

### III. The Joint Comprehensive Plan of Action on Iran's nuclear programme

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The window of opportunity for reviving the Joint Comprehensive Plan of Action (JCPOA) on Iran's nuclear programme—which had been opened in 2021 by the inauguration of Joe Biden as president of the United States—seemed to close in 2023. Following failed efforts to restore the JCPOA, the diplomatic momentum had gradually been lost after August 2022, while other political developments, notably Iran's arms transfers to the Russian Federation, added obstacles to Western engagement with Iran.<sup>1</sup> Iran and the USA nevertheless reached an informal agreement to prevent escalation in June 2023, but this was called into question by the Israel– Hamas war in Gaza, which triggered a clash between Iran-backed groups and the USA in Iraq and Syria.<sup>2</sup>

This section starts with brief background on the JCPOA and diplomatic efforts to revive it. It then reviews developments related to Iran's nuclear programme in 2023, including the limited progress made by Iran and the International Atomic Energy Agency (IAEA) related to nuclear safeguards. This is followed by an account of political developments, focusing on talks between Iran and the USA and their efforts to manage escalation.

#### Background

The JCPOA was concluded in 2015 by Iran on one side and, on the other, the European Union (EU) and three European states—France, Germany and the United Kingdom (the E3)—and China, Russia and the United States.<sup>3</sup> It was based on a compromise whereby Iran accepted time-bound limits on and strict monitoring of its proliferation-sensitive activities in return for the lifting of international sanctions on its nuclear programme. Among other restrictions, the JCPOA set a limit of 3.67 per cent on the level of the isotope uranium-235 in any enriched material until 2030.<sup>4</sup> This was to prevent Iran from obtaining highly enriched uranium (HEU), which could

<sup>1</sup> Erästö, T., 'The Joint Comprehensive Plan of Action on Iran's nuclear programme', *SIPRI Yearbook 2023*, pp. 368–77. On Iran's arms transfers to Russia see chapter 6, section I, and chapter 10, section III, in this volume.

<sup>2</sup> On the Israel– Hamas war see chapter 1, chapter 2, section I, and chapter 10, section II, in this volume.

<sup>3</sup> Joint Comprehensive Plan of Action (JCPOA), 14 July 2015, reproduced as annex A of UN Security Council Resolution 2231, 20 July 2015.

<sup>4</sup> Joint Comprehensive Plan of Action (note 3), paras 3–5.

be used to manufacture a nuclear weapon in contravention of the 1968 Non-Proliferation Treaty (NPT).<sup>5</sup>

However, in May 2018 the US administration of President Donald J. Trump ceased to implement the agreement and imposed unilateral sanctions on Iran. These extraterritorial measures effectively also constraining the ability of the other JCPOA parties to lift their sanctions, thereby practically cutting Iran off from the global financial system.

In turn, Iran gradually reduced its adherence to its own JCPOA commitments from May 2019. It stepped up its nuclear activities by raising the level of uranium enrichment and by increasing its capacity to enrich with the instalment of advanced centrifuges.<sup>6</sup> In January 2021 it increased the level of enrichment from 5 per cent up to 20 per cent and then, in April, to 60 per cent.<sup>7</sup> While the latter is classified as HEU, it falls short of the 90 per cent threshold at which uranium is considered suitable for manufacturing a nuclear bomb. At the same time, Iran maintained that it would return to full compliance with the JCPOA as soon as the other parties did the same.<sup>8</sup>

In February 2021 Iran also suspended additional transparency measures under the JCPOA—notably the Additional Protocol to its Comprehensive Safeguards Agreement (CSA).<sup>9</sup> While a CSA is based on the state's declarations of its nuclear activities and materials and their verification by the IAEA, an additional protocol expands the agency's inspection authority outside the declared facilities to improve its ability to detect potential clandestine activities.<sup>10</sup> Camera surveillance at Iranian nuclear sites nevertheless continued based on a temporary agreement between Iran and the IAEA. This ended in June 2022, when Iran decided to remove the cameras in response to a resolution by the IAEA Board of Governors that censored the country for its lack of cooperation in addressing outstanding issues related to its past nuclear activities.<sup>11</sup> The removal of cameras and other monitoring equip-

<sup>5</sup> For a summary and other details of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons see annex A, section I, in this volume.

<sup>6</sup> On the agreement and its implementation see Erästö (note 1); and sections in the 2016–22 editions of the SIPRI Yearbook.

<sup>7</sup> Erästö, 'The Joint Comprehensive Plan of Action on Iran's Nuclear Programme', *SIPRI Yearbook 2022*, p. 450.

<sup>8</sup> 'Iran takes final step by abandoning JCPOA restrictions', Islamic Republic News Agency (IRNA), 5 Jan. 2020; and 'Iran says 60% enrichment meant to show nuclear prowess, is reversible', Reuters, 20 Apr. 2021.

<sup>9</sup> IAEA, Board of Governors, 'Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council Resolution 2231 (2015)', Report by the Director General, GOV/INF/2021/13, 16 Feb. 2021.

<sup>10</sup> IAEA, 'IAEA safeguards overview: Comprehensive safeguards agreements and additional protocols', Fact sheet, [n.d.]; and Protocol Additional to the Agreement between the Islamic Republic of Iran and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, signed 18 Dec. 2003, no yet in force, provisionally applied 16 Jan. 2016–22 Feb. 2021, IAEA INF/CIRC/214/Add.1, 4 Mar. 2016.

<sup>11</sup> IAEA, Board of Governors, 'NPT Safeguards Agreement with the Islamic Republic of Iran', Resolution, GOV/2022/34, 8 June 2022; and Erästö (note 1), pp. 371–72.

ment in June 2022 was followed by repeated warnings by the IAEA about the difficulty of re-establishing its knowledge about Iran's nuclear activities from the time that the equipment ceased to be in place.<sup>12</sup>

## Developments related to Iran's nuclear programme

### *Uranium enrichment*

In 2023 Iran continued to enrich uranium up to 60 per cent, although the production rate of this HEU was temporarily reduced in June—possibly reflecting the informal Iranian–US agreement in place at that time.<sup>13</sup> By October Iran's stockpile of uranium enriched to 60 per cent had reached 128 kilograms.<sup>14</sup> Its stockpile of uranium enriched to 20 per cent had reached 567 kg at that time, while the IAEA's estimates of Iran's total stockpile of enriched uranium—including uranium enriched up to 5 per cent as well as that enriched to 20 and 60 per cent—grew from 3761 kg in February to 4486 kg in October.<sup>15</sup> This was about 15 times larger than the JCPOA limit of 300 kg.

As noted in a statement by the E3 in November, Iran's stockpile of HEU was three times the size of what the IAEA defines as a 'significant quantity'—that is, 'The approximate amount of nuclear material for which the possibility of manufacturing a nuclear explosive device cannot be excluded'.<sup>16</sup> In contrast, the JCPOA limits had been designed to extend the so-called 'breakout time'—that is, the time it would take Iran to produce enough fissile material for one nuclear weapon—to one year.<sup>17</sup>

In January 2023 the IAEA found traces of uranium enriched up to 83.7 per cent at the Fordow Fuel Enrichment Plant (FFEP), Qom province.<sup>18</sup> Iran explained this in terms of 'unintended fluctuations' in enrichment levels that may have occurred during the replacement of the feed cylinder at the facility.<sup>19</sup> After having evaluated this and additional information, in March

<sup>12</sup> IAEA, Board of Governors, 'Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council Resolution 2231 (2015)', Report by the director general, GOV/2022/39, 7 Sep. 2022, paras 62, 8.

<sup>13</sup> IAEA, Board of Governors, '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/2023/8, 28 Feb. 2023; GOV/2023/24, 31 May 2023; GOV/2023/39, 4 Sep. 2023; GOV/2023/57, 15 Nov. 2023; and Davenport, K., 'Iran sends mixed messages on nuclear activities', *Arms Control Today*, vol. 53, no. 8 (Oct. 2023).

<sup>14</sup> IAEA, GOV/2023/57 (note 13), para. 19.

<sup>15</sup> IAEA, GOV/2023/8 (note 13), para. 61; and IAEA, GOV/2023/57 (note 13), para. 19.

<sup>16</sup> France, Germany and the UK (E3), Joint statement on the JCPOA at the IAEA Board of Governors, 23 Nov. 2023; and IAEA, *IAEA Safeguards Glossary*, 2022 edn, International Nuclear Verification Series no. 3 (Rev. 1) (IAEA: Vienna, 2022), pp. 30–31.

<sup>17</sup> Obama, B., US president, Statement on Iran, 17 Jan. 2016.

<sup>18</sup> IAEA, GOV/2023/24 (note 13), para. 36.

<sup>19</sup> IAEA, GOV/2023/24 (note 13), para. 37.

the IAEA concluded that it had no further questions on the matter. It also noted that it had found no indication of accumulation of uranium enriched beyond 60 per cent at the FFEP.<sup>20</sup>

### *Safeguards*

On 4 March 2023 Iran and the IAEA issued a joint statement in which they agreed to increase the agency's verification and monitoring activities in Iran and to address outstanding safeguards issues.<sup>21</sup> This followed a statement by the IAEA in February that its 'continuity of knowledge' about Iran's nuclear activities could no longer be re-established given the gap in monitoring since June 2022.<sup>22</sup>

In line with the joint statement, in April and May the IAEA installed enrichment monitoring devices (EMDs) at the FFEP and at the Pilot Fuel Enrichment Plant (PFEP) in Natanz, Esfahan province.<sup>23</sup> Although the IAEA already had regular access to these and other key nuclear facilities in Iran, the EMDs were expected to facilitate a more rapid detection of any variations in enrichment levels in these locations.<sup>24</sup> In May the IAEA also installed cameras at workshops in Esfahan that Iran had used to manufacture components for uranium enrichment centrifuges.<sup>25</sup> This was the first time that new cameras had been installed in facilities related to Iran's nuclear programme since June 2022.

While the IAEA recognized these steps in its May report on safeguards in Iran, subsequent IAEA reports pointed to the lack of further progress in the implementation of the transparency measures announced in March. The two sides seemed to have different interpretations of the substance of the joint statement: the IAEA wanted access to the recordings of the cameras at the workshops in Esfahan, whereas Iran claimed that this had not been agreed as part of the joint statement.<sup>26</sup> According to the previous temporary monitoring agreement whereby Iran had allowed IAEA cameras to monitor its nuclear sites between February 2021 and June 2022, the agency would only gain access to the recordings in the event of a diplomatic solution to restore the JCPOA.<sup>27</sup>

<sup>20</sup> IAEA, GOV/2023/24 (note 13), para. 40.

<sup>21</sup> Atomic Energy Organization of Iran (AEOI) and IAEA, Joint statement, 4 Mar. 2023.

<sup>22</sup> IAEA, GOV/2023/8 (note 13), para. 11.

<sup>23</sup> IAEA, Board of Governors, 'NPT Safeguards Agreement with the Islamic Republic of Iran', Report by the director general, GOV/2023/26, 31 May 2023, para. 22.

<sup>24</sup> IAEA, 'IAEA director general's introductory statement to the Board of Governors', 5 June 2023.

<sup>25</sup> IAEA, GOV/2023/26 (note 23), para. 21.

<sup>26</sup> IAEA, NPT Safeguards Agreement with the Islamic Republic of Iran, GOV/2023/58, 15 Nov. 2023, para. 24, p. 6; and Davenport, K., 'IAEA head calls for diplomacy with Iran as nuclear activities advance', Arms Control Now, 25 Jan. 2024.

<sup>27</sup> Erästö (note 1), pp. 371–72.

In March 2023, also in line with the joint statement, there was some progress in the resolution of outstanding issues related to Iran's pre-2004 nuclear activities at three locations that had not been declared to the IAEA.<sup>28</sup> More specifically, Iran provided additional information related to one of the locations, Marivan, after which the IAEA had no further questions on the site.<sup>29</sup> Outstanding questions remained in relation to the two other locations, Turqzabad and Varamin. Iran provided no additional information on these locations in 2023.<sup>30</sup>

## Political developments

In April 2021 Iran and the United States had begun indirect talks to revive the JCPOA with EU mediation. Following several rounds of talks, they seemed to have come close to an agreement in August 2022. However, Iran's additional demands—which reportedly included closing the IAEA investigation on its past nuclear activities and preventing any further investigations on this issue—apparently prevented a diplomatic breakthrough at the time.<sup>31</sup> The subsequent loss of political momentum was compounded in late 2022 by Iran's violent crackdown on domestic protests and its military cooperation with Russia, which created further political obstacles for nuclear talks.<sup>32</sup>

In 2023 relations between Iran and the West continued to be soured by Iran's transfers of uncrewed aerial vehicles (UAVs) to Russia.<sup>33</sup> The E3 and the USA regarded these supplies as violations of the arms embargo on Iran that was maintained by the United Nations Security Council when it endorsed the JCPOA.<sup>34</sup> Although the final element of the multilateral arms embargo expired on 18 October 2023—eight years after the JCPOA adoption day—the E3 continued to impose sanctions on Iran's arms exports as part of their national policies.<sup>35</sup> The USA also continued its national sanctions on Iran. Indeed, any attempt by the Biden administration to waive sanctions in the context of a formal agreement to restore the JCPOA would most likely

<sup>28</sup> Erästö (note 1), pp. 375–77.

<sup>29</sup> IAEA, GOV/2023/26 (note 23), para. 18.

<sup>30</sup> IAEA, GOV/2023/58 (note 26), para. 24.

<sup>31</sup> Davenport, K., 'Iran nuclear talks stall again', *Arms Control Now*, 28 Sep. 2022. See also Erästö (note 1), pp. 369–71.

<sup>32</sup> Erästö (note 1), p. 377. Also see 'Iran protests 2022: Detailed report of 82 days of nationwide protests in Iran', *Human Rights Activists News Agency*, Sep–Dec 2022; and 'US warns of expanding Iran, Russia defence "partnership"', *Al Jazeera*, 9 Dec. 2022.

<sup>33</sup> See e.g. US Institute of Peace, 'Timeline: Iran–Russia collaboration on drones', *Iran Primer*, 10 Aug. 2023. On Iranian arms transfers to Russia see also chapter 6, section I, in this volume.

<sup>34</sup> UN Security Council Resolution 2231 (note 3), para. 7 and annex B, para. 4.

<sup>35</sup> British Foreign, Commonwealth and Development Office, 'Joint Comprehensive Plan of Action (JCPOA) transition day', *Statement*, 18 Oct. 2023; and France, Germany and the UK, 'E3 statement ahead of Joint Comprehensive Plan of Action transition day', 14 Sep. 2023. On the arms embargo see also chapter 12, section II, in this volume.

have been blocked by the congressional approval required under the 2015 Iran Nuclear Agreement Review Act (INARA).<sup>36</sup>

Following indirect talks between Iran and the USA in Oman in May, in June it was reported that a bilateral understanding had been reached that involved concessions on both sides.<sup>37</sup> Rather than resolving the nuclear issue or other disputes between the two countries, the measures were aimed at de-escalating tensions and reducing the risk of military conflict. Although neither side publicly outlined the content of the informal agreement, it reportedly included a commitment by Iran to release US citizens who had been detained in Iran, to increase cooperation with the IAEA, not to enrich uranium beyond 60 per cent, to refrain from selling missiles to Russia, and to halt proxy attacks on US contractors in Iraq and Syria. The USA, for its part, would unfreeze Iranian assets to be used exclusively for humanitarian purposes, refrain from imposing additional unilateral sanctions on Iran, not seek UN or IAEA resolutions censoring Iran for nuclear activities, and not seize foreign tankers carrying Iranian oil.<sup>38</sup> As several analysts noted, the informal nature of the agreement provided a way to avoid it being undermined by the US Congress through the INARA.<sup>39</sup>

There were signs that the informal agreement was being implemented. Iran cooperated with the IAEA on the transparency measures and temporarily also reduced its rate of enrichment of HEU, as described above. In June the USA issued a waiver that allowed Iraq to pay back a debt worth US\$2.7 billion to Iran.<sup>40</sup> Moreover, in September Iran and the USA exchanged detainees and the US unfroze Iranian assets worth \$6 billion. These funds were transferred from South Korea to Qatar, where Iran would be able to access them exclusively for humanitarian purposes.<sup>41</sup> Around the same time in September, Iran's supreme leader, Ali Khamenei, authorized direct talks between Iran and the USA.<sup>42</sup> After the US withdrawal from the JCPOA, Iranian officials had only been able to interact with their US counterparts through mediation by the EU, Oman and Qatar.

The future of the Iranian–US bilateral understanding was called into question by Hamas's attack on Israel on 7 October and the subsequent war in Gaza.<sup>43</sup> Because of Iran's military support for Hamas, the Biden adminis-

<sup>36</sup> Iran Nuclear Agreement Review Act of 2015, US Public Law 114-17, signed into law 22 May 2015.

<sup>37</sup> Crowley, M., Fassihi, F. and Bergman, R., 'Hoping to avert nuclear crisis, US seeks informal agreement with Iran', *New York Times*, 14 June 2023.

<sup>38</sup> Crowley et al. (note 37).

<sup>39</sup> E.g. Goldsmith, J., 'Can Biden sidestep Congress on an Iran nuclear deal?', *Lawfare*, 21 June 2023.

<sup>40</sup> Crowley et al. (note 37).

<sup>41</sup> Reuters, 'US–Iran prisoner swap: The detainees freed in exchange agreement', *The Guardian*, 18 Sep. 2023.

<sup>42</sup> 'Scoop: Khamenei "grants permission" for direct Iran–US nuclear talks', *Amwaj.media*, 26 Sep. 2023.

<sup>43</sup> On the Israel–Hamas war see chapter 1, chapter 2, section I, and chapter 10, section II, in this volume.

tration's previous decision to unfreeze Iranian funds came under domestic criticism. By mid October Qatar and the USA had agreed to block Iranian access to the funds 'for the foreseeable future'.<sup>44</sup> In November the US House of Representatives passed a bipartisan resolution that called for the administration to permanently stop Iran from accessing the funds, although no Senate vote on the issue was held in the remainder of the year.<sup>45</sup> Moreover, starting from 17 October Iran-backed groups began to target US forces in Iraq and Syria, and the USA responded with counterstrikes on 26 October and 8 November against facilities in Syria used by Iran's Islamic Revolutionary Guard Corps (IRGC).<sup>46</sup> This seemed to mark the end of the short-lived Iranian–US de-escalation agreement.

### Looking ahead

Although the informal agreement between Iran and the United States of June 2023 was not directly related to the JCPOA, it seemed to contribute to a partial resolution of related safeguards issues. If fully implemented, the informal agreement could have also paved the way for a resumption of negotiations to restore the JCPOA after the 2024 US presidential elections. However, the agreement seemed to have collapsed already by the end of 2023 due to the war in Gaza, as the USA's promise to unfreeze Iranian funds and Iran's promise to restrain its regional proxies from attacks on US forces were broken.

The uncertainties related to the potential widening of the conflict in the Middle East and Iran's continuing military support for Russia in Ukraine are likely to pose additional challenges to potential future efforts to restore the JCPOA. It seems increasingly difficult to compartmentalize any nuclear discussions from these wider issues.

<sup>44</sup> Crowley, M. and Rappoport, A., 'US and Qatar deny Iran access to \$6 billion from prisoner deal', *New York Times*, 12 Oct. 2023.

<sup>45</sup> Amiri, F., 'House passes resolution to block Iran's access to \$6 billion from prisoner swap', AP, 30 Nov. 2023.

<sup>46</sup> Finucane, B. et al., 'Understanding the risks of US–Iran escalation amid the Gaza conflict', International Crisis Group, 10 Nov. 2023, p. 1.