Istanbul meeting soon dissipated in the follow-on round of talks between Iran and the P5+1 states held in Baghdad, Iraq, on 23–24 May 2012. The discussion revealed fundamental incompatibilities between the two sides' goals and expectations and failed to produce an agreement on even a modest set of confidence-building steps.⁷

The main goal of the P5+1 states in the talks was to halt Iran's production of uranium enriched to nearly 20 per cent in the isotope uranium-235 (U-235) and sharply limiting its stockpile of the material. Iran announced in 2010 that it had commenced production of the uranium in order to make fuel for the ageing Tehran Research Reactor, which is used to produce medical isotopes. Iran's growing stockpile of the 19.75 per cent-enriched uranium has raised international concern because the material, if diverted for weapon purposes, could be enriched to weapon-grade highly enriched uranium (HEU) more rapidly than the 3.5 per cent-enriched uranium typically used for nuclear power plant fuel.⁸

During the Baghdad meeting, the P5+1 states put forward what was described as a 'stop, shut and ship' proposal.⁹ It called on Iran to immediately stop the enrichment of uranium to the near-20 per cent level; shut down all enrichment activities at a fortified underground enrichment facility located at Fordow, near the city of Qom; and ship out of the country most of its stockpile of near-20 per cent-enriched uranium. In return, Iran would receive fuel plates for the Tehran Research Reactor, assistance with nuclear safety and US spare parts for the country's civilian aircraft fleet.

Iran promptly rejected the P5+1 states' proposal, primarily because it contained no provision for easing the sanctions that were increasingly damaging the Iranian economy.¹⁰ A former Iranian nuclear negotiator, Hossein Mousavian, later dismissed the proposal as calling for Iran to trade 'diamonds for peanuts'.¹¹ Some Western analysts argued that Iran's expectations for a deal in Baghdad exceeded what was politically possible for the

www.consilium.europa.eu/press/press-releases/latest-press-releases/newsroomrelated?bid=78&grp=20909>. For a summary and other details of the NPT see annex A in this volume.

⁶ 'P5+1 group takes new approach toward Iran', Iran Press TV, 15 Apr. 2012, <<http://www.presstv.ir/detail/236297.html>>.

⁷ Barry, E. and Gladstone, R., 'Setback in talks on Iran's nuclear program in a "gulf of mistrust"', *New York Times*, 20 June 2012.

⁸ Heinonen, O., 'The 20 percent solution', *Foreign Policy*, 11 Jan. 2012. Enrichment from natural uranium to 20% U-235 is significantly more time-consuming and resource-intensive than subsequent enrichment to the weapon-grade uranium (typically enriched above 90%) required for a nuclear weapon.

⁹ Barry and Gladstone (note 7).

¹⁰ Peterson, S., 'Iran nuclear talks a "complete failure", says Iranian diplomat', *Christian Science Monitor*, 25 May 2012.

¹¹ Dahl, F., 'Powers want "diamonds for peanuts:" Iran ex-official', Reuters, 15 June 2012.

P5+1 states to offer.¹² However, others pointed out that the one measure—meaningful relief from sanctions—that would allow Iranian leaders to present a suspension of its enrichment programme as a victory to the public, and hence form the basis for a deal, was also the measure that the West was unwilling to concede.¹³

Despite the deadlock at Baghdad, the parties held a further round of talks in Moscow, on 18–19 June 2012, during which Iran provided details about the proposal it had presented to the P5+1 states.¹⁴ The Iranian proposal set out a five-step plan consisting of reciprocal measures to be taken by the two sides within the framework of the NPT.¹⁵ As a first step, the P5+1 states would acknowledge Iran's claim that it had a right under the NPT to carry out uranium enrichment. In conjunction with this acknowledgment, Iran would make legally binding a fatwa (religious decree) that the Supreme Leader, Ayatollah Ali Khamenei, is said to have issued in 2004 condemning the production, possession and use of nuclear weapons as forbidden in Islam.¹⁶ The second step would involve the ending of unilateral sanctions imposed against Iran by some of the P5+1 states in return for Iran's full cooperation with the investigation by the IAEA of 'possible military dimensions' to its nuclear activities. The third step envisioned cooperation on nuclear energy and safety. The fourth step was contingent on the completion of the first two and involved Iran limiting or halting the production of 20 per cent-enriched uranium as a confidence-building measure. The fifth and final step called for cooperation between Iran and the P5+1 states on regional security issues.

The talks in Moscow ended with the two sides increasingly committed to competing strategies for addressing the standoff over Iran's nuclear programme. Iranian officials complained that the P5+1 states, in particular the Western powers, had shown little interest in discussing Iran's proposal and were interested only in Iran's response to the proposal they had put forward in Baghdad.¹⁷ They also complained that the P5+1 states were reneging on their promise made at the Istanbul meeting to recognize Iran's right under the NPT as the basis of the talks.¹⁸ In response, an EU spokes-

¹² Fitzpatrick, M., 'Tehran's expectations exceed the possible in Baghdad talks', *The National* (Abu Dhabi), 24 May 2012.

¹³ Moran, M., 'Back to the future for Iranian nuclear diplomacy?', WMD Junction, 15 June 2012, <http://wmdjunction.com/120615_iran_diplomacy.htm>.

¹⁴ Borger, J., "'Progress' in Moscow: Iran says no with PowerPoint", *The Guardian Global Security Blog*, 18 June 2012, <<http://www.guardian.co.uk/world/julian-borger-global-security-blog/2012/jun/18/iran-russia>>.

¹⁵ Sadri, M., 'Iran-P5+1: what happened from Moscow to Almaty?', *Iran Review*, 23 Feb. 2013, <<http://www.iranreview.org/content/Documents/Iran-P5-1-What-Happened-from-Moscow-to-Almaty-.htm>>.

¹⁶ For a description of the fatwa see Mehr News Agency, 'Iran's statement at IAEA emergency meeting', 10 Aug. 2005, <<http://www.fas.org/nuke/guide/iran/nuke/mehr080905.html>>.

¹⁷ Sahimi (note 15).

¹⁸ 'Iran, major powers start nuclear talks in Moscow', *Tehran Times*, 19 June 2012.

man stated that the NPT did not explicitly mention that every state party had the right to enrich uranium.¹⁹ US diplomats emphasized that the stop, shut and ship proposal had to remain the focus of negotiations, since it addressed the core issue of bringing Iran into compliance with its international obligations.²⁰

With the diplomatic deadlock spurring calls in Israel and the USA for military action against Iran's nuclear facilities, the two sides attempted to avert the collapse of negotiations. On 3 July 2012 they convened a meeting of experts in Istanbul to discuss technical aspects of the proposals made during the earlier talks, followed by a deputy-level meeting on 24 July.²¹ On 18 September, Ashton and Jalili met informally in Istanbul to discuss 'common points' reached by the technical experts for creating a framework for future talks.²² The discussions took place against the background of moves by the USA and the EU to significantly increase their commercial and economic sanctions against Iran over its nuclear programme, including the EU's adoption of a boycott on Iranian oil imports as of 1 July 2012.²³

During the autumn of 2012 representatives from Iran and the P5+1 states reaffirmed the importance of restarting formal negotiations. This included an agreement within the P5+1 group to 'update' the proposal that it had presented to Iran during the meeting in Baghdad.²⁴ As the year ended, however, the two sides had not set a date for a new round of talks.

Impasse between Iran and the IAEA

In 2012 Iran and the IAEA failed to reach agreement on a framework for resolving the agency's concerns about past Iranian nuclear activities with possible military dimensions. The concerns had been summarized in a report submitted by the IAEA Director General, Yukiya Amano, to the IAEA Board of Governors in November 2011.²⁵ The weapon-related activities that Iran allegedly pursued involved high-explosives tests with nuclear weapon applications; neutron initiation and detonator experiments; research and development work to fit a nuclear warhead on a missile, along with arming, firing and fusing mechanisms; and procurement

¹⁹ Borger, J., 'Oil embargo on Iran will not be postponed, says EU', *The Guardian*, 18 June 2012.

²⁰ Barry, E., 'No one budes in tense Iran nuclear talks in Moscow', *New York Times*, 19 June 2012.

²¹ Davenport, K., 'Future of Iran talks in question', *Arms Control Today*, vol. 42, no. 7 (Sep. 2012).

²² 'EU's Catherine Ashton meets Iran nuclear negotiator', BBC News, 19 Sep. 2012, <<http://www.bbc.co.uk/news/world-middle-east-19634052>>.

²³ See chapter 10, section III, in this volume.

²⁴ Lakshmanan, I. A. R., 'U.S. and partners agree on revised nuclear offer for Iran', Bloomberg, 13 Dec. 2012, <<http://www.bloomberg.com/news/2012-12-13/u-s-and-partners-agree-on-revised-nuclear-offer-for-iran.html>>.

²⁵ IAEA, Board of Governors, 'Implementation of the NPT safeguards agreement and relevant provisions of the Security Council resolutions in the Islamic Republic of Iran', Report by the Director General, GOV/2011/65, 8 Nov. 2011.

activities related to the alleged warhead work.²⁶ Most of this alleged weapon-related work took place prior to 2003.

During 2012 senior IAEA and Iranian officials met intermittently to discuss a 'structured approach' document setting the terms and conditions for the agency's investigation of specific activities of concern. The discussions were hindered by two procedural disputes. The first had to do with the sequencing of the questions the IAEA wanted to address. Iran insisted that this had to be done in a pre-determined order; after agreed steps were taken on each issue, it would be considered closed.²⁷ In contrast, IAEA officials expressed a preference for addressing multiple issues at the same time, since many of the activities under investigation appeared to be linked. They also emphasized the possible need for follow-up questions either to clarify specific issues or to deal with any new evidence that might emerge.²⁸

The second dispute had to do with Iran's demand for access to the largely Western intelligence documents that formed the basis of the IAEA's report about Iran's alleged nuclear weapon-related activities. Iran has rejected the allegations, and the documents on which they were based, as the fabrications of hostile foreign intelligence services. While promising to accede to Iran's request 'when appropriate', Amano noted that it was difficult for the IAEA to do so when it had been given the material in confidence by member states whose sources might be exposed if Iran saw the original files.²⁹

On 13 September 2012 the 35-member IAEA Board of Governors approved a resolution stating, among other things, that it was 'essential' for Iran to conclude with the IAEA an agreement on a 'structured approach' for addressing the agency's questions about possible Iranian nuclear weapon-related activities.³⁰ As a 'first step', the Board called on Iran to provide IAEA inspectors with access to sites that the agency had asked to visit.

The Board's call for Iran to grant inspectors access to sites inside the country reflected the dispute during 2012 between the IAEA and Iran over the former's request to visit a large Iranian military production complex

²⁶ For a summary of the IAEA's findings see Kile (note 1), pp. 366–68.

²⁷ Hibbs, M., 'Iran and the IAEA talk again', Carnegie Endowment for International Peace, 12 May 2012, <<http://carnegieendowment.org/2012/05/12/iran-and-iaea-talk-again/apy9>>.

²⁸ IAEA Board calls on Iran to cooperate with IAEA, but Tehran continues to balk', Arms Control Association, *Issues Briefs*, vol. 3, no. 13 (18 Sep. 2012), <<http://www.armscontrol.org/issuebriefs/IAEA-Board-of-Governors-Call-on-Iran-to-Cooperate-with-IAEA-But-Tehran-Continues-to-Balk>>.

²⁹ Slavin, B., 'IAEA chief willing to share data with Iran on weapons claims', Al-Monitor, 6 Dec. 2012, <<http://www.al-monitor.com/pulse/originals/2012/al-monitor/amano-iran-weapons-claims.html>>.

³⁰ IAEA, Board of Governors, 'Implementation of the NPT safeguards agreement and relevant provisions of United Nations Security Council resolutions in the Islamic Republic of Iran', Resolution, GOV/2012/50, 13 Sep. 2012, p. 2.

located at Parchin, near Tehran.³¹ The agency repeatedly sought permission to make a ‘transparency visit’ to a building there, based on information provided by a member state that Iran had constructed a large steel chamber in the building that was used for conducting high-explosives experiments—some of which may have involved uranium—and which could be associated with a programme to develop a nuclear explosive device. Iran maintained that the Parchin complex was used solely for conventional military purposes, with no connection to nuclear material, and had already been adequately inspected by the agency.³²

On 13 December an IAEA team led by Herman Nackaerts, Head of the IAEA Department of Safeguards, held talks with Iranian officials in Tehran about a framework agreement for resolving the agency’s outstanding questions. Both sides reported that the talks made progress towards an agreement and that a new round would be held in mid-January 2013.³³ At the same time, however, Iran did not grant the IAEA team access to the Parchin site. The refusal came amid mounting concern among some experts, based on satellite imagery analysis, that Iran might be ‘sanitizing’ the site to hinder an investigation into alleged nuclear weapon-related explosives tests conducted there in the past.³⁴

The IAEA Director General’s assessment of Iran’s nuclear programme

On 16 November 2012 the IAEA Director General issued the latest in a series of regular reports to the IAEA Board of Governors on safeguards implementation in Iran.³⁵ Amano’s report stated that Iran continued to make progress with its uranium enrichment programme and the construction of a heavy-water research reactor, in defiance of the UN Security Council’s demands, set out in five resolutions, that it suspend all enrich-

³¹ Esfandiari, G., ‘Explainer: why do UN inspectors want access to Iran’s Parchin military complex?’, Radio Free Europe/Radio Liberty, 7 June 2012, <<http://www.rferl.org/content/explainer-why-do-un-inspectors-want-access-to-iran-parchin-military-complex/24606630.html>>.

³² IAEA inspectors visited the Parchin complex in 2005 but did not ask to see the building where the chamber was allegedly built. ‘Iran to allow IAEA visit Parchin military site: ISNA’, Reuters, 6 Mar. 2012.

³³ ‘IAEA says “progress” in nuclear talks’, Al Jazeera, 14 Dec. 2012, <<http://www.aljazeera.com/news/middleeast/2012/12/20121214143742829541.html>>.

³⁴ See ‘Significant changes made to Parchin high explosives test site, further activity likely’, Institute for Science and International Security (ISIS) Imagery Brief, 29 Nov. 2012, <<http://isis-online.org/isis-reports/>>. For a contrary view of Iran’s activities at the site see Kelley, R. E., ‘The IAEA and Parchin: questions and concerns’, SIPRI Expert Comment, 18 Jan. 2013, <http://www.sipri.org/media/expert-comments/18jan2013_IAEA_Kelley>.

³⁵ IAEA, Board of Governors, ‘Implementation of the NPT Safeguards Agreement and relevant provisions of the Security Council resolutions in the Islamic Republic of Iran’, Report by the Director General, GOV/2012/55, 16 Nov. 2012.

ment and other sensitive nuclear fuel cycle activities.³⁶ The report described technical advances made by Iran in the following areas.

Increased centrifuge numbers and capabilities

During the second half of 2012 Iran continued to increase its uranium-enrichment capabilities by installing additional first-generation IR-1 centrifuges at two declared facilities: the Fuel Enrichment Plant (FEP) at Natanz; and the smaller Fordow Fuel Enrichment Plant (FFEP). However, none of the newly installed centrifuges were in operation as of November 2012.³⁷

The Director General's report stated that Iran continued to develop advanced centrifuge models. It was testing second-generation IR-2m and IR-4 centrifuges at the Pilot Fuel Enrichment Plant (PFEP) at Natanz; the new centrifuges remained in a research and development area of the plant and were not ready for production-scale use.³⁸ The report noted that Iran had yet to begin testing the more advanced centrifuge models (IR-5, IR-6 and IR-6s) that it had announced in 2010.³⁹ Iran's ability to produce these advanced centrifuges remains uncertain, due in part to international sanctions that prevent it from acquiring the necessary materials and components.⁴⁰

Increased stockpiles of low-enriched uranium

The report stated that Iran continued to produce low-enriched uranium (LEU), in the form of uranium hexafluoride gas, at Natanz and Fordow. In addition, Iran had increased its stockpile of near-20 per cent-enriched uranium to a total of 233 kilograms. Approximately 135 kg of this material was in storage at the Fordow and Natanz plants; the remaining 96 kg was being converted into uranium oxide (U₃O₈), a solid powder from which nuclear fuel is made, at the Fuel Plate Fabrication Plant near Esfahan.⁴¹ Some observers pointed out that at its monthly production rate, by mid-2013 Iran would have accumulated 200–220 kilograms of near-20 per cent-enriched uranium—enough to give it a capability to produce one 'significant quantity' of weapon-grade uranium.⁴²

³⁶ UN Security Council resolutions 1737, 23 Dec. 2006; 1747, 24 Mar. 2007; 1803, 3 Mar. 2008; 1835, 27 Sep. 2008; and 1935, 9 June 2010.

³⁷ IAEA, GOV/2012/55 (note 35), pp. 4–5.

³⁸ According to one estimate, the IR-2m and IR-4 centrifuges could achieve 3–4 times the enrichment output of the current IR-1 centrifuge. Witt, W. C. et al., 'Iran's evolving breakout potential', Institute for Science and International Security (ISIS) Report, 8 Oct. 2012, <<http://www.isis-online.org/isis-reports/>>, p. 21.

³⁹ IAEA, GOV/2012/55 (note 35), p. 5.

⁴⁰ Dahl, F., 'Iran makes little headway on key nuclear equipment', Reuters, 31 Aug. 2012.

⁴¹ IAEA, GOV/2012/55 (note 35), p. 4.

⁴² Witt et al. (note 38). A significant quantity, defined by the IAEA as 25 kg of uranium enriched to 90% U-235, is the amount required for one nuclear weapon.

This milestone took on special significance when the Israeli Prime Minister, Benjamin Netanyahu, warned in a speech to the UN General Assembly on 27 September 2012 that Israel might strike Iran's nuclear facilities before Iran could reach the milestone of 'one bomb's worth' of uranium enriched to 20 per cent.⁴³ However, others cautioned that the importance of the milestone should not be overstated, since all nuclear material and installed cascades were subject to IAEA containment and surveillance measures and any Iranian attempt to 'break out' of the NPT and produce weapon-grade HEU would alert the international community.⁴⁴

Continued work on Arak research reactor

The Director General's report stated that Iran continued to build the IR-40 heavy-water research reactor located near Arak. The date for the reactor's planned initiation of operations had been pushed back from mid-2013 to the early part of 2014, but the report did not offer a cause for the delay.⁴⁵ Similar reactors ostensibly built for research have been used to produce plutonium for nuclear weapons in India, Israel, North Korea and Pakistan.⁴⁶

The report stated that the IAEA continued to verify the non-diversion of nuclear material at the nuclear facilities declared by Iran under its comprehensive safeguards agreement with the agency. However, it warned that Iran was not providing the necessary cooperation, including by not implementing its additional safeguards protocol, for the IAEA to be able to provide credible assurance about the absence of undeclared nuclear material and activities in Iran.⁴⁷

During 2012 the optimism accompanying the resumption of negotiations between Iran and P5+1 states after a tense one-year hiatus dissipated as it became clear that the two sides remained committed to incompatible goals and strategies for the talks that precluded any near-term breakthroughs. The year ended with scepticism growing among the P5+1 states, in particular China and Russia, about the relevance of the 'carrot-and-stick' approach of the USA and EU to the negotiations, amid signs that Iran remained determined not halt its enrichment programme as a precondition for a negotiated deal.

⁴³ Heller, J., 'Netanyahu draws "red line" on Iran's nuclear program', Reuters, 27 Sep. 2012.

⁴⁴ Witt et al. (note 38).

⁴⁵ IAEA, GOV/2012/55 (note 35), p. 7.

⁴⁶ 'Iran Arak plant set to begin operations in 2014: IAEA', Global Security Newswire, 19 Nov. 2012, <<http://www.nti.org/gsn/article/iran-arak-plant-begin-operations-2014-iaea/>>.

⁴⁷ IAEA, GOV/2012/55 (note 35), p. 12. Iran never ratified the additional protocol agreement signed with the IAEA in Dec. 2003, and in Feb. 2007 informed the IAEA that it would no longer act in accordance with the protocol's provisions.