

III. Implementation of the Joint Comprehensive Plan of Action

TYTTI ERÄSTÖ

The Joint Comprehensive Plan of Action (JCPOA) is a landmark agreement concluded on 14 July 2015 by Iran and the E3/EU+3—France, Germany and the United Kingdom (E3); China, Russia and the United States (+3); and facilitated by the European Union (EU). The JCPOA appeared to resolve the international crisis over Iran's nuclear programme, which had started in 2002 and escalated over a dispute regarding Iran's right to uranium enrichment. The agreement was based on a compromise whereby Iran accepted limits on and strict monitoring of its proliferation-sensitive activities in return for the lifting of international sanctions.¹

Despite Iran's verified compliance with what was widely considered to be 'the most robust verification system in existence anywhere in the world', the US Government withdrew from the JCPOA in May 2018.² The USA later reimposed all the nuclear-related sanctions on Iran that had been waived under the agreement, as well as additional sanctions on the country. While critical of this policy, other JCPOA parties were unable to prevent US sanctions from crippling the Iranian economy: the sanctions, notably the oil and banking sanctions, contributed to various socio-economic problems, such as high inflation and unemployment, and even jeopardized food security and access to medicines in the country.³ The dire economic situation led to growing domestic discontent with both the JCPOA and more broadly with Iranian President Hassan Rouhani's administration.⁴

This section details Iran's compliance with the JCPOA, as well as the Iranian decision in May 2019 to gradually reduce its commitments under the agreement in response to US sanctions. It also describes new sanctions imposed by the USA, and the responses by other JCPOA parties to both US and Iranian actions. Furthermore, although not directly related to the JCPOA, the section touches on other issues that contributed to the escalation of Iranian–US tensions, notably the controversy over Iran's missile programme.

¹ Joint Comprehensive Plan of Action (JCPOA), 14 July 2015, Vienna, reproduced as Annex A of UN Security Council Resolution 2231, 20 July 2015. For background information see Erästö, T., 'Implementation of the Joint Comprehensive Plan of Action', *SIPRI Yearbook 2019*, pp. 378–86.

² Amano, Y., Speech on Iran, the JCPOA and the IAEA at the Belfer Center for Science and International Affairs, Harvard Kennedy School, 14 Nov. 2017.

³ United Nations, General Assembly, 'Situation of human rights in the Islamic Republic of Iran', Report of the Special Rapporteur on the situation of human rights in the Islamic Republic of Iran, A/74/188, 18 July 2019, <<https://undocs.org/en/A/74/188>>.

⁴ Erästö (note 1).

Iran's compliance with its JCPOA commitments

The JCPOA aims to prevent the production of weapon-grade fissile materials by limiting Iran's uranium enrichment activities, cutting its enriched uranium stockpiles and minimizing the amount of plutonium produced by the Arak heavy water reactor. Sensitive materials—excess stockpiles of enriched uranium and heavy water, as well as spent nuclear fuel—are to be shipped abroad under the agreement. Iran also accepted additional inspections under the Model Additional Protocol to its Comprehensive Safeguards Agreement with the International Atomic Energy Agency (IAEA), applying it provisionally pending parliamentary ratification, which it agreed to seek by 2023.

On 8 May 2019 Iran's leadership announced that the country would gradually reduce its commitments under the JCPOA every 60 days, unless the remaining parties managed to compensate for the US sanctions.⁵ In this context, it referred to JCPOA articles 26 and 36, which state that Iran can 'cease performing its commitments . . . in whole or in part' in response to a reimposition of nuclear-related sanctions, and that 'significant non-performance' by others may provide grounds for another to 'cease performing its commitments' under the agreement.⁶ It also mentioned the withdrawal from the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT) as a remaining option in responding to US sanctions.⁷

Following its May announcement, Iran ceased to observe the agreed limits on enriched uranium and heavy water stocks.⁸ It renounced limits on enrichment levels in July, and on centrifuge research and development (R&D) in September.⁹ In November, Iran stopped observing the ban on enrichment activities at the underground nuclear facility in Fordow. Iran argues that all of these measures are reversible, meaning that it is ready to return to full compliance with the JCPOA when the other parties do the same.¹⁰ As well as its standard quarterly reports on Iran's compliance with the JCPOA, the IAEA documented these Iranian steps in several additional reports, discussed in more detail below.

⁵ Supreme National Security Council, Statement addressing nuclear deal parties, official website of the President of the Islamic Republic of Iran, 8 May 2019.

⁶ JCPOA (note 1), articles 26 and 36.

⁷ Reuters, 'Iran says leaving nuclear treaty one of many options after US sanctions move', 28 Apr. 2019.

⁸ Supreme National Security Council (note 5).

⁹ Wintour, P., 'Iran nuclear deal in jeopardy after latest enrichment breach', *The Guardian*, 7 July 2019; and Hafezi, P. and Arshad, M., 'Iran to develop centrifuges for faster uranium enrichment', Reuters, 4 Sep. 2019.

¹⁰ Fars News, 'Iran undertakes 4th step in scaling down n. commitments', 5 Nov. 2019.

Activities related to heavy water and reprocessing

As part of the JCPOA, Iran agreed to redesign the Arak heavy water reactor to minimize the amount of plutonium in the spent nuclear fuel it produced. Despite Iran's announcement in May 2019 that it would no longer abide by the JCPOA limit on heavy water reserves, all IAEA reports until November 2019 confirmed Iran's continued compliance with related obligations. Iran had not pursued the construction of the Arak reactor based on its original design; the natural uranium pellets, fuel pins and assemblies related to that design remained in storage, and the heavy water stock remained under the agreed limit of 130 metric tonnes.¹¹ However, on 18 November the IAEA reported that Iran had slightly exceeded the heavy water stock limit, maintaining a reserve of 131.5 metric tonnes.¹²

Activities related to enrichment and fuel

Under the JCPOA, Iran agreed not to enrich uranium above 3.67 per cent, to maintain its enriched uranium stockpiles below 300 kilograms and to conduct all enrichment activities at the Fuel Enrichment Plant (FEP) in Natanz. These limits were to apply until 2030. Iran also agreed to keep the number of its operating centrifuges at the FEP below 5060, while all non-operational centrifuges would remain in storage—a restriction that was to be in place until 2025. The Fordow Fuel Enrichment Plant (FFEP) was to be converted into a nuclear, physics and technology centre.

In its February and May reports, the IAEA confirmed that Iran continued to meet all of the above commitments, including allowing the IAEA regular access to all relevant facilities in Natanz and Fordow.¹³ In July 2019, however, the IAEA verified that Iran had exceeded the agreed level of enrichment at the FEP, enriching to about 4.5 per cent, and that its total enriched uranium stockpile was beyond the 300-kg limit.¹⁴ In November 2019 the IAEA reported that Iran had resumed enrichment activities at the FFEP, after having transferred nuclear material from Natanz to Fordow.¹⁵

¹¹ After the commissioning of the new reactor, the heavy water stock limit would be reduced to 90 metric tonnes. See JCPOA (note 1), annex I.

¹² IAEA, 'Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council Resolution 2231 (2015)', Report by the Acting Director General, GOV/INF/2019/17, 18 Nov. 2019.

¹³ IAEA, 'Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council Resolution 2231 (2015)', Reports by the Director General, GOV/2019/10, 22 Feb. 2019 and GOV/2019/21, 31 May 2019.

¹⁴ Noting that the 300-kg limit on uranium hexafluoride (UF₆) corresponds to 202.8 kg of uranium, the IAEA report on 1 July stated that the Iranian stockpile was at 205 kg; IAEA, Report by the Director General, GOV/INF/2019/8, 1 July 2019. In Aug. and Nov. 2019 the stockpile was 241.6 kg and 372.3 kg, respectively; see IAEA, Reports by the Acting Director General, GOV/2019/32, 30 Aug. 2019 and GOV/2019/55, 11 Nov. 2019.

¹⁵ IAEA, GOV/2019/55 (note 14).

Centrifuge research and development, manufacturing and inventory

Under the JCPOA, Iran's operational uranium enrichment centrifuges should only include the so-called first generation type (IR-1). However, the agreement allows limited enrichment R&D activities on more advanced centrifuges (IR-4, IR-5, IR-6 and IR-8), as long as enriched uranium is not accumulated. The permitted R&D also allows mechanical testing (typically not involving uranium) on up to two single centrifuges of other types.¹⁶ The limits on centrifuge R&D were intended to be in place until 2025.¹⁷

Following Iran's decision to stop observing the limits on centrifuge R&D, the IAEA's report on 8 September 2019 verified that Iran had installed, or was in the process of installing, advanced centrifuges of the type IR-4, IR-5, IR-6 and IR-6s at the Pilot Fuel Enrichment Plant (PFEP) in Natanz.¹⁸ On 26 September the IAEA noted that some of the centrifuge cascades at the PFEP were 'accumulating, or had been prepared to accumulate, enriched uranium'.¹⁹ Iran had also begun to manufacture centrifuge rotor tubes using carbon fibre that was not subject to continuous containment and surveillance measures by the IAEA.²⁰

In November the IAEA verified that several centrifuges—including types not mentioned in the JCPOA—were 'installed and being tested with UF₆' at the PFEP. According to information provided to the IAEA by Iran, the centrifuges would be 'used to accumulate enriched uranium'.²¹ The new centrifuge types are more effective than the old IR-1 model, which Iran had previously planned to replace only after the expiry of JCPOA limits.²²

Transparency, the Additional Protocol and other issues

In 2019 the IAEA confirmed that Iran was continuing to apply the Additional Protocol and facilitating the IAEA's inspection and monitoring. As in previous years, the 2019 reports noted that the IAEA had, under the Additional Protocol, gained complementary access to all the Iranian sites and locations it needed to visit, and that it continued to evaluate Iran's declarations under

¹⁶ In addition to IR-4, IR-5, IR-6 and IR-8, mechanical testing could be done on the IR-2m, IR-6s and IR-7 centrifuges. See JCPOA (note 1), annex I.

¹⁷ See JCPOA (note 1), annex I.

¹⁸ IAEA, Report by the Acting Director General, GOV/INF/2019/10, 8 Sep. 2019.

¹⁹ IAEA, Report by the Acting Director General, GOV/INF/2019/12, 26 Sep. 2019.

²⁰ IAEA, GOV/INF/2019/12 (note 19).

²¹ The centrifuge types included IR-2m, IR-3, IR-4, IR-5, IR-6 and IR-6s, IR-6m, IR-6sm, IR-7, IR-8, IR-8s, IR-8B, IR-9 and IR-s centrifuges. See IAEA, GOV/2019/55 (note 14).

²² Atomic Energy Organization of Iran, 'AEOI deputy elaborates on the JCPOA commitment reduction, third step details', 21 Nov. 2019; and Hafezi, P., 'Iran launches more advanced machines to speed up nuclear enrichment: Official', Reuters, 4 Nov. 2019.

the protocol. The August report, however contained language that implied cooperation could be better.²³

In November, the quarterly report by the IAEA's acting director general referred to a confidential report earlier that month, which stated that the IAEA had 'detected natural uranium particles of anthropogenic origin at a location in Iran not declared to the Agency'. The quarterly report added that 'It is essential for Iran to continue interactions with the Agency to resolve the matter as soon as possible'.²⁴ This apparently referred to a reported IAEA visit to what Israel claimed was a 'secret atomic warehouse' in Tehran, containing archives and equipment related to the pre-2003 Iranian nuclear weapon programme.²⁵ According to press reports, IAEA inspectors had taken environmental samples at the site earlier in 2019.²⁶ On 7 November, one of the inspectors was reportedly denied access to the Natanz facility and briefly detained.²⁷

US sanctions on Iran

After the US withdrawal from the JCPOA, the administration of US President Donald J. Trump adopted a policy of 'maximum pressure' on Iran, which focused on depriving the country of its oil revenues and ending all uranium enrichment there.²⁸ On 2 May 2019 the policy was taken even further, as the US Government revoked the remaining sanctions waivers to eight countries that were importing Iranian oil.²⁹ Other unprecedented additional measures included the designation of the Islamic Revolutionary Guard Corps (IRGC) as a terrorist organization in April and imposing sanctions on Iran's supreme leader, Ayatollah Ali Khamenei, and foreign minister, Javad Zarif, in June.³⁰

In May, the USA also revoked the waivers that had allowed Iran to ship excess stocks of heavy water and enriched uranium abroad to meet its

²³ The report stated that 'Ongoing interactions between the Agency and Iran relating to Iran's implementation of its Safeguards Agreement and Additional Protocol require full and timely cooperation by Iran. The Agency continues to pursue this objective with Iran'. IAEA, GOV/2019/32 (note 14).

²⁴ IAEA, GOV/2019/55 (note 14).

²⁵ Netanyahu, B., Statement at the United Nations General Assembly, 27 Sep. 2018; Arnold, A. et al., 'The Iran nuclear archive: Impressions and implications', Report, Belfer Center for Science and International Affairs, Harvard Kennedy School, Apr. 2019; and BBC, 'Iran nuclear deal: IAEA finds uranium particles at undeclared site', 11 Nov. 2019.

²⁶ BBC (note 25).

²⁷ BBC, 'Iran cancels accreditation of IAEA nuclear inspector', 7 Nov. 2019.

²⁸ Erästö (note 1); and White House, Statement from the Press Secretary, 1 July 2019. On US–Iran tensions during 2019, also see chapter 6, section I, in this volume.

²⁹ Katzman, K., 'Iran sanctions', Congressional Research Service report, updated 15 Nov. 2019; and Wong, E., 'US punishes Chinese company over Iranian oil', *New York Times*, 22 July 2019.

³⁰ White House, Statement from the President on the designation of the Islamic Revolutionary Guard Corps as a foreign terrorist organization, 8 Apr. 2009; and *New York Times*, 'Trump imposes new sanctions on Iran, adding to tensions', 24 June 2019.

JCPOA commitments.³¹ The United Nations secretary-general described that decision, as well as sanctions on Iranian oil exports, as contrary to UN Security Council Resolution 2231.³² The issue was raised at the June meeting of the Joint Commission of the JCPOA, which ‘tasked experts to look into practical solutions in particular for the export of low enriched uranium (LEU) and heavy water under appropriate arrangements’.³³ In November, responding to Iran’s announcement that it would resume enrichment at the FFEP, the USA decided not to extend the waiver on the conversion of the Fordow facility in December.³⁴ The waiver allowing the conversion of the Arak reactor nevertheless remained in place.³⁵

The role of other JCPOA parties

Other parties continued to stress their commitment to the JCPOA in 2019, but had little leverage in countering or compensating for the economic damage caused by the reimposed US sanctions on Iran.³⁶ Expectations of Europe’s ability to safeguard the JCPOA therefore fell further during the year. The E3 established the Instrument in Support of Trade Exchanges (INSTEX) in January, but its scope was reduced to non-dollar transactions and trade in non-sanctioned goods, such as food and medicine—in contrast to previous plans for facilitating oil exports from Iran. In addition, INSTEX did not become operational in 2019, in spite of the E3’s announcement to the contrary on 28 June.³⁷

In response to Iran’s reduction of its JCPOA commitments, the E3 and the High Representative of the EU for Foreign Affairs and Security Policy urged Iran to ‘refrain from any escalatory steps’ in May, and stressed that their ‘commitment to the nuclear deal depends on full compliance by Iran’ in July.³⁸ In September, the E3 stated that ‘the time has come for Iran to accept

³¹ Katzman (note 29); and Davenport, K., ‘Timeline of nuclear diplomacy with Iran’, Arms Control Association, updated Nov. 2019.

³² United Nations, Security Council, ‘Implementation of Security Council Resolution 2231 (2015)’, Report of the Secretary-General, S/2019/492, 13 June 2019.

³³ European External Action Service, Chair’s statement following the 28 June 2019 meeting of the Joint Commission of the Joint Comprehensive Plan of Action, 28 June 2019.

³⁴ Pompeo, M. R., Remarks to the press, 18 Nov. 2019.

³⁵ It seems that the waivers allowing the removal of spent fuel from the Bushehr nuclear reactor and the delivery of 20% enriched uranium fuel for the Tehran nuclear reactor also remained in place, although this was not explicitly stated by the administration. Psaledakis, D., ‘US to no longer waive sanctions on Iranian nuclear site’, Reuters, 18 Nov. 2019; and Davenport (note 31).

³⁶ See Erästö (note 1).

³⁷ European External Action Service (note 33); and Irish, J. and Penetier, M., ‘No trade mechanism until Iran passes terrorism financing laws: French diplomat’, Reuters, 4 Sep. 2019.

³⁸ European External Action Service, Joint statement by High Representative of the European Union and the foreign ministers of France, Germany and the United Kingdom on the JCPOA, 9 May 2019; and European External Action Service, The foreign ministers of France, Germany, the UK and the High Representative of the European Union on Iran/JCPOA, 2 July 2019.

negotiation on a long-term framework for its nuclear programme as well as on issues related to regional security, including its missile programme and other means of delivery'.³⁹ While the E3 had previously aligned its views with the USA on Iran's missiles and its regional role, this statement diverged from the previous European position, which opposed US calls for renegotiating the JCPOA as a broader agreement. In November, following Iran's decision to transgress the R&D limits, the E3 and the High Representative threatened to trigger the JCPOA dispute resolution mechanism.⁴⁰ The mechanism could lead to the reimposition of previous UN Security Council sanctions on Iran.⁴¹

France sought to mediate between the Trump administration and Iran in the context of a heightened threat of Iranian-US military confrontation following attacks on oil tankers in the Persian Gulf in May and the downing by Iran of a US surveillance drone in June.⁴² France suggested a credit line in exchange for Iran's full compliance with the JCPOA and negotiations on longer-term nuclear arrangements and regional issues. The aim was to compensate Iran for its lost oil revenues, thus making room for diplomacy in the absence of sanctions lifting. However, this would have reportedly required a US waiver, which the Trump administration was unwilling to grant.⁴³

Both Russia and China clearly placed the responsibility for the erosion of the JCPOA on US policy, which the former called a 'thoughtless political campaign against the nuclear deal' and the latter 'the root cause of the current crisis'.⁴⁴ Russia condemned, in particular, the US Government's return to a zero-enrichment policy and its decision to sanction the Fordow conversion project. Determined to continue the project, Russia called for the Joint Commission of the JCPOA to 'issue a meaningful response' and for Europe to 'defend the JCPOA in cooperation with Russia and China'.⁴⁵ China called for the USA to end its 'wrong behavior to make room for diplomatic efforts and create conditions for de-escalation' and for other parties to exercise

³⁹ British Prime Minister's Office, Joint statement by the heads of state and government of France, Germany and the United Kingdom, 23 Sep. 2019 (updated 24 Sep. 2019).

⁴⁰ European External Action Service, Joint statement by the foreign ministers of France, Germany and the United Kingdom and the EU High Representative on the JCPOA, 11 Nov. 2019.

⁴¹ JCPOA (note 1).

⁴² Both US and Israeli intelligence attributed the sabotage of the oil tankers to Iran, but Iran denied involvement. Halbfinger, D. M., 'Mossad chief bluntly blames Iran for tanker attacks', *New York Times*, 1 July 2019; Shear, M. D. et al., 'Strikes on Iran approved by Trump, then abruptly pulled back', *New York Times*, 20 June 2019; and see chapter 6, section I, in this volume.

⁴³ Kimball, D. G. and Masterson, J., 'French proposal on hold as tensions mount', P4+1 and Iran Nuclear Deal Alert, Arms Control Association, 24 Sep. 2019.

⁴⁴ Russian Ministry of Foreign Affairs, Comment by the Information and Press Department on yet another series of US verbal attacks on the Joint Comprehensive Plan of Action (JCPOA) for Iran's nuclear programme, 19 Nov. 2019; and Chinese Ministry of Foreign Affairs, Foreign Ministry Spokesperson Geng Shuang's regular press conference, 12 Nov. 2019.

⁴⁵ Russian Ministry of Foreign Affairs (note 44).

restraint.⁴⁶ China strongly rejected the US sanctions against Iran's oil exports after a Chinese company was targeted by them in July.⁴⁷

Controversy over Iran's missiles and United Nations Resolution 2231

While the JCPOA does not cover missiles, the Annex of UN Security Council Resolution 2231—which endorsed the agreement in July 2015—calls on Iran 'not to undertake any activity related to ballistic missiles designed to be capable of delivering nuclear weapons' until 2023.⁴⁸ The same annex also imposes an arms embargo on Iran until October 2020, constituting, together with Resolution 2216, the legal basis against Iran's short-range missile transfers in the region.⁴⁹

The Iranian position is that its missiles are conventional and not designed to carry nuclear weapons. The USA, in contrast, regards Iran's continuing missile tests and satellite launches as a breach of Resolution 2231—an argument that was part of the US Government's withdrawal from the JCPOA in 2018. The E3, for its part, maintains that Iran's missile activities are 'inconsistent' with Resolution 2231, without however defining them as a violation of that resolution.⁵⁰

The continuing controversy over Iran's missiles in 2019 was captured by the UN secretary-general's December report on the implementation of Resolution 2231. The report referred to US and E3 claims that Iran's Shahab-3 ballistic missile is 'designed to be capable of delivering nuclear weapons', based on the Missile Technology Control Regime (MTCR) definition. As noted, Iran and Russia denied the relevance of that definition for interpreting Resolution 2231, which makes no reference to the MTCR.⁵¹

The report also recounted allegations of Iranian transfers of missiles to its allies in the Middle East, including its alleged role in the drone and cruise missile attacks against Saudi Arabian oil facilities on 14 September. The UN secretary-general was 'unable to independently corroborate' claims that the components recovered from the site in Saudi Arabia 'are of Iranian origin and were transferred from the Islamic Republic of Iran in a manner inconsistent

⁴⁶ Chinese Ministry of Foreign Affairs (note 44).

⁴⁷ Williams, A., Sheppard, D. and Liu, X., 'China condemns US sanctions over Iran crude oil', *Financial Times*, 23 July 2019.

⁴⁸ UN Security Council Resolution 2231, 20 July 2015.

⁴⁹ UN Security Council Resolution 2231 (note 48); and UN Security Council Resolution 2216, 14 Apr. 2015.

⁵⁰ See BBC, 'Iran developing nuclear-capable missiles, European powers warn UN,' 5 Dec. 2019; and Erästö, T., 'Dissecting international concerns about Iran's missiles', SIPRI Background, 15 Nov. 2018.

⁵¹ According to the Missile Technology Control Regime (MTCR), all missiles that exceed a 300-km range and are able to carry a 500-kg payload are nuclear-capable. See Davenport, K., 'The Missile Technology Control Regime at a glance', Arms Control Association, update July 2017; and United Nations, Security Council, 'Implementation of Security Council Resolution 2231 (2015)', Report of the Secretary-General, S/2019/934, 10 Dec. 2019.

with Resolution 2231'.⁵² Although not directly connected to the JCPOA, the issue of Iranian missile transfers did play a part in the escalation of Iranian–US tensions and, together with the incidents against oil tankers, it arguably contributed to the hardening of the E3's position on Iran.

The outlook for 2020

The already dim prospects for maintaining the JCPOA began to look increasingly difficult in 2019. The Trump administration's policy of maximum pressure on Iran left Europe little room for manoeuvre in order to compensate for the economic harm done by US sanctions. At the same time, the EU/E3 position on Iran hardened following Iranian steps to reduce its JCPOA commitments, as well as Iran's regional responses to US policy. In this context, Iran might see little benefit in remaining in the JCPOA. Assuming that the agreement does not collapse before the end of 2020, the single most important factor determining the JCPOA's future might be the US presidential elections, as several Democratic candidates have stated their intention to rejoin the agreement.⁵³

⁵² United Nations (note 51).

⁵³ Toosi, N., 'Democrats want to rejoin the Iran nuclear deal: It's not that simple', Politico, 20 July 2019.