



Linus Hoeller

**Foregone Conclusion? The Interactions
Between Global Actions and the Iranian Nuclear
Program**

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This report traces the evolution of Iran’s nuclear program from the 1950s to the present, analyzing its interaction with international relations and the global nonproliferation regime. Five key phases of the program are identified, each featuring a “hinge point” where external pressures and Iran’s domestic decisions intersected in particularly significant ways. Using both qualitative and empirical methods, the work explores how diplomacy, sanctions, military factors, international norms, and global events have influenced Tehran’s strategic choices regarding nuclear technology, including its potential military dimension.

The novelty of the research lies in its comprehensive approach: alongside a survey of the program’s full history, the study offers in-depth analysis of pivotal episodes – from its inception under the Shah and Iran’s accession to the NPT, through the impact of the Iran-Iraq war, the exposure of clandestine facilities in the early 2000s, and the aftermath of the JCPOA. The findings show that international reactions have had a substantial but uneven impact: in some cases, norms and diplomatic incentives encouraged restraint, while in others, distrust of the international community and a sense of “strategic loneliness” pushed Iran to resume and diversify its program.

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Introduction

The Iranian nuclear program has enjoyed a continuous presence in the minds of many of the world's diplomats for the past half-century – sometimes as a background hum, sometimes at the very forefront of global attention.

This report aims to examine the history of the Iranian nuclear program's interactions with the realm of international relations. Using a combination of qualitative and empirical research methods, I aim to examine whether and how the actions and reactions of the international community have influenced the trajectory of the Iranian nuclear program, particularly any possible non-peaceful dimensions, from the 1950s to the present day. The work will identify and examine the five key periods in the Iranian nuclear program. Within each of these five periods, a crucial hinge point is identified, which will be analyzed in depth to draw conclusions about the interplay between international actions and Iranian nuclear decisions. In doing so, the work will focus on whether and how specific global responses may have influenced key decision points in Iran's nuclear development.

A key methodological innovation in this research is the development of a systematic framework for categorizing international pressures on Iran's nuclear program. Five distinct domains of international reaction are analyzed throughout the thesis: diplomatic condemnation, economic sanctions, threats or use of military force, normative pressure, and covert technical operations.¹

By combining a survey-style approach recalling the entire history of the Iranian nuclear program from the days of the Shah to the present with the more in-depth study of hinge points in the Iranian program, this work aims to fill a gap in the existing literature, which has primarily focused on more recent decades and in particular, the Joint Comprehensive Plan of Action (JCPOA). Within the confines of the format, this will help make more obvious the diverse ways in which international reactions and Iranian nuclear decisions have interacted in the past; what themes have persisted and which interactions have changed; and whether alternative explanations for what happened at key inflection points may be a better fit.

The author hopes that this is a valuable addition to the important and ever-evolving field of nonproliferation. Organic case studies like the Iranian nuclear crisis are – luckily – relatively few and far between, forcing most literature in the field to place a heavy emphasis on theory. Examining this case in detail will further the fields of nonproliferation and international relations more broadly, in determining whether and in what manner international actions can or do affect

¹ Detailed descriptions of each of these categories, as well as a discussion of methodology and a literature review, have been removed from this work for brevity. They can be found in the longer original work that this report is based on. It can be accessed at: https://drive.google.com/file/d/1sNRnRAolZljW_EwpJyzSlwuUNip1R1CN

nuclear decision-making in a state that questions its place in the nuclear world. While this work, of course, focuses on Iran, I do expect that many of the findings of this paper could serve as a basis for further research in other relevant nonproliferation studies cases, past, present or future.

According to all available information at the time of writing, the Islamic Republic has not yet made the decision to cross the nuclear threshold. However, there is considerable evidence that a non-peaceful dimension of the country's nuclear program – which it has continuously insisted is exclusively for civilian purposes – existed in the past and very likely continues to exist. Global intelligence estimates, open-source information and, increasingly, policy discussions within Iran indicate that Tehran is well aware of the potential military applications of its nuclear program and that its development has likely been conducted with this possible end in mind.

Additionally, the world has entered a new era of geopolitics, sometimes described as “leaderless” or multipolar. Shifting security landscapes may lead new countries to consider going nuclear or reignite old debates in countries that shelved the idea. Notably, a U.S. retreat on the global stage, as is underway under the second Trump presidency, might further encourage such discussions in places as far-flung as South Korea, Germany and Saudi Arabia. With this in mind, taking stock of what little real-world experience we have of international actions interacting with the actions of threshold nuclear states seems more relevant than ever.

A nuclear threshold state is one that has all the necessary elements in place to quickly produce nuclear weapons if it so chooses, but has not yet done so for a variety of reasons. Japan, for instance, is widely considered a nuclear threshold state; the country possesses an expansive nuclear industry and large amounts of fissile material, including dozens of tons of separated plutonium,² as well as a highly advanced industrial-technological base that would very likely allow it to quickly “go nuclear” if the political decision to do so were to be taken. Of course, Iran did not fit this definition throughout the entirety of the history analyzed in this paper, but has been commonly counted into the class of threshold or near-threshold nuclear states in the 21st century.

This is, naturally, a developing story. This makes the topic especially relevant for academic investigation.

² China Arms Control and Disarmament Association // China Institute of Nuclear Information and Economics. Study on Japan's Nuclear Materials, 2015.

CHAPTER I. UNDER THE SHAH: PRESTIGE PROJECT AND UNLIMITED RESOURCES (1959-1979)

I.1 Getting the Program Started

The roots of the Islamic Republic's modern nuclear program lie in a bygone era and one that the current rulers see themselves as diametrically opposed to: the Iranian monarchy. Shah Mohammed Reza Pahlavi was a king in the traditional, absolutist sense of the word. Still, he was Western-aligned and technologically inspired, even if driven in large part by his desire for prestige within the country and on the global stage. It was at his direct order that the Iranian nuclear program got started.³

Under the Shah, Iran was generally seen as being Western-aligned. Relations with the U.S. were good, and they were cordial with the most significant European powers, too. With the American leading position on nuclear research in the post-war world, it is not a major surprise that it was Washington that Tehran turned to in order to get its program off the ground. On the American side, Eisenhower's Atoms for Peace program provided the basis for nuclear technology exports, especially to friendly countries.

Already in 1957, an agreement was signed between the two countries for Iran to go nuclear under the Atoms for Peace program. Three years later, Iran bought a small research reactor for the Tehran Nuclear Research Center from the U.S., which was completed seven years later in 1967. This research reactor ran on high-enriched fuel (a fact that would be seen as a major proliferation risk nowadays), which was also provided by the Americans.⁴

America's and Western Europe's relationship with the program became somewhat more complicated in the 1970s, as the Shah's goals became more ambitious. On the one hand, he promised the creation of 20 nuclear power plants spread across the country with the aim of alleviating Iran's power shortages through nuclear power and propelling it into the industrialized world.⁵ On the other hand, Iranian political leaders were speaking of wanting to indigenize the nuclear fuel cycle and were extending feelers with the aim of procuring sensitive technologies. Reprocessing – used to extract plutonium from spent reactor fuel – was one such technology, and

³ Patrikarakos D. Nuclear Iran: the birth of an atomic state, 2012.

⁴ Albright D, Stricker A. Iran's Nuclear Program // The Iran Primer. URL: <https://iranprimer.usip.org/resource/irans-nuclear-program> (accessed: 09.10.2024).

⁵ Nuclear Power in Iran // World Nuclear Association. URL: <https://world-nuclear.org/information-library/country-profiles/countries-g-n/iran> (accessed: 04.06.2025).

the country started indigenous research in uranium enrichment, primarily through laser technology.^{6 7 8}

To the countries supplying Iran, this meant, on the one hand, chances for phenomenal profits by capitalizing on the country's rapid nuclear expansion plans. German firm Siemens signed an agreement to build the country's Bushehr nuclear power station, for instance. On the flip side, however, it raised questions as to how peaceful Iranian intentions truly were. It is known from declassified documents that throughout the 1970s, the U.S. government became more skeptical when it came to supplying sensitive technologies to Iran. Between 1974 and 1977, the U.S. government opposed sending a reprocessing facility to Iran (which would have helped the country extract plutonium from the spent fuel out of its future power plants) and also pressured Germany not to send one of their own. In 1978, shortly before the end of the Iranian monarchy, Washington also managed to secure a deal that would see spent fuel from any American-built reactors in Iran sent back to the U.S.⁹, evidence of a growing concern over possible Iranian intentions to build a bomb.

In fact, revelations decades later, coinciding in time with the 2003 emergence of news of the covert Iranian weaponization efforts under the next government, suggest that these concerns were not, in fact, unfounded. Speaking to the Italian newspaper *Le Figaro*, Akbar Etemad, head of the Atomic Energy Agency of Iran from 1974 to 1978, under the Shah, revealed that behind Iranian nuclear decisions was the conscious intent of leaving the path toward the bomb open in the case that it ever became necessary.^{10 11}

Speaking to the BBC in a rare 2013 interview, Etemad said: "The Shah had the idea at the time that he's strong enough in the region and he can defend our interests in the region [and] he didn't want nuclear weapons. But he told me that if this changes 'we have to go for nuclear.' He had that in mind."¹²

In his earlier 2003 interview, Etemad had also revealed that a team within the AEOI was tasked with "giving the country access to all technologies, giving the political decision-makers the

⁶ Albright D, Stricker A. Iran's Nuclear Program // The Iran Primer. URL: <https://iranprimer.usip.org/resource/irans-nuclear-program> (accessed: 09.10.2024).

⁷ Lashkar Ab'ad. URL: <https://www.nti.org/education-center/facilities/lashkar-abad/> (accessed: 07.06.2025).

⁸ Koch A, Wolf J. Iran's nuclear procurement program: How close to the bomb? // The Nonproliferation Review, № 1, 1997.

⁹ Albright D, Stricker A. Iran's Nuclear Program № // The Iran Primer. URL: <https://iranprimer.usip.org/resource/irans-nuclear-program> (accessed: 09.10.2024).

¹⁰ Ibid.

¹¹ Iran opted for N-bomb under Shah: ex-official. URL: <http://beta.dawn.com/news/116623/iran-opted-for-n-bomb-under-shah-ex-official> (accessed: 05.06.2025).

¹² Malik Z. The man who turned Iran nuclear // BBC News, 2013.

possibility of making the appropriate decision and doing so while time permitted them to build a bomb if that is what was required.”¹³

His high-level testimony, which has remained consistent over the years, suggests that Iran under the Shah was not actively pursuing a nuclear weapon: To the best of the publicly available knowledge, it did not have a weaponization program. But it did discuss the possibility of nuclear weapons for Iran at the highest level and wanted to have the option, complete with control over the necessary technology and materials, to jumpstart a bomb program if the decision had been made. Certain parallels to the modern Iranian program suggest themselves.

Contemporary academic literature suggests that concerns and reservations about the Iranian nuclear program weren't exclusive to the inner echelons of government but made their way out (although in limited amounts) to broader policy discussions of the era. Quester, who also wrote about the Russian-U.S. competition over Iran, wrote in 1977 that the country was “the first nation to be widely suspected of nuclear weapons ambitions, even after having specifically and legally renounced such weapons by signing and ratifying the Nuclear Nonproliferation Treaty.”¹⁴ He pointed to the Shah's public statement, including his public statement that Iran would pursue nuclear weapons “without a doubt, and sooner than one might think,” to underscore his concern.¹⁵ In addition to the Soviet Union to the north, Quester pointed to India's “peaceful nuclear explosion” of 1974 as a potential factor that might well push Iran toward developing nuclear weapons.

The CIA shared the assessment. In 1974, the agency concluded that if Iran had the necessary capacity and “if other countries have proceeded with nuclear weapons development, we have no doubt that Iran will follow suit.”¹⁶

Despite the American concerns, the Iranian nuclear program, in its early iteration, was largely dependent on overt, government-facilitated technological support from the United States. Iran's first reactor was an American research reactor; the enriched uranium that the Shah had access to similarly came from the U.S., and Iranian nuclear scientists were trained in prestigious American universities. Similarly, the efforts that crystallized to make Iran a nuclear power-producing country rested largely on Western companies and governments. Specifically, Germany and France were to be instrumental in the planned construction of nuclear power plants on Persian territory.¹⁷

¹³Albright D, Stricker A. Iran's Nuclear Program // The Iran Primer. URL: <https://iranprimer.usip.org/resource/irans-nuclear-program> (accessed: 09.10.2024).

¹⁴ Quester G. The Shah and the Bomb // Policy Sciences, № 1, 1977.

¹⁵ Ibid.

¹⁶ Burr W. A Brief History of U.S.-Iranian Nuclear Negotiations // Bulletin of the Atomic Scientists, 2009.

¹⁷ Inskeep S. Born in the USA: How America Created Iran's Nuclear Program // NPR, 2015.

France, in particular, played a key role in the 1970s in jumpstarting the Iranian nuclear program. This story is intricately linked with the oil crisis that was precipitated by OPEC states in that decade and that hit Western Europe hard. It was also defined by diplomatic pragmatism and flexibility on the French part and the country's desire to make use of its position as one of the key global leaders in nuclear technology. To address France's critical shortage of oil, the government decided to exchange nuclear reactors and technology for Iranian oil, with a special financial arrangement where Iran would create an account at the Banque de France to recycle petrodollars back to France.¹⁸

The disunity and rivalry among global nuclear players in the days before a well-defined global nonproliferation regime allowed Iran to advance its nuclear ambitions by playing these countries against each other and obtaining more favorable nuclear arrangements. By the end of the Shah's rule over Iran, the country had secured the acquisition of four nuclear reactors, significant shares in the French/European EURODIF enrichment consortium and a domestic ambition to master the nuclear fuel cycle.

Coincidentally, it was also this deep level of international involvement, along with the exorbitant costs, that would make it plausible for the subsequent Iranian revolutionary government to paint the program as an expensive imposition on the country by a colonialist, imperialist West. The revolution marked the preliminary end of the program; Ayatollah Khomeini even commented that the unfinished nuclear reactor sites should be used as grain silos.¹⁹ Similarly, this deep international involvement in the origins of the Iranian nuclear program would inform the international community's reaction to its restart and possible non-peaceful dimensions, just as it would the Iranian drive for indigenization to shield the program from such foreign interference.

This goal was not a novelty brought about by the revolutionary government. Indeed, the Shah's nuclear program, while starting out by cooperating closely with the United States, became increasingly defiant, especially throughout the 1970s. Iran argued – legally correctly and in a foreshadowing of the modern Iranian position – that it had the “right” to work on indigenizing the fuel cycle and domestically develop its nuclear industry and capabilities.²⁰ Indeed, the “inalienable right” to peaceful uses is enshrined in Article IV of the Treaty on the Nonproliferation of Nuclear Weapons, or NPT, which Iran ratified in 1970, just two years after it was created.²¹ The country was among the first to sign the treaty, adding its signature on the first day that this was possible in 1968.

¹⁸ Auffant M. Oil for Atoms: The 1970s Energy Crisis and Nuclear Proliferation in the Persian Gulf // Texas National Security Review, № 3, 2022.

¹⁹ Vaez A, Sadjadpour K. Iran's Nuclear Odyssey: Costs and Risks, 2013.

²⁰ Department of Defense: Joint Chiefs of Staff. U.S. Embassy Tehran cable 7485 to State Department, Iranian Counterproposals for Atomic Energy Agreement, 1976.

²¹ Treaty on the Non-Proliferation of Nuclear Weapons (NPT) – UNODA, 1968.

I.2 International Reactions – and Assistance

Despite the Iranian right to peaceful uses, the country's program raised flags internationally, and the United States withdrew itself from the early full-throated support of the Iranian program at around the same time. A global consciousness of proliferation was emerging, and the United States' policy became reflective of this, aiming to limit the risks of further countries attaining nuclear weapons. Kennedy had infamously predicted that by the end of the decade that saw his election as president, there may be dozens of nuclear weapons states.²² While by the 1970s, Kennedy was out of the picture and it was clear that his prediction had been overly pessimistic, his concern had likely contributed to the creation of the NPT and reflected a broader recognition of proliferation as an issue to global security.

The USSR had arguably been ahead of the game in this regard, noting the risk of nuclear proliferation and arguing for a number of nonproliferation policies on the international stage since the 1950s.²³ This wasn't entirely altruistic, as the USSR was at the time still playing catch-up with the U.S. nuclear industry and its global dominance. Simultaneously, however, the USSR initially opposed the creation of mandatory safeguards (a position it shared with the developing world) under the emerging IAEA, largely as a result of its suspicion of Eisenhower's global "Atoms for Peace" program.²⁴

The growing American unease with Iran's nuclear program in the 1970s coincided with an increasingly assertive stance of Iran on the global stage.²⁵ The country and its leader had long been seen as loyal to U.S. hegemony; therefore, Iranian actions to adopt a more independent foreign policy during this time frame may have influenced American policymakers' approach to the country as a whole, and the significant dimension of nuclear cooperation in particular.

Iran was located on geopolitically valuable real estate. During World War II, Iran was occupied by the Soviet Union and Britain due to its strategic importance. After gaining its independence, it still shared a long border of approximately 1,690 kilometers with the Soviet Union. This posed opportunities for the U.S. and a major security concern for Moscow. American policymakers saw Iran as a key geopolitical puzzle piece in the region. This is illustrated by a 1954

²² Kennedy J. CPD: October 13, 1960 Debate Transcript, 1960.

²³ Quester G. Soviet Policy on the Nuclear Non-Proliferation Treaty // Cornell International Law Journal, № 1, 1972.

²⁴ Holloway D. The Soviet Union and the creation of the International Atomic Energy Agency // Cold War History, 2016. Pp. 177-193.

²⁵ Mamedova N. Russia ii. Iranian-Soviet Relations (1917-1991). URL: <https://iranicaonline.org> (accessed: 11.11.2024).

statement of policy by the National Security Council, which starts out by stating that “it is of critical importance to the United States that Iran remain ... not dominated by the USSR.”²⁶

The U.S., for its part, used its cordial relations with the Shah to build at least two CIA listening posts in northern Iran near the Soviet frontier to obtain signals intelligence, including, notably, on missile tests conducted in Kazakhstan.²⁷ The British and Americans also relied on their access to Iranian airspace to gain intelligence on Soviet missile developments, with a British pilot later recalling that U-2 spy planes operating out of Incirlik Air Base in Turkey would fly over northeastern Iran to collect signals from the Soviet Tyuratam test site.²⁸

Naturally, Soviet leaders weren't exactly pleased about the Shah's geopolitical proximity to the West, especially given its geographic proximity to the Soviet Union. The poor relations were exemplified by a public demarche in 1960, with the Soviet Union accusing Iran of a “hostile act” by allowing American “espionage” from its airspace.²⁹ American airborne spying was an especially sore point at this time, as just weeks earlier, a U-2 spy plane had been shot down while overflying the USSR.

Nonetheless, the Shah attempted to improve relations with Moscow to some extent. In 1959, there were negotiations about a non-aggression treaty between the two countries, and Shah Pahlavi suggested a promise not to station foreign missiles on his territory. The Soviet Union pushed Iran for more extensive security assurances, including agreeing not to station any foreign troops on its soil and maintaining a more neutral foreign policy. However, these efforts fell on largely deaf ears in Tehran. Ultimately, the efforts for détente culminated in a unilateral Iranian declaration of 1962 not to base foreign missiles on its soil.³⁰

Relations somewhat warmed thereafter, with Leonid Brezhnev visiting Iran that fall and finally, Pahlavi visiting the USSR in 1965. In the subsequent years, industrial cooperation expanded through a number of joint programs and new economic links, including airline routes.³¹ To call the situation between the two countries warm would, however, be a stretch, even if the lowest point of affairs had been left behind.

Iran also had other geopolitical concerns aside from the USSR on its mind. For one, Shah Mohammad Reza Pahlavi sought to develop his country into a significant regional power that

²⁶ National Security Council. 355. Statement of Policy by the National Security Council: United States Policy Toward Iran, 1954.

²⁷ Alvandi R. The Shah's détente with Khrushchev: Iran's 1962 missile base pledge to the Soviet Union // Cold War History, 2014. Pp. 423-444.

²⁸ Ibid.

²⁹ Soviet Warns Iran on U.S. Acts // The New York Times, 1960. P. 35.

³⁰ Alvandi R. The Shah's détente with Khrushchev: Iran's 1962 missile base pledge to the Soviet Union // Cold War History, 2014. P. 423-444.

³¹ Mamedova N. Russia ii. Iranian-Soviet Relations (1917-1991). URL: <https://iranicaonline.org> (accessed: 11.11.2024).

befits what he thought a Persian empire should be. Unlike the new Iran that would come to be under the Islamic revolution, there were few fundamental existential threats from the outside at the time – the main concern was domestic political stability.³² Iran sought to play a productive role in maintaining regional stability, motivated also due to its heavy reliance on oil exports, and even engaged to an extent with Israel, counterbalancing the complete Arab distrust of the new state.

Why the Shah decided nonetheless to keep his options open to develop a nuclear weapon is not entirely clear. Perhaps it was tied to a personal desire to be less reliant on the United States, as may be evidenced by his increasingly independent-minded foreign policy and partial rapprochement with the Soviet Union. Maybe it was inspired by nationalism (although the line between the royal ruler and the state became increasingly blurry over time), with the leader and his high-ranking officials feeling that Iran, as such a historically significant country, ought to have the option of possessing these most powerful of all weapons.

The theoretical framework introduced by Van der Meer, which aims to explain why some states that could develop nuclear weapons refrain from doing so, proves useful for analyzing the Shah's ambivalent position on nuclear weapons.³³

While not entirely isolated from domestic opinion, the Iranian monarchy had the dubious luxury of being a powerful monarchy with significant oil wealth. The nuclear program was a pet program of the Shah and, as such, did not have many restraints to worry about when it came to finding the resources and political support for its continued existence. This suggests that the domestic factor may have played a comparatively small role in preventing Iran from making the decision to actively pursue nuclear weapons at the time.

At the time, norms against proliferation were actively developing. By the end of the Shah's rule, these norms were starting to become firmly established, with the nonproliferation treaty having been in existence for over a decade and some progress being made also on arms control between the superpowers. The peace movements of the second half of the 1960s and early 1970s further shifted global public opinion against nuclear weapons and in favor of limiting arms races. Iran was considered firmly a member of the Western-aligned world and with the United States taking one of the leading roles in this emerging global norm, it seems reasonable to suggest that the calculus of breaking this consensus and going for nuclear weapons would have been carefully considered in Tehran. Keeping the status ambiguous by making sure the technological basis for a breakout was extant while not directly working on weaponization may have been seen as a

³² 265. Special National Intelligence Estimate: Consequences of a Soviet-Iranian Nonaggression Pact, 1959.

³³ Van der Meer S. Forgoing the nuclear option: states that could build nuclear weapons but chose not to do so // *Medicine, Conflict and Survival*, 2014.

comparatively safe and, importantly, plausibly deniable and reasonably defensible middle ground by Iranian policymakers and the Shah himself.

This also ties in with the final category from van der Meer's framework: Security. While the Shah's primary concern at the time was domestic stability, his alignment with the West was also partly a perceived necessity to counterbalance the powerful Soviet Union on his country's northern border. In accordance with the Nixon doctrine, the United States sold Iran any weapons short of nuclear that the country wanted to buy, an approach promised by the American president during his visit to Tehran in 1972.³⁴ The Nixon doctrine also stated that while the U.S. would not see itself responsible for acting as the main defender of Asian states (this onus would, from now on, fall on the countries themselves), it would extend its nuclear umbrella if requested. Staying close to the U.S. was a good national security policy from the point of view of the Shah and one that developing an indigenous nuclear weapon capability could have potentially jeopardized.

These factors likely all combined to contribute to the Iranian decision not to launch an active nuclear bomb program but to creep closer to the threshold to such an extent as it would not cause any detrimental effects.

I.3 Hinge Point: Accession to the NPT

Iran, to this day, is a member of the Nonproliferation Treaty. The country's membership in this milestone international agreement is a central component to the way that the international community and the Iranian nuclear program interact and have interacted for almost all of the latter's history; it frames the issue in terms of rights, obligations and compliance, and in terms of international norms and rules. Its importance is underscored by the centrality that the topic plays in recollections of the JCPOA negotiations, in speeches by both Iranian and foreign leaders at international forums, and the frequency with which Iran alludes or directly mentions it as a point of leverage. Without question, the NPT and the Iranian signature on it is the single most important document that relates to the way that Iran's nuclear program is perceived internationally and the way it is approached and handled both by other countries and by the leadership in Tehran. Given this central importance, the key hinge point that was selected for this chapter's time period was the Iranian decision to join the nonproliferation treaty in the first place.

It is not an inherent fact of nature that any country must automatically be part of the nonproliferation treaty. Indeed, and much to the displeasure of many, there continue to be several

³⁴ Department Of State. The Office of Electronic Information, Bureau of Public Affairs. Summary: Foreign Relations, 1969-1972, Volume E-4, Iran and Iraq. URL: <https://2001-2009.state.gov/r/pa/ho/frus/nixon/e4/72108.htm> (accessed: 11.11.2024).

noteworthy exceptions to the stated goal of treaty universality: India, Pakistan and Israel all have developed not just peaceful nuclear power but also nuclear weapons, and all remain outside of the NPT.³⁵ North Korea has left the Non-Proliferation Treaty (although some states refuse to accept that they followed due process to do so), and therefore has a similar legal status to the aforementioned countries.³⁶ Additionally, when the treaty was created, it took some noteworthy players decades to sign on. South Africa only did so in 1991 (and in the meantime, had clandestinely developed nuclear weapons of its own and then dismantled them). France, one of the five recognized nuclear powers, only acceded in 1992. Brazil, a major nuclear player in South America, only did in 1998 and Cuba only joined as recently as 2002.³⁷

Iran, on the contrary, was one of the first signatories to the treaty, signing it and thus declaring their intent to ratify it on the day that the treaty opened for signature in 1968. It was also one of the early ratifiers of the text, doing so in 1970, several months before the treaty even entered into force.³⁸

The opening for signature of the Non-Proliferation Treaty in 1968, which remains the cornerstone of the international non-proliferation regime to this day, was a signifier of (and helped solidify) a broader emerging international norm that pursuing nuclear weapons was wrong and that countries that would do so deserved to be international pariahs, cut off from the normal privileges of a member of the international community in good standing.

Keeping in mind that the Shah in the 1970s was reportedly flirting with the idea of developing a nuclear deterrent for his country, this decision to so emphatically embrace the nonproliferation treaty, especially so early in its existence, may seem surprising at first glance. However, an in-depth analysis of Iranian actions and statements, combined with international happenings at the time, suggests that the pressure of international norms serves well as an explanation for this decision.

The nonproliferation treaty, itself now a significant source of the power of the international norm against the proliferation of nuclear weapons, grew out of a growing global consciousness that perceived the further spread of these weapons of mass destruction as bad. By the time the treaty was completed after nine years of negotiations, in 1968, as the Arms Control Association's Sara Kutchesfahani summarizes it, "there was a broad consensus that a greater number of states possessing nuclear weapons would be detrimental to international peace and security" and "the

³⁵ NPT. URL: <https://www.nti.org/education-center/treaties-and-regimes/treaty-on-the-non-proliferation-of-nuclear-weapons/> (accessed: 10.02.2025).

³⁶ IAEA. Fact Sheet on DPRK Nuclear Safeguards. URL: <https://www.iaea.org/newscenter/focus/dprk/fact-sheet-on-dprk-nuclear-safeguards> (accessed: 25.02.2025).

³⁷ Treaty on the Non-Proliferation of Nuclear Weapons. <https://treaties.un.org/pages/showDetails.aspx?objid=08000002801d56c5> (accessed:10.02.2025).

³⁸ Ibid

pressure to prevent proliferation was growing.”³⁹ The emerging norm against the spread of nuclear weapons was codified in international documents as early as December 1961, when the UN General Assembly passed without voting – i.e., by consensus – resolution 1665, calling for the creation of an international agreement to prevent the proliferation of nuclear weapons to states that did not yet possess them.⁴⁰ Indeed, it was just one of several UNGA resolutions introduced and also passed between 1959 and 1967 calling for such an agreement.⁴¹ Throughout much of the 1960s, the growing movement to limit the spread of nuclear weapons took on global dimensions, with not just the arch enemies on either side of the Cold War, which collectively held the vast majority of global nuclear weapons stockpiles – the USSR and the USA – cooperating to put forward proposals but also countries as varied as Ireland, India and Sweden taking on leading roles.⁴² In this decade, both Brezhnev⁴³ and Kennedy⁴⁴ (and many other global leaders) made impassioned appeals for the importance of limiting nuclear weapons, and of nonproliferation in particular. The effort that had been spearheaded by an Irish resolution as early as 1959⁴⁵ was now in full swing, with the nuclear near-miss of the Cuban missile crisis pouring further fuel into the fire.⁴⁶

The global reach, the varied ideological backgrounds of the governments involved, as well as the fact that nuclear and non-nuclear weapons states were engaged on the same goal (despite their different perceptions of what the best ways to achieve this goal might be) indicate that there was a new and strong understanding that proliferation was bad: A norm was emerging.

Norms can be born out of a variety of backgrounds. In the case of the nonproliferation treaty, the vast majority of speeches, cables and original documents examined in the course of this work show that decisionmakers and diplomats took a rather pragmatic approach to the issue: It was not in their interest to allow proliferation, neither for the nuclear powers that already possessed these weapons, nor for the non-nuclear countries. Simultaneously, most non-nuclear weapons

³⁹ Kutchesfahani S. The NPT at 50: A Staple of Global Nuclear Order // Arms Control Association. URL: <https://www.armscontrol.org/act/2018-06/features/npt-50-staple-global-nuclear-order> (accessed: 10.02.2025).

⁴⁰ UN General Assembly (16th Sess.: 1961-1962). Prevention of the wider dissemination of nuclear weapons, 1962.

⁴¹ United Nations. Treaty on the Non-Proliferation of Nuclear Weapons – Main Page. URL: <https://legal.un.org/avl/ha/tnpt/tnpt.html> (accessed: 10.02.2025).

⁴² Campaign for Nuclear Disarmament. International agreements relating to nuclear weapons. URL: <https://cnduk.org/resources/international-agreements-relating-nuclear-weapons/> (accessed:10.02.2025).

⁴³ Brezhnev L. Excerpts from Leonid Ilyich Brezhnev’s speech at the April 1968 Plenum of the Central Committee of the Soviet Communist Party // Wilson Center Digital Archive. URL: <https://digitalarchive.wilsoncenter.org/document/excerpts-leonid-ilyich-brezhnevs-speech-april-1968-plenum-central-committee-soviet> (accessed:10.2.2025).

⁴⁴ Kennedy J. Address by President John F. Kennedy to the UN General Assembly. URL: [//2009-2017.state.gov/p/io/potusunga/207241.htm](https://2009-2017.state.gov/p/io/potusunga/207241.htm) (accessed: 10.02.2025).

⁴⁵ Burr W. 60th Anniversary of Irish Resolution: A Forerunner of the NPT // National Security Archive. URL: <https://nsarchive.gwu.edu/briefing-book/nuclear-vault/2018-10-29/60th-anniversary-irish-resolution-forerunner-npt> (accessed: 25.02.2025).

⁴⁶ Gary A. Impact of the Nuclear Non-Proliferation Treaty on Arms Control Efforts. URL: <https://www.cjfp.org/impact-of-the-nuclear-non-proliferation-treaty-on-arms-control-efforts/> (accessed: 25.02.2025).

states perceived it as not being in their interest to see further proliferation of these weapons, either. This bargain is reflected in the treaty text.

The ideas of security concerns and preventing nuclear war were front and center. In second place, however, there was also a moral dimension to the argument, with civil society in particular advocating against nuclear weapons as being “wrong.” For instance, the Nobel Prize committee and scientists such as Linus Pauling made impassioned calls to consider the devastating consequences of nuclear war.⁴⁷ Similar important statements and speeches came from other sources, including religious leaders. Pope John XXIII, for instance, appealed to the goal of complete global nuclear disarmament in 1963.⁴⁸

While the Muslim world at the time was in a period of transition, with many countries only recently having gained independence and others still in the early stages of developing, there were also Muslim moral imperatives to control the bomb and its spread. Islamic legal frameworks included the principle of proportionality in warfare and the prohibition against causing unnecessary destruction and harm.⁴⁹ One of the Qur’anic commandments reads: “Fight in God’s cause against those who fight you, but do not overstep the limits: God does not love those who overstep the limits.”⁵⁰

The Islamic imperative against nuclear weapons was also underscored after the Iranian revolution in the form of a Fatwah by the supreme leader. While this is outside of the temporal scope for this chapter, it is nonetheless worth mentioning as this Fatwah, issued shortly after the revolution had taken place, must have built on a preexisting interpretation of the morality and Islamic-legal status of nuclear weapons. The verdict was that these weapons were reprehensible.⁵¹ Iranian moral/religious authorities seem to have agreed with many of the other moral actors globally about the positive nature of the NPT (although Muslim scholars argue that the treaty insufficiently protects human life to be in full accordance with Islamic rules).

During this era, several Iranian actions indicate that the country was receptive to the emerging norm against proliferation. Indeed, the Shah of Iran himself seems to have wanted to be part of the creation of global nonproliferation norms. He proposed, albeit somewhat meekly and to limited international reaction, the creation of a Middle Eastern nuclear weapons-free zone in 1974, an early example of such a nonproliferation initiative.⁵²

⁴⁷ Jahn G. Nobel Peace Prize 1962, 1963.

⁴⁸ Roberts B. Morality and Nuclear Weapons: Practitioner Perspectives, 2023.

⁴⁹ Siddiqi M. Nuclear Weapons and the Moral Compass: Islamic Positions on Nuclear Weapons, 2014.

⁵⁰ Mahmood F. Islam and The Bomb // Stimson Center. URL: <https://www.stimson.org/2015/islam-and-bomb/> (accessed: 09.03.2025).

⁵¹ Fatwa of the Leader of the Revolution on the prohibition of using nuclear weapons is a divine and eternal decree // Mehr News Agency. URL: <https://www.mehrnews.com/news/2239699/> (accessed: 09.03.2025). [فتوای رهبر انقلاب در]. [حرمت استفاده از سلاح هسته ای حکم الهی و ابدی است].

⁵² Quester G. The Shah and the Bomb // Policy Sciences, 1977.

Iran wasn't merely a passive observer in the realm of international arms control and nonproliferation, nor did it only follow the direction the wind was blowing from the United States. During the critical period of the NPT's creation, in 1968 and the following year, Iran chaired the IAEA's Board of Governors.⁵³ It also contributed to disarmament and nonproliferation related resolutions regularly as early as the turn of the decade into the 1960s.⁵⁴ This leadership role demonstrated Iran's active engagement with global disarmament efforts and provided the country with some coveted diplomatic influence in shaping international policy discussions.

While the Iranian decision to join the NPT under the same regime that considered developing them for themselves may seem counterintuitive and certainly is contradictory, these positions don't necessarily exclude one another. Particularly, the strongly security-focused framing of the debate accompanying the creation of the NPT in the 50s and especially 60s provides the most likely explanation for this behavior. The Iranian leadership, like other countries, sought nuclear weapons for both status and self-preservation purposes. The nonproliferation treaty, however, played to much the same dimensions: Acceding to it, and especially acceding early, would underscore Iran's modernity and place it firmly within the illustrious group of the international community's core. It would place the country at the forefront of innovation in international rules, and being at the forefront of what the world was doing was always an imperative for the status-hungry Shah. The country's Western alignment may have played a role, too, with the Shah typically being eager to follow the American lead in global politics.

Statements made by the Shah and on his behalf underscore that the norms pressure that was shaping up globally featured prominently in decision-making at the highest levels of the Iranian government. "Iran does not understand why the U.S. does not trust Iran to develop fully its peaceful nuclear power program," was one assessment cited in a U.S. government document issued to President Ford on the matter.⁵⁵ Iran "intends to abide by all of [the NPT's] terms," the authoring Energy Research and Development Administration official reported from his conversation with the Shah, who was directly quoted as saying, "What more do you want me to do?"

This direct quote suggests a certain level of frustration on the Iranian part, which is also visible in other interactions between the Shah and the Americans, in particular. It also remains a theme of Iranian messaging to this day. However, for the purpose of the analysis in this section, it also proves that the normative forces at work in the international realm were indeed perceived as

⁵³ Khudaparasti Y. The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) // Encyclopedia of Research, Baqir al-Olum Research Institute. URL: <http://pajoohe.ir/Product.aspx?ProductID=33988> (accessed: 09.03.2025).

[خداپرست ی. معاهده ی منع گسترش سلاحهای هسته ای].

⁵⁴ UN Department of Public Information. Disarmament and Related Questions // Yearbook of the United Nations, 1960.

⁵⁵ Seamans R. 182. Memorandum From the Administrator of the Energy Research and Development administration (Seamans) to President Ford, 1976.

a type of pressure by the very top levels of the Iranian government. Similarly, after the Shah made comments to a French journalist suggesting that his country might pursue nuclear weapons, his administration immediately went to work to backpedal and go on damage control – another indicator that there was a clear understanding of international normative pressure and that the Iranian government thought it necessary to adhere to this norm. The Iranian Embassy in France, for instance, issued an official statement declaring that stories about the Shah's plan to develop a nuclear bomb were “totally invented and without any basis whatsoever.”⁵⁶ Adhering to this norm himself, the Shah, in an interview with *Le Monde*, ridiculed the arms race between the superpower blocs.⁵⁷

Simultaneously, acceding to the NPT also came with other international benefits to the Shah, including enabling it to assert its sovereignty more clearly, including vis-à-vis the USA, which Iran perceived as imposing overbearing safeguards considerations. As an immediate consequence of the Iranian accession, U.S. technical assistance resumed.⁵⁸ It would also give the rest of the world no reason to prevent it from participating in projects such as the European Eurodif consortium.

Perhaps more pressingly, it also afforded certain security benefits. This has been extensively studied, particularly in light of the inherent inequality enshrined in the NPT between nuclear weapons- and non-nuclear-weapons states.⁵⁹ Why did NNWS, of which Iran was one, join the NPT? It must have been in their interest. A Middle East free of nuclear weapons was likely correctly assessed by the Iranian leadership as being in Iran's security interest, too, just as they simultaneously assessed that, absent such a guarantee, it might be worthwhile for the country to develop the ability to go nuclear itself.⁶⁰

Several factors combined to explain Iran's early accession to the NPT under the Shah. The decision provided tangible benefits across multiple dimensions: it enabled continued technical assistance from the United States, facilitated Iran's participation in international nuclear consortia like EURODIF, and arguably served Iran's security interests by promoting regional nuclear

⁵⁶ Milani A. The Shah's Atomic Dreams. URL: <https://foreignpolicy.com/2010/12/29/the-shahs-atomic-dreams/> (accessed: 08.06.2025).

⁵⁷ Burr W. U.S.-Iran Nuclear Negotiations in 1970s Featured Shah's Nationalism and U.S. Weapons Worries. URL: <https://nsarchive2.gwu.edu/NSAEBB/NSAEBB267/> (accessed: 08.06.2025).

⁵⁸ Khudaparasti Y. The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) // Encyclopedia of Research, Baqir al-Olum Research Institute. URL: <http://pajoohe.ir/Product.aspx?ProductID=33988> (accessed: 09.03.2025).
[خداپرست ی. معاهده ی منع گسترش سلاحهای هسته ای].

⁵⁹ Doyle T. Moral Argument for the Mass Defection of Non-Nuclear-Weapon States from the Nuclear Nonproliferation Treaty Regime // *Global Governance: A Review of Multilateralism and International Organizations*, 2017.

⁶⁰ Lindborg C. Keeping the “Non” in the Non-Nuclear Weapon States // *Nuclear Non-Proliferation Treaty Review Conference 2010 Papers*.

restraint. The Shah's overall Western alignment and desire to maintain good relations with the United States also played a role in this decision.

However, the evidence suggests that normative pressure was the primary international factor driving Iran's accession to the NPT. The actions and statements by Iran, as well as how they interplayed with the global community, demonstrate that emerging global norms against nuclear proliferation created powerful incentives for Iran to demonstrate its commitment to nonproliferation, particularly as a country seeking international prestige and legitimacy. The Shah's documented sensitivity to international perceptions indicates that normative considerations weighed heavily in Iranian decision-making.

While other forms of international pressure from the five-category framework were largely absent during this period – there were no significant economic sanctions, limited military threats to the country, fairly stable diplomatic relations with much of the outside world, and we don't know of major covert operations targeting Iran's nascent nuclear program – normative forces were building rapidly within the international community. The evidence suggests the Shah was particularly receptive to this form of pressure, viewing NPT membership as essential for maintaining Iran's desired international standing as a modern, responsible state aligned with global consensus.

I.4 The End of the Program

The ambitious nuclear program that Iran had intended to build up but never quite got off the ground came to a screeching halt with the Iranian revolution in 1979. The new leaders had little ideological use for such a foreign, modern concept. Westoxification (*gharbzadegi*, in Farsi) – the alleged destructive, poisoning effect of Western ideas in Islamic society – was the buzzword of the day. The nuclear program, with everything it stood for, was, to the new leaders and their supporters, a prime example of everything this neologism stood for.

Alongside the ideological considerations, Ayatollah Khomeini was personally opposed to nuclear technology and to the idea of nuclear weapons, too.⁶¹ The revolution further resulted in an exodus of many (though not all) skilled nuclear scientists from the country, further hampering an already struggling program.

The country's new supreme leader also noted his dislike for the idea of nuclear weapons and other weapons of mass destruction, including for religious reasons. Khomeini is said to have told officials not to pursue nuclear weapons, which some interpreted as a binding religious ruling

⁶¹ Iran Nuclear Overview. URL: <https://www.nti.org/analysis/articles/iran-nuclear/> (accessed: 09.10.2024).

(fatwa), but this was neither written down nor widely publicized at the time, making it of questionable permanence and domestic legal or political significance.⁶² A clear fatwah against nuclear weapons only emerged around the turn of the millennium and is attributed to Khamenei.

⁶³

Preoccupied with solidifying their new rule and the myriad of domestic and foreign policy issues that the country now faced, the revolutionary government effectively ended the Iranian nuclear program. It was only in response to major changes in the international environment that the program experienced a resurgence less than a decade later.

⁶² Porter G. When the Ayatollah Said No to Nukes // Foreign Policy. URL: <https://web.archive.org/web/20170921001025/https://foreignpolicy.com/2014/10/16/when-the-ayatollah-said-no-to-nukes/> (accessed: 28.04.2025).

⁶³ Has the Islamic Revolution leader's opinion about nuclear weapons changed? URL: <https://www.tabnak.ir/en/news/5359/has-the-islamic-revolution-leaders-opinion-about-nuclear-weapons-changed> (accessed: 28.04.2025).

CHAPTER II. AFTER THE WAR: RESURGENCE OF THE NUCLEAR IDEA (1985-1995)

II.1 A Change of Mind: Restarting the Program

While the idea of indigenizing the nuclear fuel cycle within Iran, including keeping open the option of a bomb, dates back to the days of the Shah,⁶⁴ domestic uranium enrichment efforts began in earnest only significantly later. Meeting with AEOI officials in August of 2003, the IAEA learned that – contrary to earlier claims, which stated that enrichment efforts had begun in the late 90s – “the decision to launch a centrifuge enrichment program had actually been taken in 1985.”⁶⁵ Additionally, while Iran had previously asserted that their expertise had come from open sources, the officials now admitted that Iran received drawings of the centrifuges “from a foreign intermediary.”⁶⁶

The IAEA interviews also revealed several relocations of the enrichment activities, coinciding with the growing importance (and requirements for space) of the covert Iranian nuclear program. After growing out of the early research phase at the AEOI in Tehran, the enrichment was moved to the Kalaye Electric Company elsewhere in the city in 1997. This company, state-owned and a subsidiary of the AEOI, served as a cover company for the clandestine Iranian program.⁶⁷ In 2002, the enrichment activities were moved again, this time to the underground enrichment facility at Natanz, which remains the known epicenter of Iranian fissile material production today.⁶⁸

The Iran-Iraq war was five years old and still ongoing at the time that the enrichment program was started clandestinely. In the preceding two years, Iraq had resorted to using weapons of mass destruction in an effort to break the deadly stalemate that had settled in, roughly along the original frontier between the two countries. Hundreds of attacks with these weapons of mass destruction were carried out by Iraq, with casualty rates as high as 30% on average, according to a declassified 1988 CIA report.⁶⁹ Up to 100,000 Iranians became casualties of the use of chemical agents in the war.⁷⁰ Remarkable, especially to Tehran, was the absence of any significant international reaction to the use of weapons of mass destruction on its people. Iraq enjoyed

⁶⁴ Albright D, Stricker A. Iran’s Nuclear Program // The Iran Primer. URL: <https://iranprimer.usip.org/resource/irans-nuclear-program> (accessed: 09.10.2024).

⁶⁵ ElBaradei M. Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, 2003.

⁶⁶ Ibid

⁶⁷ ISIS Imagery Brief: Kalaye Electric. URL: <https://isis-online.org/publications/iran/kalayeelectric.html> (accessed: 09.10.2024).

⁶⁸ ElBaradei M. Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, 2003.

⁶⁹ Central Intelligence Agency. Impact and Implications of Chemical Weapons Use in the Iran-Iraq War, 1988.

⁷⁰ Raḡāyī F. The Iran-Iraq war: the politics of aggression, 1993.

relatively cordial relations with several important Western powers, and most capitals saw it as the lesser of two evils. The United States even engaged in intelligence sharing with Baghdad, despite the repeated chemical weapons use.

The war ingrained in Iran a feeling of “strategic loneliness,” as Nasser Hadian, a political scientist at the University of Tehran, put it in a 2014 Time Magazine article. “The primary lesson learned,” the article goes on to state, citing Hadian, “was that Iran had no allies even when it was a victim of weapons banned since World War I by international norms.”⁷¹

It also pushed Iran to consider using weapons of mass destruction itself. Toward the end of the war, Iran also employed a limited number of chemical munitions against Iraqi forces. While the numbers were far fewer than the Iraqi attacks, this was not purely due to restraint – Iran simply had much smaller stockpiles and capabilities.⁷² The combined feelings of betrayal by the world and concerns about its external security, especially as a neighbor to Iraq, with its known WMD programs and proven willingness to use these types of weapons, led to an ideological shift in Iranian leaders’ minds.⁷³

This included restarting the nuclear program that had previously been curtailed for a combination of ideological reasons (too Western) and practical concerns (too complicated). Former Iranian president Akbar Hashemi Rafsanjani went on Iranian television in 2015 and revealed that “when we first began, we were at war, and we sought to have that possibility for the day that the enemy might use a nuclear weapon. That was the thinking.”⁷⁴

“Our basic doctrine was always a peaceful nuclear application, but it never left our mind that if one day we should be threatened and it was imperative, we should be able to go down the other path,” Rafsanjani is quoted as saying.⁷⁵ He was president in the immediate aftermath of the war, starting his first of two terms in 1989. In the days of his interview with the IRNA, he had found himself increasingly at odds with Iran’s powerful hardliners over policy differences and the arrest of his son. He died two years later under suspicious circumstances, with reports that his body was allegedly radioactive.⁷⁶

II.2 Foreign Sourcing

⁷¹ Wright R. Iran Still Haunted by Chemical Weapons Attacks // Time, 2014.

⁷² Central Intelligence Agency. Impact and Implications of Chemical Weapons Use in the Iran-Iraq War, 1988.

⁷³ Matamis J. Iran’s Nuclear Program Has a Long History of Advances, Setbacks and Diplomatic Pauses // Stimson Center. URL: <https://www.stimson.org/2023/irans-nuclear-program-has-a-long-history-of-advances-setbacks-and-diplomatic-pauses/> (accessed: 29.11.2023).

⁷⁴ Wilkin S. Iran considered nuclear weapons during 1980s Iraq war, ex-president says // Reuters, 2015.

⁷⁵ Ibid.

⁷⁶ Dehghan S. Iran reopens investigation into Rafsanjani death // The Guardian, 2018.

In the same interview, Rafsanjani also mentioned traveling to Pakistan in hopes of meeting with A.Q. Khan, the world's most famous proliferator, who later admitted to selling nuclear technologies to North Korea, Libya and Iran before his arrest in 2004.⁷⁷

While the lack of an international reaction cemented Iran's feeling of isolation on the world stage, it also contributed to crystallizing in Tehran's worldview a set of international players that it could more consistently rely on. An interesting and important actor in this regard was China, then still a very much emerging power and a side character to the Cold War. While Beijing maintained a largely neutral public position during the Iran-Iraq war and even sold considerable quantities of arms to both sides,⁷⁸ it was instrumental in getting Iran's chemical weapons program started and continued to play a central role in that domain of WMD well after the cessation of hostilities.⁷⁹

China would also prove a willing partner for Tehran's efforts to restart its nuclear program. Two cooperation agreements were signed between China and Iran, one in 1985 and a second in 1990.⁸⁰ In 1987, a similar agreement was concluded with Pakistan.^{81 82} China promised a miniature neutron source reactor, two 300 MW power reactors and, most importantly for a possible clandestine enrichment program, a uranium conversion plant.⁸³

Unfortunately for Iran, the timeline of these agreements with China coincided with the country's opening to the rest of the world and significant détente with the United States. The pressure Washington exerted on Beijing to cancel its contracts with Iran was sufficient to result in none of the promised reactors or the conversion facility being built. Iran had, however, received design information from China and would commence construction of its own uranium conversion facility in Isfahan in 1999, based on the Chinese designs.⁸⁴

Pakistan's support proved more reliable and resistant to American pressure, likely in large part due to its clandestine nature. While the 1987 agreement was on peaceful nuclear uses, it

⁷⁷ Lin S. The AQ Khan Revelations and Subsequent Changes to Pakistani Export Controls. URL: <https://www.nti.org/analysis/articles/aq-khan-revelations/> (accessed: 09.10.2024).

⁷⁸ Central Intelligence Agency, Office of East Asian Analysis. China's Stake in the Iran-Iraq War, 1987.

⁷⁹ Milhollin G. Hearing on China's Role in the Spread of Weapons of Mass Destruction // Iran Watch. URL: <https://www.iranwatch.org/our-publications/speeches/hearing-chinas-role-spread-weapons-mass-destruction> (accessed: 09.10.2024).

⁸⁰ Wisconsin Project on Nuclear Arms Control. A History of Iran's Nuclear Program // Iran Watch. URL: <https://www.iranwatch.org/our-publications/weapon-program-background-report/history-irans-nuclear-program> (accessed: 29.11.2023).

⁸¹ Iran Nuclear Overview. URL: <https://www.nti.org/analysis/articles/iran-nuclear/> (accessed: 09.10.2024).

⁸² Wisconsin Project on Nuclear Arms Control. A History of Iran's Nuclear Program // Iran Watch. URL: <https://www.iranwatch.org/our-publications/weapon-program-background-report/history-irans-nuclear-program> (accessed: 29.11.2023).

⁸³ Iran Nuclear Overview. URL: <https://www.nti.org/analysis/articles/iran-nuclear/> (accessed: 09.10.2024). This source is no longer live on the internet, but can be accessed through the WayBack machine at: <https://web.archive.org/web/20241205003018/>

⁸⁴ Uranium Conversion Facility (UCF). URL: <https://www.nti.org/education-center/facilities/uranium-conversion-facility-ucf/> (accessed: 09.10.2024).

facilitated the training of Iranian nuclear scientists in Pakistan. More sensitive technology transfers were facilitated by A. Q. Khan, with contacts also starting in 1987. Iran is believed to have received the first centrifuge assemblies and components from Khan's network in 1989, four years after the decision to pursue uranium enrichment was taken. Khan transferred a total of 2,000 P-1 centrifuges to Iran over the following six years. According to the Carnegie Endowment's chronology of Khan's activities, Iran was the first foreign customer of his proliferation network.⁸⁵

The earliest public indication of Western intelligence suspecting Iranian nuclear enrichment efforts dates back to 1984. In April of that year, the journal *Jane's Defense Weekly* reported on a West German intelligence estimate that suggested Iran might be able to build a nuclear bomb within just two years. An unspecified French report from the same edition wrote that "very enriched Uranium" from Pakistan could contribute to this effort.⁸⁶

While with the benefit of hindsight, the timeframe was vastly off on this German estimate, the Bundesnachrichtendienst (Germany's foreign intelligence agency, BND) was remarkably quick at picking up that something was afoot in Iran. In 2009, an internal IAEA document that was leaked showed that it was just that same month, in April 1984, that a political decision may have been taken to go for the bomb. The report, cited by David Albright in his 2010 book about the Khan network but not publicly published, reports that the agency learned that then-president Ayatollah Khamenei had received the blessing from the Supreme Leader to restart the country's nuclear program. Only a nuclear arsenal, he is cited as saying, could keep Iran safe from its enemies: "the only way to secure the very essence of the Islamic Revolution from the schemes of its enemies, especially the United States and Israel, a nuclear arsenal would serve Iran as a deterrent in the hands of God's soldiers."⁸⁷ ⁸⁸

Immediately after the decision was made, the nuclear program was split into two parts: One for civilian uses, under the Atomic Energy Agency of Iran, and one for the pursuit of military ends, under the control of the Islamic Revolutionary Guard Corps.⁸⁹ While both appear to have been involved in the procurement of sensitive technologies,⁹⁰ what is known about the structure of the

⁸⁵ Laufer M. Q. Khan Nuclear Chronology - Carnegie Endowment for International Peace. URL: <https://web.archive.org/web/20240528083249/https://carnegieendowment.org/research/2005/09/a-q-khan-nuclear-chronology> (accessed: 09.10.2024).

⁸⁶ Cordesman A. H., Al-Rodhan K. R. Iranian Nuclear Weapons? The Uncertain Nature of Iran's Nuclear Programs, 2006.

⁸⁷ Albright D. Peddling peril: how the secret nuclear trade arms America's enemies, 2010.

⁸⁸ Avag R. Internal IAEA information links the Supreme Leader to 1984 decision to seek a nuclear arsenal // Institute for Science and International Security. URL: <https://isis-online.org/isis-reports/detail/internal-iaea-information-links-the-supreme-leader-to-1984-decision-to-seek/8> (accessed: 24.10.2024).

⁸⁹ Rühle H. The secret nuclear weapons program of Iran's Revolutionary Guards. URL: <http://asiatimes.com/2018/05/the-secret-nuclear-weapons-program-of-irans-revolutionary-guards/> (accessed: 24.10.2024).

⁹⁰ Albright D. Peddling peril: how the secret nuclear trade arms America's enemies, 2010.

Iranian state and its other weapons programs – for instance, ballistic missiles – suggests that the IRGC would have likely dominated any non-peaceful nuclear efforts.⁹¹

II.3 The International Context

The period from 1985 to 1995 saw changes in the international environment unlike anything since the immediate postwar era.

While Iran and Iraq were embroiled in the deadly war that resulted in the use of WMDs and the deaths of hundreds of thousands, the relations between the United States and the USSR were at one of the lowest points of the Cold War. The period of détente that had lasted throughout the 70s had well and truly come to an end, precipitated in large part as a consequence of the Soviet invasion of Afghanistan and Western reactions to it.

Just a few years later, the Cold War had come to an end. An era of what is commonly described as American hegemony or global unipolarity was ushered in. The 90s (and early 2000s) marked the peak of this era. In Middle Eastern countries, this marked a preliminary end to the concerns of great-power rivalry being carried out on their soil. It also meant fewer opportunities to play the sides off against each other, as Saddam Hussein had sometimes done, and even more importance for the wishes of the United States.

Iran continued to be greatly isolated just six years after its revolution. There was no sign of a rapprochement with the United States under Reagan; instead, Tehran was added to the list of state sponsors of terrorism in 1984.⁹² The revolution hadn't exactly made a friend in the USSR, either, and Moscow continued to sell large quantities of arms to Baghdad to use against Iran. The USSR's leaders called the war "senseless" and were interested in bringing about a timely end, worried primarily that it could serve as a justification for the stationing of American troops in the Middle East. Early signs of a more cordial approach between Tehran and Moscow began appearing around this time, though; notably, in 1985, the USSR refrained from selling some long-range weapons to Iraq over concerns they might be used against Iranian civilians. Nonetheless, trade with the USSR declined.⁹³

Domestically within the United States, Iran became an even "dirtier" word than it already had been with the revelations of the Iran-Contra Affair starting in 1986. The scheme pursued by the Reagan administration sold arms to Iran despite a weapons embargo, using the proceeds from

⁹¹ Iran's Revolutionary Guards // Council on Foreign Relations. URL: <https://www.cfr.org/backgrounder/irans-revolutionary-guards> (accessed: 29.10.2024).

⁹² Nikou S. Timeline of Iran's Nuclear Activities // The Iran Primer. URL: <https://iranprimer.usip.org/resource/timeline-irans-nuclear-activities> (accessed: 29.11.2023).

⁹³ Halliday F. The USSR and the Gulf War // Middle East Report, 1987.

these illegal (under American law) weapons sales to fund the anti-communist Contras in Nicaragua, support of which the U.S. Congress had explicitly prohibited.⁹⁴ The affair reflected poorly on the ruling administration, with approval ratings for the president dropping 16 percentage points to just 47%.⁹⁵ This was especially devastating as Reagan had been re-elected in a landslide, winning in all but one state and Washington, D.C.

As a consequence, the crisis likely informed both Reagan's team and subsequent presidents on their foreign policy, especially when it came to covertly engaging with states that the United States considered pariahs and supporters of terrorism. As a result, any possible diplomatic opening and softening of rhetoric that may have resulted from such a clandestine deal was sure to be reversed in the United States; Reagan and his successors now had to prove that they were tough on terrorism and Iran, with the revolution having captured American citizens as hostages, firmly fell into this category in the American public's view. Officially, Iran had received the designation "state sponsor of terrorism" in 1984.⁹⁶ The Iran-Contra affair likely further strengthened the association in the American public's mind, as part of the American covert engagement with Tehran aimed to get the latter to exert pressure on Hezbollah to release American citizens that the terror and political organization had taken as hostages.

These public perceptions and the unwillingness by American governments to engage in any politically risky moves vis-à-vis Iran by taking a softer stance and potentially opening windows for negotiation (overt or covert) seem to have played a significant role in informing American policy for decades to come. With the increasing centrality of Tehran's nuclear program, these policies of maintaining a tough stance on Iran and seeing the country as fundamentally untrustworthy and using illegitimate means on the international stage came to bear on American foreign policy regarding this specific issue, too. Emerging during the Iranian revolution and fully formed during the time period discussed here, this approach would continue largely unchanged until the Obama administration's renewed engagement with Iran.

Iran's foreign policy was primarily preoccupied with fighting the war against Iraq and with solidifying and, to an extent, laying the groundwork to export its revolution. The former informed many of those men who would later rise to high policymaking positions in Iran. Ayatollah Khamenei, then president, is now the supreme leader. Hassan Rouhani, president from 2013 to

⁹⁴ Iran-Contra Affair. Definition, History, Oliver North, Importance, & Facts // Britannica. URL: <https://www.britannica.com/event/Iran-Contra-Affair> (accessed: 02.11.2024).

⁹⁵ Saad L. Gallup Vault: Reaction to Iran-Contra 30 Years Ago. URL: <https://news.gallup.com/vault/198164/gallup-vault-reaction-iran-contra-years-ago.aspx> (accessed: 2.11.2024).

⁹⁶ House Homeland Security Subcommittee on Counterterrorism and Intelligence hearing: "State Sponsors of Terrorism: An Examination of Iran's Global Terrorism Network," 2018.

2021, was the head of the air defenses, and much of the leadership of the immensely influential Iranian Revolutionary Guards Corps emerged during the war years.⁹⁷

The memory of the war features prominently in Iran's interactions with the world to this day, which makes it relevant for policy analysts dealing with Iran in the 21st century to understand how it was perceived both at the time and how it is remembered retroactively. It reinforces the mistrust of the American side, in particular, but also the global community more broadly, in Tehran's eyes to this day. As Ranj Alaaldin of the Brookings Doha Center wrote in 2020: "Iranian leaders continue to stress how internationally isolated Iran was in the aftermath of its revolution, left on its own as a nascent government to confront Iraq's tanks and chemical weapons and U.S. and Western support for Saddam."⁹⁸

In 2016, then-foreign-minister Javad Zarif vocalized these grievances straight to the adversary. Writing in the Washington Post, he recalled the freshness of the wounds from the war: "Hussein used chemical weapons against our soldiers and civilians. The West not only did nothing to prevent this, but it also armed Hussein with sophisticated weapons while actively preventing Iran from getting access to the most rudimentary defensive necessities. And during the eight long years that this war continued, the U.N. Security Council did not issue a single condemnation of the aggression, the deliberate targeting of civilians or the use of chemical weapons," Zarif said.⁹⁹

While the war wound down and Iran worked to recover – economically and socially – from its devastation, the relatively fresh leaders also began asserting their power as a regional player. During the relative political stability that the Middle East experienced in the immediate aftermath of the Cold War, Iran began working on building deep connections with Shia Muslim groups throughout the region.¹⁰⁰ A special focus was initially placed on Iraq to undermine and counteract Saddam Hussein, but Iranian leaders strategically pushed their country into its position as a significant regional power.¹⁰¹ Balancing against Saudi Arabia, the other major Muslim regional power, and the perpetual arch-nemesis Israel underscored Iran's broader geopolitical ambitions. These policies, which crystallized clearly in the postwar period, would continue to define Iran's interactions with its immediate neighborhood for the decades to come and so would play a role in those countries' approach to the Iranian nuclear program.

The Iranian revolution, war with Iraq, and international (non-)reaction to the use of weapons of mass destruction by Saddam Hussein were key elements in leading the Islamic

⁹⁷ Alaaldin R. Iran-Iraq War: Lasting Regional Impacts. URL: <https://www.brookings.edu/articles/how-the-iran-iraq-war-will-shape-the-region-for-decades-to-come/> (accessed: 02.11.2024).

⁹⁸ Ibid.

⁹⁹ Zarif M. Opinion. Zarif: Why Iran is building up its defenses // Washington Post, 2016.

¹⁰⁰ Kemp G. Iran and Iraq: The Shia Connection, Soft Power, and the Nuclear Factor, 2005.

¹⁰¹ Nada G. Part 1: Iran's Role in Iraq // Wilson Center. URL: <https://www.wilsoncenter.org/article/part-1-irans-role-iraq> (accessed: 03.11.2024).

Republic to restart its nuclear program and consider non-peaceful uses. They were also experiences that would define the nature of the interaction between Iran and the international community – in both directions – for decades to come. Many of these nascent trends would become all the more visible in the next phase of the clandestine Iranian program.

II.4 Hinge Point: Iraqi Use of Chemical Weapons

The use of chemical weapons by Iraq against Iran over the course of the two countries' nearly decade-long war marks a significant inflection point for Tehran's nuclear program. It fundamentally shifted the security calculus of the new Iranian authorities and deeply undermined their trust in the international community and the strength of norms against the use of weapons of mass destruction.

While many of the other episodes identified as hinge points in this work are particularly heavy on diplomatic dimensions (international norms, diplomatic pressure, economic measures), the one at hand demonstrates how the dimension of military force – both in its direct application and in the international community's response to its use – fundamentally altered Iran's strategic calculations and nuclear ambitions. In the period in question, military force was very much used: Around half a million people lost their lives over the course of the conflict between Iran and Iraq, defining the early years of the new Iranian polity.¹⁰²

The Iraqi chemical weapons attacks created two distinct but reinforcing pressures on Iranian nuclear decision-making. First, the direct military impact demonstrated the strategic value of WMD capabilities – and the risks of falling behind your enemies in this regard. Second, and perhaps more importantly, the international community's failure to respond revealed the conditional nature of global security guarantees, particularly as they apply to states that find themselves outside of the global mainstream. Both factors contributed to Iran's nuclear restart, with some evidence suggesting that international inaction possibly was a decisive driver, as it fundamentally altered Iran's perception of whether it could rely on external security mechanisms.

The Iraqi chemical weapons program and subsequent Iranian WMD ambitions are intricately linked. For its part, Iraqi work on chemical weapons can also be argued to have been born out of the conflict with its larger eastern neighbor. Iraq appears not to have possessed significant chemical weapons stockpiles at the outset of the war.¹⁰³

¹⁰² Editors E. Iran-Iraq War. Causes, Summary, Casualties, & Facts // Britannica. URL: <https://www.britannica.com/event/Iran-Iraq-War> (accessed: 10.03.2025).

¹⁰³ Gromov A. Chemical Weapons in the Iran-Iraq War: A Tragedy of Two Nations // Ibn Sina Foundation. URL: <https://ibnsina.ru/2021/12/24/химическое-оружие-в-ирано-иракской-во/> (accessed 28.04.2025). [Громов А. Химическое оружие в ирано-иракской войне. Трагедия двух народов].

During the final phases of the war, Iraqi chemical weapons use escalated, becoming an integral part of that country's military strategy on the battlefield. It turned the tide that had previously been somewhat in Iran's favor after the initial Iraqi successes early in the war.¹⁰⁴ It also resulted in unfathomable human suffering.¹⁰⁵

According to Iranian estimates, 100,000 of its citizens were affected by Iraqi chemical weapons over the course of the war.¹⁰⁶ ¹⁰⁷ The Iranian interpretation of events was informed by the world's acquiescence to the Iraqi use of WMDs. Although the Chemical Weapons Convention, the landmark multilateral treaty that today forms the backbone of the global effort to control and eliminate chemical weapons, was only made in the 1990s, chemical weapons use had already been outlawed under international law and convention for many years prior, with rules against their use already codified in the 1925 Geneva Protocol.¹⁰⁸ While the attacks themselves indisputably had a great effect and influenced the course of the war, it was the international dimension growing from them that made them a critical hinge point in the history of the Iranian nuclear program. The response – or rather, lack thereof – of the international community profoundly shaped Iran's perception of global security mechanisms and directly influenced its subsequent nuclear calculations.

The international reaction to Iraq's chemical warfare was characterized by a striking combination of public ambivalence and private facilitation. Despite Iraq's clear violations of the 1925 Geneva Protocol prohibiting chemical weapons use in warfare, major powers consistently minimized or obstructed efforts to impose consequences on Baghdad. The United States and the United Kingdom repeatedly worked to block United Nations Security Council resolutions that would have specifically condemned Iraq's chemical weapons use.¹⁰⁹

Perhaps more significantly, declassified documents have revealed that beyond merely shielding Iraq from diplomatic consequences, Western powers actively provided intelligence support that facilitated chemical attacks. The United States supplied detailed imagery and maps of Iranian troop movements, logistical facilities, and air defenses that proved instrumental in Iraq's

¹⁰⁴ Asadzade P. Iraq once devastated Iran with chemical weapons as the world stood by. Governments still struggle to respond to chemical warfare. URL: <https://thebulletin.org/2024/07/iraq-once-devastated-iran-with-chemical-weapons-as-the-world-stood-by-governments-still-struggle-to-respond-to-chemical-warfare/> (accessed: 09.10.2024).

¹⁰⁵ A timeline of Iraqi chemical weapons use against Iran can be found in Annex I of the longer, original research paper this report is based on. It is online here: https://drive.google.com/file/d/1sNRnRAolZljW_EwpJyzSlwuUNip1R1CN

¹⁰⁶ This legacy is felt to this day not just in the form of medical ailments but also in terms of political reverberations. How to deal with and support the victims of the Iraqi chemical weapons attacks remains a political hot topic domestically within Iran. Of course, the impacts of the war and the use of these WMDs by Iraq also continues to inform Iranian foreign policy and the way that its leaders interact with the outside world.

¹⁰⁷ Hughes P. «Every breath is like a knife stabbing in me». URL: <https://www.iol.co.za/news/world/every-breath-is-like-a-knife-stabbing-in-me-100854> (accessed: 10.03.2025).

¹⁰⁸ 1925 Geneva Protocol – UNODA. URL: <https://disarmament.unoda.org/wmd/bio/1925-geneva-protocol/> (accessed: 10.03.2025).

¹⁰⁹ Simpson A, Rangwala G. The dishonest case for war on Iraq, 2002.

ability to plan and execute chemical strikes.¹¹⁰ This assistance, motivated by geopolitical calculations aimed at preventing an Iranian victory, directly contributed to the effectiveness of Iraq's chemical weapons campaign.

German-language open sources indicate that Iraq's chemical weapons production capabilities were largely imported from Western countries, including the United States, France, Germany, and Great Britain.¹¹¹ The Muthanna State Establishment, which served as the center of Iraq's chemical weapons program, relied heavily on Western technology and expertise. This reality created a particularly bitter irony for Iranian leaders—the very nations that had established international prohibitions against chemical weapons were simultaneously enabling their use against Iranian forces and civilians. Tehran's new rulers had already found themselves shunned by most of the global community since their takeover of power in 1979. Now, they learned that the world's animosity toward them went so far as to tolerate the use of prohibited and horrific weapons – the sense of isolation must have been unimaginable.

Indeed, it is not just conjecture that this informed Tehran's thinking on deterrence and on whether the international community is to be trusted. As quoted farther up in this chapter, high-ranking Iranian officials such as former foreign minister Javad Zarif considered this a betrayal of the utmost severity. It also represents a foundational moment for Iranian self-consciousness. Nasser Hadian of the University of Tehran called the position that Iran found itself in “strategic loneliness” and argued that it imbued the country with a fierce sense of self-reliance.¹¹²

It was this aspect of self-reliance that played a key role in restarting the nuclear program, much as it continues to play a key role in the Iranian program to date. Again, this is not merely conjecture but amply communicated by the Iranians themselves – the idea of self-reliance (in these and other words) is repeatedly frequently for both domestic and foreign audiences, and the nuclear program has been inextricably linked to it. The argument for Iran to possess the entire nuclear fuel cycle indigenously is just that: self-reliance. And the fact that the international community during the Iran-Iraq War failed to adhere to the rules it itself had set continues to cast a shadow over its legitimacy and trustworthiness from Tehran's perspective.

The causal relationship between the Iraqi chemical weapons use and the resumption of the nuclear program – and even its non-peaceful dimension – has been made explicit by Iranians in the know, as well. The admission by Rafsanjani on Iranian television – mentioned earlier in this

¹¹⁰ Asadzade P. Iraq once devastated Iran with chemical weapons as the world stood by. Governments still struggle to respond to chemical warfare. URL: <https://thebulletin.org/2024/07/iraq-once-devastated-iran-with-chemical-weapons-as-the-world-stood-by-governments-still-struggle-to-respond-to-chemical-warfare/> (accessed: 09.10.2024).

¹¹¹ Bundesministerium für Landesverteidigung. Bundesheer - Truppendienst - Ausgabe 5/2003 - Schurkenstaat Irak? (II) // Truppendienst, 2003.

¹¹² British Broadcasting Corporation. Inside Iran: Analysis Wednesday // Inside Iran, 2006.

chapter – is about as close to the “gold standard” for process tracing as one can possibly hope to find.¹¹³

If the direct retelling of the facts by high-ranking Iranian officials isn’t sufficient proof – perhaps because they might be perceived as a biased source, despite or maybe even because of their evident access to inside knowledge – then there is also the element of the temporal coincidence, which has been independently confirmed. The IAEA’s investigations found that the Iranian decision to launch a centrifuge enrichment program was taken in 1985, coinciding very neatly with the period when Iraq was stepping up its chemical weapons attacks and the international community continued to remain silent. This timing cannot be dismissed as coincidental and can well be argued as reflecting a direct response to the strategic vulnerability exposed by the chemical attacks and international inaction.

In addition to the nuclear program, which was designed to be dual use (although the statements discussed in this chapter suggest that there was certainly at least the intention to keep the option for a path toward nuclear weapons open), there is also indication that Iran reacted to the Iraqi use of chemical weapons by working to develop its own.¹¹⁴ These attacks, alleged by the Iraqi government, who also provided alleged evidence to the UN in the form of shrapnel supposedly from chemical munitions, would prove an Iranian willingness to resort to weapons of mass destruction to ensure the survival of the Iranian revolution – as was reportedly also said in secret in the nuclear context.

The Iraqi chemical weapons campaign and the international community’s response represent a clear case where the dimension of military force – both its direct application against Iran and the absence of intervention to uphold international norms – fundamentally altered Iran’s strategic calculations about nuclear capabilities. This dimension of international pressure proved particularly influential for several reasons.

First, Iraq’s chemical attacks demonstrated the devastating strategic advantage conferred by weapons of mass destruction when employed against an adversary lacking similar capabilities. The asymmetry of this situation – with Iran having no comparable WMD deterrent – created an acute security dilemma that nuclear capabilities could potentially address. The effectiveness of chemical weapons in rapidly reversing Iran’s battlefield gains during the final phase of the war provided a powerful real-world lesson in the strategic value of unconventional weapons. Even the Shah’s administration, which had been involved with arms control, had recognized this dynamic:

¹¹³ Wilkin S. Iran considered nuclear weapons during 1980s Iraq war, ex-president says // Reuters, 2015.

¹¹⁴ Brill M. Part II: “We attacked them with chemical weapons and they attacked us with chemical weapons”: Iraqi Records and the History of Iran’s Chemical Weapons Program // Wilson Center. URL: <https://www.wilsoncenter.org/blog-post/part-ii-we-attacked-them-chemical-weapons-and-they-attacked-us-chemical-weapons-iraqi> (accessed: 11.03.2025).

A Middle East free of WMD would bring security, but a Middle East where an adversary had access to such weapons and Iran didn't was not a safe place for Tehran.

Second, the international community's unwillingness to employ military force to prevent or punish Iraq's chemical weapons use revealed the conditional nature of global security norms. For Iranian leaders, this suggested that international security guarantees were fundamentally unreliable and that only indigenous capabilities could ensure national security. The selective enforcement of chemical weapons prohibitions undermined faith in the broader nonproliferation regime, including nuclear safeguards. The reverberations of this are felt to this day.

Third, the active military and intelligence support provided to Iraq by Western powers during its chemical weapons campaign reinforced Iran's perception that it faced not merely a regional adversary but a coordinated international effort to undermine its security. This perception likely amplified the appeal of nuclear capabilities as a means of establishing strategic parity and deterring both regional rivals and global powers, while also providing a barrier to being able to engage with the global community in good faith for the rulers in Tehran.

In summary, then, the use of chemical weapons by Iraq served as a crucial turning point in the trajectory of the Iranian nuclear program. A new regime that initially was highly critical of the nuclear energy program reversed its course and embraced it, driven by international pressure in the form of military action. Knowing the situation surrounding the Iran-Iraq war is instrumental in understanding the Iranian decisions and behavior farther down the line – a point that has been made by some, particularly in the region and in Russia, while often being overlooked in Western literature.

CHAPTER III. CLANDESTINE WEAPONIZATION ACTIVITIES (1995-2005)

The late 20th century and very beginning of the 2000s marked a pivotal era in the Iranian covert nuclear program and continue to raise questions and eyebrows to this day. In this period, the Iranian leadership pursued undeclared activities throughout the nuclear fuel cycle and over the years, has been shown to have pursued research that directly related to weaponization and without any other plausible civilian explanation. It might therefore be considered the high point of an Iranian nuclear weapons effort as, following its revelation in the summer of 2002, with the program's cover blown, Iranian efforts would have to proceed in more direct interaction with what the international community thought of them.

The hinge point in this chapter, therefore, is not the Iranian activities themselves, regardless of how important they were. These may be understood as somewhat of a natural (though not inevitable) extension of the previous nuclear program of the country, which, as previously demonstrated, grew out of the war with Iraq and renewed consciousness of national security and international isolation. Rather, the hinge point that will be discussed in this chapter is the revelation of the covert Iranian program. This allows for much more analysis regarding the interaction between international actions and the Iranian nuclear program, revealed at a point of high activity and considerable progress, and demanded to be rolled back or canceled by many global players. There is considerable nuance to this hinge point, which will be discussed in the appropriate subsection.

III.1 Heightened activity

As presented in the previous chapter, nuclear activities in the Islamic Republic of Iran resumed in the immediate aftermath of the devastating war with neighboring Iraq. In the years that followed, they were consistently expanded. Although Iran was working on building up domestic capacities to not only conduct the nuclear fuel cycle but also be knowledge-independent, especially in the early years, it was still heavily reliant on outside sources. Support from Pakistan was important, and China crystallized as a potential source of expertise and technical assistance too, with two nuclear cooperation protocols signed in 1985 and 1990.¹¹⁵

¹¹⁵ Wisconsin Project on Nuclear Arms Control. A History of Iran's Nuclear Program // Iran Watch. URL: <https://www.iranwatch.org/our-publications/weapon-program-background-report/history-irans-nuclear-program> (accessed: 29.11.2023).

In the period in question here, Russia also entered the field as an important partner to Iranian nuclear ambitions, with the countries signing a protocol of cooperation to finally finish construction of the Bushehr nuclear reactor and “possibly supply a uranium enrichment plant.”¹¹⁶ The \$800 million (at the time) deal slated the completion of the power reactor for 2003.¹¹⁷ Already in the 1990s, it was viewed with suspicion, with an academic paper from 1999 writing that “this deal has raised significant proliferation concerns, despite pledges by both countries that the reactor will be placed under IAEA safeguards.”¹¹⁸

Suspicious in the late 90s were already high, at least in the West, that Iranian leaders may be up to activities not in compliance with their NPT obligations. However, as Albright wrote in 1997:

“Western intelligence agencies have not discovered clandestine Iranian nuclear weapon facilities, nor have they, in fact, developed irrefutable evidence that Iran has a bomb programme.”¹¹⁹

It was far from the only nuclear project underway in Iran with Russian support at that time. The Nonproliferation Review in 1999 compiled a table of eleven separate such projects, with six relating to the construction of reactors, three to enrichment, mining and milling (including the construction of a gas centrifuge plant by Minatom), two proposed deals for the provision of nuclear materials and one agreement for the transfer of intangible technologies (know-how through training).¹²⁰

The 1995 agreement, which formed the basis of much of the later cooperation between Russian state-owned enterprises and the Iranian nuclear program, also came with an additional protocol that was not publicly disclosed. Some sources claim that this protocol promised the provision of a gas centrifuge to Iran, which would have allowed the country to enrich uranium domestically.¹²¹ Critics have questioned the truthfulness of this reporting, also in light of Albright’s often staunchly anti-Iranian stance and the difficulty of independently verifying the claims. What can be confirmed separately from Albright’s work, however, is that providing centrifuge enrichment technology to Iran was certainly within the scope of what was being thought

¹¹⁶ Ibid.

¹¹⁷ Wehling F. Russian nuclear and missile exports to Iran // The Nonproliferation Review, 1999. P. 135.

¹¹⁸ Wehling F. Russian nuclear and missile exports to Iran // The Nonproliferation Review, 1999. P. 134.

¹¹⁹ Albright D. Plutonium and highly enriched uranium, 1996: world inventories, capabilities, and policies, 1997. P. 352.

¹²⁰ Wehling F. Russian nuclear and missile exports to Iran // The Nonproliferation Review, 1999. P. 135.

¹²¹ Albright D. Plutonium and highly enriched uranium, 1996: world inventories, capabilities, and policies, 1997. P. 353.

about and could have come to be. In a 1995 Russian press release, it was stated that “[later] negotiations will be conducted on the signing of a contract for the construction of a centrifuge plant for the enrichment of uranium according to conditions of contracts concluded by Russian organizations with firms of third countries.”¹²²

While the public part of the deal only contained the construction of the Bushehr reactor, at the very least, the rhetoric surrounding this era of expanding cooperation included discussion surrounding not only the centrifuge plant, but also commitments to negotiate contracts for research reactors, and agreements in principle to develop a uranium mine and to train Iranian nuclear scientists.¹²³

Despite the relative thaw in the internal arena following the end of the Cold War and a budding atmosphere of collaboration between the former adversaries U.S. and Russia – fueled at least in part by the friendly relations between the respective presidents, Clinton and Yeltsin – there was apparently no consultation with other countries, including the U.S., in the making of the deal. Reportedly, the American government found out about it only several months after it had been concluded, in March or April of 1995, and immediately stepped up its efforts to move Russia to abandon not just the secret additional protocol, but also the work on Bushehr.¹²⁴ In May, Washington ultimately got most of its way, with Russian president Boris Yeltsin agreeing that there was the “potential for creating weapons-grade-fuel” for Iran and therefore Russia had “decided to exclude those aspects from the contract.”¹²⁵ The aspects excluded that Yeltsin specifically named – thus also implicitly acknowledging that they had previously been considered within the realm of what might have been provided to Iran – were the centrifuge plant and the building of mines.¹²⁶ The Russian-Iranian nuclear cooperation is described as “one of the central issues of contention” at the May 1995 Moscow summit between the two countries’ presidents.¹²⁷

Work on the civilian power plants, however, would continue; this was not meant to be understood as a blanket withdrawal from nuclear cooperation with Iran. This was despite an apparent understanding by Yeltsin of what the secret components of the deal may have been used for: if not for weapons production, then at least for non-peaceful means. In the same May 10, 1995 joint press conference with Clinton on the latter’s visit to Moscow, Yeltsin, in an aside, noted that

¹²² Gerardi G. J., Aharinejad M. An assessment of Iran’s nuclear facilities // *The Nonproliferation Review*, 1995. P. 207.

¹²³ Albright D. Plutonium and highly enriched uranium, 1996: world inventories, capabilities, and policies, 1997. P. 353.

¹²⁴ Ibid.

¹²⁵ Yeltsin B, Clinton B. Remarks by president Clinton and president Yeltsin in a joint press conference. URL: <https://clintonwhitehouse6.archives.gov/1995/05/1995-05-10-presidents-clinton-and-yeltsin-in-press-conference.html> (accessed: 30.01.2025).

¹²⁶ Gerardi G, Aharinejad M. An assessment of Iran’s nuclear facilities // *The Nonproliferation Review*, 1995. P. 207.

¹²⁷ Freedman R. Russian-Iranian Relations in the 1990s // *Middle East Review of International Affairs*, 2000.

while he considered the deal legal under international law, “it is true that the contract [does] contain component of ... military nuclear energy.”¹²⁸

It is unclear what intelligence U.S. President Clinton shared with his Russian counterpart at this meeting in Moscow that served to persuade Yeltsin to back out of the deal. U.S. officials in the State Department and members of Congress, particularly of the (opposition) Republican party, had expressed threats to Russia over its work with Iran that had not yielded similar results. Publicly, there were rumors of Iranian nuclear ambitions but no outright confirmation. What can be gleaned from the press conference is that Clinton shared with Yeltsin intelligence that suggested that “Iran is attempting to develop the capacity to build nuclear weapons.”¹²⁹ This would pose “more of an immediate security threat to Russia than to the United States,” due to the proximity, he said.¹³⁰

Yeltsin and Clinton appear to have been in significant contact surrounding the Iranian nuclear program. A PIR Center analysis of the Clinton Archive has shown that the two world power presidents spoke on the topic at least twenty times during the latter’s presidency.¹³¹

Despite the frequent exchange, the two leaders were often at odds about the extent to which Iran posed a threat and, by extension, the extent to which Russia should be engaging with Tehran. Although Yeltsin promised Clinton that he would preclude more arms sales to Iran and additionally would provide information on their nature and access to archives to U.S. specialists, the same was not necessarily the case for the nuclear dimension, which remained a field where Russia had an important comparative advantage globally. This appears to also have been the case because the Russian foreign intelligence agency SVR at the time did not see any indication that there was a concerted bomb program in Iran, and the government apparatus in Russia generally thought Iran’s industrial capabilities to be insufficient to domestically develop a dangerous program.¹³² It is important to consider the Russian transfers of technology and know-how to Iran under this lens – it is likely that they weren’t willful ignorance or reckless in the light of a potential proliferator, but rather undergirded by the belief – based the best available Russian data – that Iran did not pose an immediate proliferation risk (and so, not a noteworthy national security risk to Russia). Regardless, the Yeltsin administration ultimately conceded on significant points to the American interests,

¹²⁸ Yeltsin B, Clinton B. Remarks by president Clinton and president Yeltsin in a joint press conference. URL: <https://clintonwhitehouse6.archives.gov/1995/05/1995-05-10-presidents-clinton-and-yeltsin-in-press-conference.html> (accessed: 30.01.2025).

¹²⁹ Ibid.

¹³⁰ Ibid.

¹³¹ Kholodnov E. Interaction on Nuclear Nonproliferation in 1990s Through a Prism of Archival Documents // Russia-U.S. Nuclear Nonproliferation Dialogue: Lessons Learned and Road Ahead, 2021.

¹³² Kholodnov E. Interaction on Nuclear Nonproliferation in 1990s Through a Prism of Archival Documents // Russia-U.S. Nuclear Nonproliferation Dialogue: Lessons Learned and Road Ahead, 2021.

possibly also in light of American intelligence that Russian agencies had failed to detect or interpret in the same manner.

Although an enrichment plant would not be provided, Russia continued to cement its role as Iran's most significant nuclear partner in that decade. Just months after the Clinton-Yeltsin meeting, in August 1995, a contract between the two countries was signed to provide nuclear fuel (low-enriched uranium) for the Bushehr reactor for ten years.¹³³ Additionally, by at least 1997, Moscow had assisted Tehran in opening a uranium mine, a fact that Russia initially denied but eventually confirmed in November 1998.¹³⁴

While Russian assistance was the most prominent and visible aspect of Iran's nuclear expansion in the 1990s and early 2000s, it was by no means the only source of foreign support. Several other countries and actors played significant roles, including most notably China and Pakistan, with additional, though more limited, involvement from other states and individuals.

China, for instance, is often cited as having provided some of the first uranium and uranium hexafluoride to Iran in 1991, jumpstarting the country's nuclear program. This was done without reporting to the IAEA, as required by the NPT (which Iran was a member of, although China at the time wasn't yet).¹³⁵ Additional dimensions of Chinese assistance, including technical support for uranium conversion facilities and covert nuclear cooperation agreements, have been described in the preceding chapter, as has been Pakistani support and support by Pakistani nationals, namely A. Q. Khan. Other countries may have also had an unwitting part (or willful ignorance) in supporting the Iranian nuclear program in these days; Argentina, for instance, was in the process of negotiating the sale of civilian nuclear equipment to Iran in the 1990s but ultimately scrapped the deal at the behest of the United States.¹³⁶ Despite this, Argentina did in fact deliver Uranium to Iran in 1993.¹³⁷

III.2 Weaponization Research

Throughout this era, predating the revealing of the secret facilities at Natanz and Arak, Iranian nuclear actions were proceeding on a two-track basis. There was the legitimate, civilian nuclear program under the Atomic Energy Organization of Iran, AEOI, which sought to cover

¹³³ Wehling F. Russian nuclear and missile exports to Iran // The Nonproliferation Review, 1999. P. 137.

¹³⁴ Ibid.

¹³⁵ Davis M. China-Iran – A Limited Partnership, 2013.

¹³⁶ Porter G. Argentina's Iranian nuke connection. URL:

https://web.archive.org/web/20061119120803/http://www.atimes.com/atimes/Middle_East/HK15Ak03.html
(accessed: 28.04.2025).

¹³⁷ Barletta M, Ellington C. Foreign Suppliers to Iran's Nuclear Development. URL:
<https://web.archive.org/web/20100409171200/http://cns.miis.edu/wmdme/flow/iran/reactor.htm> (accessed: 28.04.2025).

20% of Iran's electricity demand with nuclear reactors by 2005.¹³⁸ At the same time, by around 1989, a second, military dimension was institutionalized. A 2011 report by the IAEA's Board of Governors shows that "organizational structures and administrative arrangements for an undeclared nuclear program were established ... and were overseen, through a scientific committee, by the Defense Industries Education Research Institute."¹³⁹

It was out of this decision that grew, throughout the 90s and into the early 2000s, the infamous Amad plan. The Amad plan, run by the "Orchid Office" (a name possibly linked to one of the program's locations being on Orchid Street in Tehran), has been shown by IAEA investigations as having been a clearly military component to the Iranian nuclear program, likely with the intention of creating nuclear weapons. In 2015, the IAEA concluded that throughout the time period being discussed here, "an organizational structure was in place in Iran suitable for ... a range of activities relevant to the development of a nuclear explosive device." These were a "coordinated effort" for the "development of a nuclear explosive device."¹⁴⁰ More concretely, files stolen by Israel's intelligence agency, Mossad, and revealed in 2018 showed that Iran had set itself a deadline of having five nuclear bombs ready by around 2003. According to a slideshow presentation that was among the files stolen, these weapons were supposed to be miniaturized ("capable of integration on a missile") and have a power of 10 kilotons of TNT.¹⁴¹

Research work done under the project included, among other aspects, relevant research in conventional high-explosives (these are used as detonators in nuclear weapons) and the redesign of the Shahab-3 missile to be a potential delivery vehicle for a miniaturized warhead.¹⁴² Additionally, it included the development of the country's covert uranium enrichment capability, which would become the focus of international attention in the decades to come.¹⁴³ Interest also existed in developing a neutron initiator, a component of advanced nuclear weapons that has no civilian use.¹⁴⁴

¹³⁸ Patrikarakos D. *Nuclear Iran: the birth of an atomic state*, 2012. P. 134.

¹³⁹ IAEA Director General. GOV/2011/65 - Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran, 2011.

¹⁴⁰ Director General of the IAEA. *Final Assessment on Past and Present Outstanding Issues regarding Iran's Nuclear Programme*, 2015.

¹⁴¹ Albright D, Heinonen O, Stricker A. *The Plan: Iran's Nuclear Archive Shows it Planned to Build Five Nuclear Weapons by mid-2003* // Institute for Science and International Security. URL: <https://isis-online.org/isis-reports/detail/the-plan-irans-nuclear-archive-shows-it-originally-planned-to-build-five-nu> (accessed: 30.01.2025).

¹⁴² IAEA Director General. GOV/2011/65 - Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran, 2011.

¹⁴³ Albright D, Heinonen O, Stricker A. *The Plan: Iran's Nuclear Archive Shows it Planned to Build Five Nuclear Weapons by mid-2003* // Institute for Science and International Security. URL: <https://isis-online.org/isis-reports/detail/the-plan-irans-nuclear-archive-shows-it-originally-planned-to-build-five-nu> (accessed: 30.01.2025).

¹⁴⁴ Neutron Source: Iran's Uranium Deuteride Neutron Initiator // Institute for Science and International Security. URL: <https://isis-online.org/isis-reports/detail/neutron-source-irans-uranium-deuteride-neutron-initiator-1/> (accessed: 30.01.2025).

According to the Institute for Science and International Security, the Amad project had resulted in “well over 100 tests, many involving high explosives” in specially-designed test locations that were reportedly built with the assistance of former employees of the Soviet nuclear weapons program.¹⁴⁵ The provision of information by people who were formerly involved with nuclear weapons but were laid off – as was the case when the Soviet Union collapsed – is a major proliferation concern and one that was addressed collaboratively and jointly by Moscow and Washington in that era. Nonetheless, the role that insiders with access to knowledge play is significant; the A.Q. Khan case study is a somewhat similar, impactful case.

Based on a 2011 report of the IAEA, there were “well over a dozen foreign scientists” who may have had a role to play in Iranian non-peaceful nuclear research.¹⁴⁶ These reportedly included a former Soviet weapons scientist, Vyacheslav Danilenko, who is claimed to have worked on instruments and tools required for detonation experiments conducted in the process of creating a nuclear weapon. Both Iran and Danilenko himself have denied this, saying that he was conducting research on the synthesis of nanodiamonds instead.¹⁴⁷

The leader of the Iranian effort to weaponize nuclear energy was Mohsen Fakhrizadeh, a nuclear scientist who, since at least 1998 (and until his death by assassination in 2020), stood at the helm of the non-peaceful Iranian nuclear efforts.¹⁴⁸ Consequently, he presided both over the height of the program – the early 2000s, in the immediate runup to the revelation of Natanz – and over the subsequent downsizing and restructuring (though not abandonment) of the program.

III.3 The International Context

The international environment of this era marks a moment of remarkable global cooperation, especially in domains such as nonproliferation and (less relevant) counterterrorism. The trends that started in the previous time period, brought about by the conclusion of the Cold War between the Soviet Union and the United States, by and large continued. The United States experienced what is sometimes described as a unipolar moment, with China yet to emerge in full strength and Russia still going through the second half of the difficult 1990s and then beginning

¹⁴⁵ Albright D, Burkhard S. Highlights of Iran’s Perilous Pursuit of Nuclear Weapons // Institute for Science and International Security. URL: <https://isis-online.org/isis-reports/detail/highlights-of-irans-perilous-pursuit-of-nuclear-weapons/> (accessed: 30.01.2025).

¹⁴⁶ Wisconsin Project on Nuclear Arms Control. A History of Iran’s Nuclear Program // Iran Watch. URL: <https://www.iranwatch.org/our-publications/weapon-program-background-report/history-irans-nuclear-program> (accessed: 29.11.2023).

¹⁴⁷ Ibid.

¹⁴⁸ Albright D, Burkhard S. Highlights of Iran’s Perilous Pursuit of Nuclear Weapons // Institute for Science and International Security. URL: <https://isis-online.org/isis-reports/detail/highlights-of-irans-perilous-pursuit-of-nuclear-weapons/> (accessed: 30.01.2025).

its recovery under the new presidency of Vladimir Putin. Neoliberalism and free trade were widely perceived as global norms and experienced a period of expansion, emulation and (if necessary) imposition, drawing the markets of the world closer together and deepening inter-reliance. The United Nations Security Council, though there were of course issues where no unanimity existed, appears to have had a generally constructive atmosphere and succeeded in collaborating on passing important resolutions, including in the non-proliferation realm (such as several resolutions, sanctions and novel actions on the DPRK in response to its WMD program).

While tensions between the global poles of power started to gradually resurface by the end of the time period that this chapter covers – spurred on by growing Chinese ambition emerging irritations between the U.S. and Russia (spurred on by the Color Revolutions in Georgia and Ukraine, and the American invasion of Iraq), the international environment remained generally relatively collaborative, and this period marks a high point for the influence of international norms and a liberal approach to international relations.

This background is important to keep in mind when it comes to understanding the way the world reacted to the revelations by the National Council of Resistance of Iran that precipitated the hot phase of the Iranian nuclear crisis. Swift international condemnation and good-faith international cooperation were some of the features that resulted in the IAEA's ability to investigate the case and the Security Council's ability to live out its role as the world's top executive body and one with teeth. The defining type of international action for the hinge point discussed below, then, is international diplomacy.

III.4 Hinge Point: Revelation of Natanz and Arak

On the 14th of August 2002, an Iranian oppositional group by the name of the National Council of Resistance of Iran held a press conference in which they exposed the existence of two secret Iranian nuclear sites that had previously not been mentioned in public.¹⁴⁹ The revelation marked a watershed moment in the Iranian nuclear program, arguably unlike anything since the decision to resume nuclear work had been taken about two decades earlier. It sent into motion a flurry of international activity that would itself deeply affect the trajectory of the Iranian nuclear program, which was now suddenly the central object of attention for essentially all outside interaction with the country. Whereas in the previous hinge point, the key form of international pressure was military action (specifically by Iraq in the form of chemical warfare), the key dimension that arose out of this hinge point was diplomatic condemnation.

¹⁴⁹ Jafarzadeh A. Remarks by Alireza Jafarzadeh on New Information on Top Secret Projects of the Iranian Regime's Nuclear Program // Iran Watch, 2002.

This chapter examines a different causal dynamic than previous hinge points by analyzing the complete interaction cycle triggered by Iran's revelation of secret facilities. It does this by analyzing both how this Iranian action generated international responses and how those responses subsequently influenced Iranian nuclear decisions. In this subchapter, the familiar methodology from the preceding chapters is augmented by analyzing the bidirectional causality that was central to this period. This is necessary for a comprehensive analysis of this critical period without artificially restricting the scope of the research and thus invalidating the findings. In the previous chapters, I presented the reactions of Iran to the actions of the international community. True to the title of this work, however, which promises an analysis of the interactions between the Iranian nuclear program and the global community, here I will first present a case of an Iran-centered action (the revelation of the secret enrichment program) and the international reaction thereto. Then, we will return to the typical pattern of analyzing how Iran responded to this international response.

The revelation of the centrifuge enrichment facility and Natanz and the heavy water production plant at Arak were significant because they publicly showed that there was likely a non-peaceful dimension to the Iranian nuclear program. At the very least, the program had an undeclared dimension, running afoul of the NPT and the IAEA's rules. The clandestine nature raised questions over the purported peaceful goal of indigenizing the nuclear fuel cycle within Iran, while the fact that the enrichment facility in Natanz was built underground suggested to outside observers that there may have been a concern about air strikes (such as the Israelis had employed against the Iraqi nuclear weapons program almost two decades earlier). Additionally, in Arak and Natanz, both of the paths towards weapons-grade fissile material were represented. While Natanz was a centrifuge enrichment plant capable of producing highly enriched uranium, the heavy water produced in the Arak facility could be used in a reactor designed to breed plutonium – and indeed, a heavy water reactor would later be constructed in Arak.

Although, as we have discussed, there are some indications that some Western intelligence agencies knew of the fact that there was a clandestine Iranian nuclear program, this information certainly wasn't widely known publicly, and it appears that even these Western intelligence agencies lacked a good picture of what sites might be involved and thus, exactly what the country was up to. This is supported by the literature on Iran's nuclear program from that time. Even specialists focused on nuclear proliferation weren't sure of what Iran's intentions were or whether it was on track to develop weaponization capabilities or simply an ambitious civilian program. Published in 1997 in the *Nonproliferation Review*, Andrew Koch and Jeanette Wolf laid out a remarkably detailed account of Iranian nuclear capabilities based on open-source information, ringing some alarm bells that Iran may be pursuing more nefarious nuclear uses than what was

publicly communicated. However, even they significantly underestimated the scale and sophistication of Iran's program to indigenize the nuclear fuel cycle, concluding that while Iran had made efforts to procure centrifuge components and other crucial pieces, "Iran's nuclear program is still relatively primitive. Tehran lacks the knowledge and equipment to successfully build or operate most of the fuel cycle facilities." In light of that, the authors said, "It is difficult to substantiate U.S. intelligence claims that Tehran will have the capability to build nuclear weapons within five to 10 years."¹⁵⁰ This assessment by well-versed authors and specialists in the nonproliferation realm predates the revelations of Natanz and Arak by only five years.

These revelations, which came in the same year as U.S. President George Bush had declared Iran part of a global "axis of evil,"¹⁵¹ fundamentally altered both international perceptions of Iran's nuclear program and Iran's relationship with the global nuclear monitoring regime. What had previously been viewed with suspicion was now considered a concrete proliferation threat by many countries. For Iran, the exposure meant shifting from a policy of complete secrecy to one of managing international pressure while preserving as much of its nuclear program as possible.

The international community's immediate response to the revelations was primarily diplomatic, with condemnation but also steps taken with the intent of productively resolving the impasse. Considering the American hawkish foreign policy – the country had invaded Afghanistan and was gearing up to do the same with Iraq, plus the aforementioned "Axis of Evil speech" – European powers at first took the lead in addressing this emerging nuclear crisis, although with somewhat limited international resonance. Three European countries—France, the United Kingdom, and Germany (collectively known as the EU-3)—quickly initiated diplomatic engagement with Iran in an attempt to resolve concerns about its nuclear program through negotiation rather than confrontation.¹⁵² Although there are indications that some European intelligence agencies had had concerns about Iranian proliferation earlier, this represented the first coordinated European action on the matter, underscoring the significance of the NRC revelations as a watershed moment and highlighting that the diplomatic response stemmed directly from it.

The EU-3 diplomatic approach focused initially on persuading Iran to suspend its uranium enrichment activities while negotiations proceeded. Their strategy reflected the European preference for multilateral solutions and diplomatic engagement over military action or unilateral sanctions, which represent related but nonetheless distinct types of international pressure in the framework used for this work. Indeed, the European initiatives appeared to bear fruit. In October 2003, less than a year after the revelations, the foreign ministers of the EU-3 traveled to Tehran

¹⁵⁰ Koch A, Wolf J. Iran's nuclear procurement program: How close to the bomb? // *The Nonproliferation Review*, 1997.

¹⁵¹ Bush G. President Delivers State of the Union Address, 2002.

¹⁵² Fabius L. Inside the Iran Deal: a French Perspective // *The Washington Quarterly*, 2016.

and secured an agreement known as the Tehran Declaration.¹⁵³ Under this first deal, Iran agreed to temporarily suspend uranium enrichment and sign the Additional Protocol to its IAEA safeguards agreement, allowing for more intrusive inspections. At the time, there was considerable optimism that this would resolve the Iranian nuclear file and that diplomatic engagement had succeeded, with the British newspaper *The Guardian* titling: “Diplomatic coup on nuclear programme averts crisis.”¹⁵⁴

This initial diplomatic effort appeared to yield positive results. Iran did temporarily suspend enrichment activities and allowed enhanced IAEA inspections. The IAEA, under Director General Mohamed ElBaradei, played a crucial mediating role during this period, attempting to verify Iran's declarations while facilitating dialogue between Iran and concerned international powers. The European diplomatic approach seemed to demonstrate that engagement could produce tangible outcomes in addressing proliferation concerns.

The initial success, however, did not last. Continued negotiations arrived at an impasse by 2005. The Europeans sought a permanent cessation of enrichment activities, while Iran insisted on its right to maintain a complete nuclear fuel cycle under the Nuclear Non-Proliferation Treaty (NPT). Not only was this a stumbling block that would continue to define the Iranian nuclear program for the decades to come, but it also presented one of the key limitations of diplomacy on this file: Security and national sovereignty were deemed non-negotiable on both sides.

Nonetheless, the brief period of relative perceived success between the deal of 2003 and the Iranian decision to resume uranium conversion activities in mid-2005 presents an interesting case for evaluating the impact of international diplomatic pressure and action on the Iranian nuclear program. On the one hand, especially as presented above, it seems to suggest that diplomatic pressure coupled with constructive engagement could have a negative impact – i.e., result in a reduction of nuclear activities. The fact that Iran agreed to suspend its enrichment efforts at the Europeans’ urging and engaged in discussions to find a more lasting solution to the problem is a strong indicator in support of this evaluation. However, this interpretation is called into question by other events that happened during the same time period. In the spring of 2004, Iran started uranium conversion at the Isfahan facility. That same year in June, Iran resumed manufacturing centrifuge components and assembling and testing these critical devices. However, just a few months later, Iran agreed to suspend both of these activities in November. What wasn’t suspended was the construction of the heavy water research reactor in Arak, which also commenced in 2004.¹⁵⁵

¹⁵³ Mazzucelli C. EU3-Iranian Nuclear Diplomacy: Implications for US Policy in the Middle East // EUMA, 2007.

¹⁵⁴ Borger J, Macaskill E, Luce D. EU ministers strike Iran deal // *The Guardian*, 2003.

¹⁵⁵ Carrel-Billiard F, Wing C. Iran and the NPT // Nuclear energy, nonproliferation, and disarmament: Briefing notes for the 2010 NPT Review Conference, 2010.

This paints a complicated picture. On the one hand, it is evident that international diplomatic pressure and actions affected the trajectory of the Iranian nuclear program, even and perhaps especially in these early days after the large public revelation of the program. On the other, the question of exactly *what* that influence was is significantly complicated by seemingly contradictory actions: Iranian engagement in the negotiation process and suspension of activities that were crucial to its nuclear program while also engaging in other activities that ran afoul of the goals of international pressure and may even have been spurred on by it either to gain leverage or to make up for the components of the program that were paused.

The breakdown of progress in the negotiations between the Europeans and the Iranians coincided with the election of a new hardline president in Iran, Mahmoud Ahmadinejad. In the immediate aftermath of his election, Iran began regressing on its obligations to the IAEA and pressing forward with its nuclear program. Less than half a year after Ahmadinejad's election, enrichment was started enriching in Natanz – for the first time, since the facilities had been revealed while they had still been under construction.¹⁵⁶

The conspicuous absence of the United States in the narrative presented here is not a sloppy oversight. Instead, it reflects the dynamics of global diplomatic engagement with Iran during this window. The U.S., under George W. Bush, had decided that Iran was a member of the “axis of evil.” Additionally, Washington was at the time preoccupied with the aftermath of the 9/11 attacks, including the invasion of Afghanistan that had commenced in 2001 and the preparations for the invasion of Iraq in 2003. These were the centers of attention for its foreign policy priorities at the time, far outweighing any willingness or feeling of urgency for engagement with Iran, particularly when it came to time-consuming diplomatic negotiations. The U.S. wasn't, of course, completely ambivalent to the Iranian question, as was evidenced even by the fact that its president had gone to the length of specifically singling out Iran in the infamous Axis of Evil speech. However, the country's leadership seems to have thought that applying condemnation and punishment through international fora, such as the IAEA and UN, was a better use of its resources and time in the given circumstances. The Europeans, in contrast, were not directly subject to these same foreign policy considerations as were the Americans and had a much stronger disposition toward a diplomatic settlement. The USA only transitioned back into a more central and overtly active role in the Iranian nuclear saga following the breakdown of the European-led diplomatic approach in and after 2005.

Nonetheless, even in its relative absence, the United States still played a significant role in the international context and Iranian calculus. The hawkish nature of the Bush administration and

¹⁵⁶ Natanz Enrichment Complex. URL: <https://www.nti.org/education-center/facilities/natanz-enrichment-complex/> (accessed: 19.03.2025).

the fact that it decided to invade two neighboring countries were almost certainly observed with great concern in Tehran. The concern turns out not to have been entirely unfounded, as the U.S. would go on to support opposition uprisings and topple leaders in several “evil” countries called out by Bush, including Libya, Iraq and Syria. What’s more, we now know that it was under Bush, too, that the Operation Olympic games got underway in 2006 – the creation (and deployment) of a cyber weapon that targeted the Iranian centrifuge cascades and caused irreversible damage to the machines there.¹⁵⁷

This broader geopolitical context not only defined the environment in which Iran and the broader international community found themselves operating, but likely also influenced – consciously and unconsciously – the calculus about the various options on the table both in Tehran and in European capitals.

The Iranian behavior and decision to double down on its nuclear program resulted in intensified diplomatic pressure that was being exerted by those countries taking an active role in the matter, and a shift in its nature. In response to Iran’s beginning of hexafluoride production in Isfahan, the European countries halted negotiations. In their place, in September 2005, the IAEA adopted a resolution finding Iran in noncompliance with its safeguards agreement by a vote of 22-1, with 12 members abstaining.¹⁵⁸ Subsequently, the IAEA’s Board of Governors referred the country to the UN Security Council.¹⁵⁹

While still in the domain of diplomatic pressure, the new dynamics were a significant departure from the international reaction to the Iranian revelations under the previous Iranian presidency. While the period between 2003 and 2005 was primarily defined by tense but nonetheless overall productive diplomatic engagement and some success of international diplomatic pressure to slow down the Iranian nuclear program, this new period was marked by much more hostile engagement from both sides. The impact on the Iranian nuclear program appears to have been the opposite of the previous time period and the opposite of what the international community intended: It seems to have sped up Iran’s progress in its nuclear fuel cycle and threshold-state capability.

The change in tone is well signified by this referral to the UNSC. It moved the Iranian nuclear issue from the realm of diplomatic negotiation, which tends to happen behind closed doors, and the technical realm of the IAEA to the highly political and public forum of the Security Council. Additionally, there was now the much more real threat of legally binding international

¹⁵⁷ Sanger D. Obama Order Sped Up Wave of Cyberattacks Against Iran // The New York Times, 2012.

¹⁵⁸ Davenport K. Timeline of Nuclear Diplomacy with Iran, 1967-2023. URL: <https://www.armscontrol.org/factsheets/Timeline-of-Nuclear-Diplomacy-With-Iran> (accessed: 03.12.2023).

¹⁵⁹ IAEA Board of Governors. GOV/2006/14 - Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, 2006.

sanctions, an element that, as discussed earlier, goes hand-in-hand with diplomacy but is nonetheless distinct from it. This will also be discussed in greater detail in the next chapter.

This shift from purely diplomatic engagement to a more pressure-oriented approach reflected growing international frustration with Iran's behavior. Relevantly, however, it also demonstrated the complexity of coordinating an international response to proliferation concerns. While European powers had initially preferred engagement, the lack of progress and Iran's resumption of nuclear activities convinced them to join the United States in pursuing more coercive measures. Russia and China, however, remained skeptical about sanctions, highlighting the divergent interests and approaches among major powers that would continue to complicate the international response.

In combination, these measures amounted to the end of one era of interaction between the outside world and the Iranian nuclear program that was defined primarily by diplomatic pressure, and a new one that would come to be defined by economic sanctions as a prerequisite for such diplomatic engagement.

CHAPTER 4. A FRESH FACE: INTENSE DIPLOMACY, THE AHMADINEJAD PRESIDENCY AND JCPOA ERA (2006-2018)

The period of intense diplomatic pressure precipitated by the revelations that Iran was, in fact, engaged in nuclear proliferation was also characterized by a standoff nature between Iran and much of the rest of the world. In this time period, this gradually started to change. Ultimately, the efforts of the international community and a newfound better-faith nature of engagement from the Iranian side led to the creation of a groundbreaking nuclear agreement between the two sides: The Joint Comprehensive Plan of Action, JCPOA.

This diplomatic breakthrough was by no means detached from the earlier era of comprehensive sanctions led primarily by the U.S. and undergirded with global support. A strong argument can be made that the decision to enter into negotiations and the sudden progress were a consequence of these measures reaching fruition. This will be examined in greater depth in the hinge point discussion for this chapter.

The United States played a pivotal role in this epoch, acting as the missing component to the European approach of the early 2000s in that it could provide Iran with greater economic incentives – or inflict more severe economic harm on it – than the European countries alone could. Even beyond the sheer weight that the United States carries in international relations, the uniquely complex and adversarial relationship between Tehran and Washington doubtlessly played a role in Washington's importance to the negotiations, too.

And there is one more dimension that must be taken into account when trying to enunciate why the U.S. became so pivotal in this period, when it was comparatively absent from the narrative in the early 2000s European-led diplomatic negotiations. That is the fact that the dimension of international pressure that came to the fore now – economic coercion, primarily in the form of sanctions and asset freezes – was one that the U.S. had been more favorable on than diplomacy from the beginning.¹⁶⁰

Indeed, diplomatic engagement of one quality or the other began in the immediate aftermath of the Natanz and Fordow revelations and has ebbed and flowed since then. The year 2009 nonetheless marked a significant turning point, as there had been an all-around inability to arrive at any agreement since the two-year suspension of uranium enrichment that had been agreed upon in 2003. Now, six years later, movement entered the topic again as the P5+1 negotiations were set up. Their initial aim was to work out an agreement for a fuel swap arrangement, a measure that negotiators hoped would allow Iran to make use of its inherent rights under the NPT while

¹⁶⁰ Meier O. European Efforts to Solve the Conflict over Iran's Nuclear Programme: How Has the European Union Performed? // EUNPDC Non-Proliferation Papers, 2013. P. 5.

also alleviating the most significant nonproliferation concerns that stemmed from the country's nuclear fuel cycle.¹⁶¹ Although this internationally proposed arrangement ultimately failed because Iran rejected it, the establishment of this format and forum of negotiations would prove crucial for the future success of diplomatic efforts.

A note should be made here of some other actors, before diving deeper into the path that led to the JCPOA. While the protagonists in this chapter are primarily great powers – the UNSC permanent members, the EU, Germany and Iran – there were other diplomatic players at the sidelines both in this and in the previous time period that tried to create their own solutions to the Iranian nuclear file. Front and central among these are Brazil and Turkey, which surprised much of the world when they concluded an agreement with Iran in 2010 for a fuel swap arrangement.¹⁶² The plan, which was very similar to the one that had been put forward by the Vienna Group, would have seen Iran export half of its LEU to Turkey and receive a medical research reactor instead.¹⁶³ The deal didn't, however, come to fruition. For one, Iran announced the day after the deal that it did not intend to stop enrichment, putting a damper on any optimism the agreement had reached. The UNSC further issued new sanctions on Iran less than a month after the Brazilian-Turkish initiative was publicized.¹⁶⁴ With the P5 and many Western governments publicly seeing the agreement as an Iranian stalling tactic – and these countries driving the main thrust of the diplomatic engagement with Iran, and the one that had the seemingly greatest chances for success – the deal was practically dead on arrival. It nonetheless presented an important and significant foray of up-and-coming middle powers into the realm of great power international diplomacy.

IV.1 The Importance of the U.S

The engagement of the U.S., which had long dragged its feet to commit to overt and direct diplomatic negotiations with Iran (ostensibly) on the basis of being equals, was pivotal to successfully making progress on the Iranian file. At this point, it seems relevant to take a step back and evaluate why U.S. actions and engagement were so crucial to the Iranian case in the first place. Washington is much farther geographically from Tehran than other major power centers in

¹⁶¹ Vakil S, Quilliam N. Getting to a New Iran Deal // Chatham House: The Royal Institute of International Affairs, 2019.

¹⁶² Mottaki M, Davutoglu A, Amorim C. Joint Declaration of the Ministers of Foreign Affairs of Turkey, Iran and Brazil. URL: https://www.mfa.gov.tr/17_05_2010-joint-declaration-of-the-ministers-of-foreign-affairs-of-turkey_-iran-and-brazil_.en.mfa (accessed: 05.06.2025).

¹⁶³ Crail P. Brazil, Turkey Broker Fuel Swap with Iran // Arms Control Association. URL: <https://www.armscontrol.org/act/2010-06/brazil-turkey-broker-fuel-swap-iran> (accessed: 5.6.2025).

¹⁶⁴ Security Council Imposes Additional Sanctions on Iran, Voting 12 in Favour to 2 Against, with 1 Abstention // Meetings Coverage and Press Releases. URL: <https://press.un.org/en/2010/sc9948.doc.htm> (accessed: 05.06.2025).

Moscow or Western Europe but nonetheless proved to be the most important foreign capital when it came to arriving at any functional agreements with lasting potential.

This perhaps seemingly outsized importance can be traced back to a number of factors, a combination of mere effects of the U.S. being a global superpower and specificities that are unique to the U.S.-Iranian relationship. In the former category, the American dominance in the economic and financial spheres is one of the most important aspects. The U.S. serves as the hub of the global financial system and therefore controls access to and through much of it. This gives it immense direct leverage, and even greater indirect leverage by being able to threaten secondary sanctions and so whip up compliance with its policies in other countries that may otherwise be more lenient or indifferent on Iran. While also a major oil producer, the U.S. is also itself a major oil consumer and therefore has further economic leverage over Iran, both as a competitor and a potential customer. In the time period in question, the U.S. was still a major crude oil importer (although subsequent expansion of oil extraction in the U.S. changed this by the late 2010s, which brought with it a shifting calculus by U.S. leaders).¹⁶⁵

In addition to its economic weight, the United States had a formidable international diplomatic presence, in terms of alliances and friendly relations with relevant countries, representation at and funding of international organizations, its seat on the UN Security Council, a vast network of diplomats, a large and effective foreign ministry in the form of the State Department, and other factors. Its status as the world's most powerful country and largest single economy (although the EU, taken together, is a larger market) meant that it had considerable ability to influence the global conversation in its favor.

Closer to home for Iran was the United States' strategic involvement with countries in the region. Particularly, of course, the United States serves as a patron for Israel, Iran's regional arch nemesis. Other American allies that maintained at the very least a wary outlook on Iran included Saudi Arabia, another major regional challenger, and the Gulf States. United States security assurances to its allies and potential efforts to alleviate concerns over a possible Iranian deal would be crucial in making it work in the first place; they could also be a productive element to lower tensions in the region and so form a more fortuitous environment for any possible other agreement (even any hypothetical ones without the U.S.) to succeed.¹⁶⁶ Additionally, key diplomatic

¹⁶⁵ Oil imports and exports - U.S. Energy Information Administration (EIA). URL: <https://www.eia.gov/energyexplained/oil-and-petroleum-products/imports-and-exports.php> (accessed: 30.01.2025)

¹⁶⁶ Davenport K. Rethinking U.S. Nuclear Diplomacy with Iran for 2025 // Arms Control Association. URL: <https://www.armscontrol.org/act/2024-10/features/rethinking-us-nuclear-diplomacy-iran-2025> (accessed: 30.01.2025).

breakthroughs even in the P5+1 venue often (though not always) came from American-Iranian direct engagement, including through secret bilateral channels.¹⁶⁷

Beyond the alliances that Washington maintains with several key countries in the region, The United States also had and continues to have a physical military presence in the area. American military bases dot the Middle East, especially combined with its formidable fleet of aircraft carriers that are frequently deployed to this part of the world at the first sign of trouble, pose serious firepower that Tehran would not be far-fetched to imagine directed against it if relations became all too tense. A similar, but significantly less overt factor is also the vast network of American intelligence agencies, which Iranian leaders had to assume was directed against them. The revelations of Edward Snowden showed the awe-inspiring extent of even just the National Security Administration's signals intelligence efforts; beyond that, American intelligence could monitor Iranian progress in the nuclear domain and be used by Washington to expose any noncompliance they might find and further damage the Iranian reputation on the world stage. The effectiveness of American intelligence was further strengthened by the various information sharing agreements that the country maintained with other Western intelligence agencies, including the Israeli Mossad which, for obvious reasons, had long prioritized work on Iran and complemented the American remote sensing and signals intelligence with particularly capable human intelligence – spies on the ground.¹⁶⁸

Then there is the unique personal relationship between Iran and the U.S., which has been described at some length in this paper from the international relations perspective and also includes an ideological perspective, with each government engaging in intense demonization of the other. While Iran was in the “Axis of Evil” for the U.S., America is commonly described by Iranian leadership and propaganda as the “Great Satan.”

This personal relationship is also rooted in the experiences that both sides had with one another during the years of the Shah, when the United States and its material support were essential in kick-starting the Iranian nuclear program. With the American concerns about possible Iranian proliferation going back to these days, there is an element of institutional memory and tradition on both sides that contributes to the continued mutual distrust farther down the line, in particular in the nuclear matter. Indeed, many of the arguments between both sides today are reminiscent of these early debates – Iranian insistence on nuclear rights, particularly when in self-assessed compliance with international nuclear standards, and simultaneous American insistence on global nonproliferation goals and strengthened safeguards. While the U.S. had shifted from enabler of the

¹⁶⁷ This was effectively demonstrated in a number of historical retellings of the Iran deal, especially surrounding the JCPOA. Patrikarakos intimately relayed these dynamics, starting with secret bilateral meetings in Oman. Patrikarakos D. Nuclear Iran: the birth of an atomic state, 2012.

¹⁶⁸ Cohen A. History of Intelligence, 2024.

Iranian nuclear program to its main opponent in the meantime, this remarkable continuity in its messaging nonetheless underscores the observation that certain institutional continuity was likely present.

IV.2 The Domestic Component

An additional piece of context for this era, however, is a major change in domestic politics in both Iran and the United States.

On the one side, the United States had a consequential election in 2008. The George W. Bush era was dominated by hawkish foreign policy, including the invasion of several countries in Iran's vicinity, the declaration of an "axis of evil" (which included Iran and could be understood as laying the groundwork for potential regime change by force), and a militaristic-assertive foreign policy that left somewhat limited room for diplomacy.¹⁶⁹ Now, in 2009, a young newcomer entered the Oval Office in the form of Barack Obama. If the campaign trail was anything to go by, his presidency would be a radical departure from Bush's, with a focus on diplomacy – including toward members of the "axis of evil" – and a return to a more Clinton-esque, collaborative outlook on international diplomacy.¹⁷⁰

In almost a mirror of the American situation, for much of the Iranian nuclear crisis up until that date, the president of Iran had been Mahmoud Ahmadinejad, generally considered a conservative hardliner.¹⁷¹ He ended a previous period of relative détente (despite the complicated circumstances) with the West, particularly Europe, and returned to the revolutionary animosity with much of the rest of the world and particularly harsh language on the U.S.¹⁷² He was also a vehement defender of the Iranian nuclear program, undermining international efforts to get to the bottom of the subject matter, including the IAEA investigations, and spreading incorrect assertions.¹⁷³

Rouhani, who was elected in 2013, changed things. Unlike his predecessor, he won the election with immense popularity, receiving an absolute majority of votes in the first round of Iran's typically two-round runoff system.¹⁷⁴ Ahmadinejad had come second in the first round back in 2005, but received only 20% of the vote.¹⁷⁵ This presented a clear mandate for Rouhani in the

¹⁶⁹ Bush Hits «Axis of Evil» In Final News Conference // Radio Free Europe / Radio Liberty, 2009.

¹⁷⁰ Obama: Iran Requires Direct Diplomacy // NPR, 2007.

¹⁷¹ Zeidan A. Mahmoud Ahmadinejad. Biography, Politics, Education, & Facts // Britannica. URL: <https://www.britannica.com/biography/Mahmoud-Ahmadinejad> (accessed: 30.01.2025).

¹⁷² Pirsalami F. Third Wordism and Ahmadinejad's Foreign Policy // Iranian Review of Foreign Affairs, 2013.

¹⁷³ Iran: June 2009 Elections and Nuclear Policy Implications. URL: <https://www.nti.org/analysis/articles/iran-2009-elections-and-policy/> (accessed: 30.01.2025).

¹⁷⁴ 2013 Iranian presidential election // Wikipedia. 2024

¹⁷⁵ 2005 Iranian presidential election // Wikipedia. 2025

unique Iranian mixed system that is part democracy, part authoritarian theocracy. More specifically, it was a clear mandate for change: While Ahmadinejad was a hardliner who had enjoyed the support of the religious conservatives during his campaign for the presidency, Rouhani was seen as a moderate and by some even a reformer (and the last one still in the race after several others had been disqualified or dropped out).¹⁷⁶ His presidency, which lasted for two terms, represented a period of relative moderation and willingness for diplomatic engagement in Iranian domestic politics, before the country's hardliners made their full-throated comeback in the 2020s.

It is almost a mirror of the process of standoff and confrontation that Kelsey Davenport, Director for Nonproliferation Policy at the Arms Control Association, described in an interview for this work. Iranian (foreign) policy, especially as it relates to the nuclear program, tends to follow a pattern of escalation and subsequent rapprochement, she described. For instance, the initial reaction to IAEA board resolutions calling out Iran for noncompliance or failing to live up to its obligations tended to be immediately and initially met with defiance and even escalation. But then, a little later and “when the spotlight is off,” there is a conciliatory action, she continued.¹⁷⁷

What exactly the root cause behind this curious pattern was unclear to her, she said, despite having studied the topic for decades. She ventured the assumption that perhaps this way, it was possible to signal that the country would not cave to pressure by making it less obvious that the subsequent compliance with foreign demands was linked to the foreign action to begin with. The Iranian reaction in the form of escalation would invariably be brought into connection with whatever outside pressure was applied shortly before – but a later following de-escalation may be less evident, especially to casual observers such as much of the general public.

IV.3 Hinge Point: The JCPOA

The most significant watershed moment in the time period discussed in this chapter is the agreement and implementation of the Joint Comprehensive Plan of Action, or JCPOA for short. The agreement, arrived at in Vienna between the P5, Iran, Germany and the EU, turned the tide on the Iranian nuclear program and promised to address the proliferation concerns it posed. It was a remarkable achievement that came just a few years after the belligerent rhetoric – from both sides – that had been sparked by the Natanz and Arak revelations in 2002 and the breakdown of European-led diplomacy in 2005.

¹⁷⁶ Zeidan A. Hassan Rouhani. Biography, Education, History, & Facts // Britannica. URL: <https://www.britannica.com/biography/Hassan-Rouhani> (accessed: 30.01.2025).

¹⁷⁷ Davenport K. Interview with Linus Höller, 2025.

But neither did the JCPOA come out of the blue. It was the consequence of years of negotiations and engagement in good faith by all sides. Due to its very nature as an international agreement, it is naturally also a prime candidate for evaluation of how international actions and the Iranian nuclear program interacted.

The diplomatic negotiations that led to the JCPOA didn't occur in a vacuum. They overlapped with and directly built upon a global campaign of comprehensive sanctions on Iran that had crystallized in the decade since the revelations of the clandestine Iranian program and had near-universal global buy-in, including from all the relevant major powers, including the P5 on the Security Council. The latter meant that the core of the sanctions regime against Iran was, at least in theory, legally binding on all UN member states. It is this background of what were mostly economic measures taken against Iran that will be the particular focus of this section.

Not all agree with this interpretation of this time period's key driving force. Steven Hurst of the London School of, for instance, provides a direct challenge to the economic narrative. He argues that "while the economic impact of sanctions on the Iranian economy was clear they had little impact on the Iranian nuclear program" and concludes that "sanctions alone do not explain the change in Iranian policy" as they didn't threaten the continued existence of the Iranian regime, particularly in light of public opinion largely exalting Iranian leaders for the pain that the economic downturn caused.¹⁷⁸

Trita Parsi, a noteworthy Iran expert and insider of the negotiations between the U.S. and Iran under Obama, presents a middle-ground view that combines the importance of diplomatic and economic factors. He says that the road to the JCPOA proved diplomacy to be "far more effective than any other policy option."¹⁷⁹ However, what this interpretation does not do is clarify whether either the diplomatic or "any other policy option" was the defining type of international pressure in this time period or in achieving the JCPOA breakthrough.

Economic pressure is somewhat of an outlier from the other dimensions of international pressure that were developed for this research. This is because it comes with a much stronger domestic component than any of the others. Diplomacy, for instance, takes place primarily in the international realm; international norms are primarily an issue of how countries are seen by outsiders (although there certainly can be a dimension of public discontent domestically, too, as a result). The threat or use of military force unquestionably also has domestic impacts, but war is a prerogative of the state first and foremost. The economy, however, affects all citizens and touches

¹⁷⁸ Hurst S. The Iran nuclear deal: driven by international factors for the US, and domestic ones for Iran // USAPP. URL: <https://blogs.lse.ac.uk/usappblog/2015/12/01/the-iran-nuclear-deal-driven-by-international-factors-for-the-us-and-domestic-ones-for-iran/> (accessed: 08.06.2025).

¹⁷⁹ Halter C. Trita Parsi on The Politics Behind the Iran Nuclear Deal. URL: <https://www.kgou.org/world/2018-03-09/trita-parisi-on-the-politics-behind-the-iran-nuclear-deal> (accessed: 28.04.2025).

on a wide range of actors, each with its own mechanisms of influencing a state's trajectory, no matter how top-down a political system may be. Iran, as a hybrid system that has a combination of autocracy and genuine elections, most certainly has a significant domestic component of pressure that can result from the ostensibly international dimension of the external imposition of economic punishment. Therefore, the role of public opinion and other domestic pressures will be touched on somewhat more in this hinge point subsection than in some of the others.

An element of covert operations, the fifth dimension included in the types of international pressure, also played a role in this era, and, where relevant, this will be touched upon.

IV.3.1 Key Foreign Players

There are three main foreign players in terms of economic responses that are important to keep an eye on. The first one is the international community writ large, specifically represented through the UNSC. It first threatened sanctions in 2006 and, seeing a lack of progress, followed through on the threat with resolution 1747 in March 2007, imposing an arms embargo and asset freezes on Tehran.¹⁸⁰ Sanctions were expanded in 2008.¹⁸¹ After the ascension to the presidency of Ahmadinejad and the revelation of the underground enrichment facility at Fordow, the UNSC passed resolution 1929 in 2010, which imposed even tougher economic measures on Iran and expanded the scope of enforcement options available to the international community.¹⁸²

The second major player is the United States. This is, in large part, an extension of the reasons discussed above, of America's superpower status and its particular involvement in the region that Iran is a part of and with relevant players and in relevant institutions globally. The U.S. had also implemented sanctions on Iran well before the Iranian nuclear issue came up. Following the Islamic revolution, America had frozen \$8.1 billion in Iranian assets, implemented a trade embargo and blocked Iranian bank deposits and gold.¹⁸³ While the exact composition and legal framework of American sanctions changed over the years, they remained a relative constant for decades and eventually effectively merged into the economic measures taken against Iran in response to the nuclear question. Aside from the unilateral sanctions that Washington had imposed, it wielded power primarily through its centrality to the global banking system, which not only gave

¹⁸⁰ United Nations Security Council. Resolution 1747 (2007).

¹⁸¹ United Nations Security Council. Resolution 1803 (2008).

¹⁸² S/RES/1929 (2010) // Security Council. URL: <https://main.un.org/securitycouncil/en/s/res/1929-%282010%29> (accessed: 31.01.2025).

¹⁸³ Carter J. Economic Sanctions Against Iran Message to the Congress Reporting on the U.S. Actions. URL: <https://teachingamericanhistory.org/document/economic-sanctions-against-iran-message-to-the-congress-reporting-on-the-u-s-actions/> (accessed: 31.01.2025).

it direct control, but also the ability to pressure financial institutions in Europe and the Gulf states to limit their interactions with Iran.¹⁸⁴

And finally, the third large enactor of economic punishment was the European Union. Its power stemmed primarily from its position as the world's largest trading bloc and relative geographic proximity to Iran, which had allowed it to be the country's main trading partner, ahead of China and the UAE, before sanctions were imposed.¹⁸⁵ The continent is also a major importer of hydrocarbon sources of energy, presenting a large potential market for Iranian oil. Prior to the 2012 oil embargo, the EU was the number one importer of oil from Iran, importing around 600,000 barrels per day.¹⁸⁶ Despite its deep economic connections with Iran, it put in place a stringent regime of economic punishment throughout the period of comprehensive sanctions in the early to mid-2010s, including the complete embargo of Iranian oil and petrochemical products that began in 2012.¹⁸⁷

IV.3.2 The Road to the JCPOA

When Iran failed to comply with the first UN Security Council resolution that came from the IAEA's referral, the Security Council followed up by passing Resolution 1737 in December 2006. This resolution reiterated the mandatory nature of the demanded suspension of enrichment, but it also imposed initial sanctions that banned the supply of nuclear-related materials and technology while freezing assets of key individuals and entities connected to the nuclear program.¹⁸⁸

This was followed by increasingly stringent measures. Resolution 1747 in March 2007 imposed an arms embargo and expanded asset freezes, while Resolution 1803 in 2008 extended these freezes and called for monitoring of Iranian financial institutions and shipping. The sanctions regime reached a new level of severity with Resolution 1929 in 2010, which authorized member states to sanction civilian sectors of Iran's economy.¹⁸⁹

The United States, which had maintained various sanctions against Iran since the revolution, also significantly expanded its use of financial tools during this period. The U.S.

¹⁸⁴ Maloney S, Takeyh R. The Self-Limiting Success of Iran Sanctions. URL: <https://www.brookings.edu/articles/the-self-limiting-success-of-iran-sanctions/> (accessed: 31.01.2025).

¹⁸⁵ Cimino-Isaacs C, Katzman K. Doing Business with Iran: EU-Iran Trade and Investment Relations // Congressional Research Service Insight, 2017.

¹⁸⁶ Laub Z. International Sanctions on Iran // Council on Foreign Relations. URL: <https://www.cfr.org/background/international-sanctions-iran> (accessed: 31.01.2025).

¹⁸⁷ Greene R. New European Union sanctions target Iran nuclear program. URL: <https://www.cnn.com/2012/01/23/world/europe/iran-eu-oil/index.html> (accessed: 31.01.2025).

¹⁸⁸ United Nations Security Council. Resolution 1737 (2006).

¹⁸⁹ Gordon G. Contradiction & the Court: Heterodox Analysis of Economic Coercion in International Law // Temple International & Comparative Law Journal, 2019. P. 283.

Treasury Department made expanded use of powers under Section 311 of the PATRIOT Act, targeting not just Iranian entities but also third parties that conducted business with Iran.¹⁹⁰

As has been cursorily illustrated, sanctions ratcheted up throughout the Ahmadinejad presidency and the period of obvious Iranian noncompliance. On the way, there were several major milestones and breaches that solidified the general agreement in the international community that the sanctions regime should be maintained as the backbone of international pressure on Iran. One of the most significant was the revelation that Iran had not only continued the efforts to indigenize its nuclear fuel cycle, but had in fact continued a clandestine program and even built new facilities for it.

The revelation of Fordow in 2009 followed somewhat of a similar pattern to the 2002 revelations. Much like Natanz, it raised severe alarm in the international community, only that now there was little surprise that there was a clandestine Iranian nuclear program at all, only that it had seemingly continued after the 2003 diplomatic pressure campaign and its perceived successes. The Fordow facility was also much more strategic in appearance, fortified by being built deep underground into the side of the mountain, providing it with an additional air of mischievousness that strengthened concerns that were inherently present due to its undeclared nature.

The period from 2010 to 2012 was sometimes described, including by the United Nations, as being defined by the international community enacting an “interlocking matrix of sanctions” against Iran for its nuclear, missile and other developments. The U.S. imposed these measures primarily through executive actions by the presidency, the European Union passed its comprehensive sanctions package, and the UNSC adopted resolution 1929, binding on all UN member states. Other individual countries, such as Canada, Japan, South Korea and others, also passed their own measures in coordination or in support of this pressure campaign.

The Comprehensive Iran Sanctions, Accountability, and Divestment Act (CISADA) of 2010 represented a turning point, targeting Iran's energy sector and financial institutions. By 2012, Executive Order 13599 effectively cut Iran's Central Bank off from the global financial system.¹⁹¹ As early as 2011, Iran – which has a hybrid system and fairly controlled political messaging – publicly admitted to the world stage that the sanctions were inflicting noticeable damage to the economy.¹⁹²

This all serves to underscore the importance of the economic dimension in this time period: While diplomacy had been at the forefront in the immediate aftermath of the revelations in 2002,

¹⁹⁰ Ibid.

¹⁹¹ Kheyrie D. Effectiveness of sanctions as a tool of nuclear nonproliferation: case study of Iranian nuclear program, 2023.

¹⁹² Gladstone R. Iran Admits Western Sanctions Are Inflicting Damage // The New York Times, 2011.

it seems to have widely been considered to have failed or to have been an effort in vain by the decision-makers of this new era. The early victories, such as the supposed Iranian suspension of nuclear activities, were undone; the actions of the Islamic Republic under Ahmadinejad were often perceived as being deceitful, in bad faith or defiant. Economic measures were taken to punish Iran and either scare it straight or at least impose a steep cost for its defiance. By mid-2013, most legitimate Iranian trade had, in effect, become sanctionable.¹⁹³

Of course, there is a difference between these two policy goals. To “scare Iran straight” would mean to force it into compliance. This was the publicly stated goal of the sanctions of the UN, the U.S. and the other powers that participated in the regime of economic punishment. The UNSCR 1803, for instance, stated that it was a reflection of “the council’s desire that Iran halt its enrichment program and ... comply with the IAEA.”¹⁹⁴ The U.S. government, for its part, has stated that American sanctions against Iran were designed to “deter, constrain, and encourage change in the adversarial behavior of the Iranian regime.”¹⁹⁵

To impose a cost for defiance, while linked, is not necessarily the same policy: It does not purport to be an effective way to get Iran to change course and fall in line with international demands; it merely acts as a punishment. Kelsey Davenport, who has spent many years observing and analyzing the Iranian nuclear program, pointed out this challenge during our interview.¹⁹⁶ Even policy makers themselves often don’t clearly communicate what the specific goal of a policy is, and it seems at least plausible that some of the time, they aren’t sure of it themselves. Economic sanctions have been extensively studied, and there have been repeated studies that prove that they can be effective – but the effectiveness of such measures seems to be dependent on them being tailored to achieve a specific and clearly defined policy aim.¹⁹⁷ While not exactly the same as targeted or “SMART” sanctions, the underlying idea is the same: To achieve a desired outcome, the imposing party must first be very clear about what the outcome that is to be reached should be in the first place.

Kheyrie (2023) has contributed a significant piece about the period being discussed in this hinge point.¹⁹⁸ She, too, investigated the dimension of economic pressure on Iran with a particular focus on the period being discussed in this chapter. What’s more, Kheyrie’s methods – relying on process tracing and in-depth historical research – are similar to the ones used in this paper.

¹⁹³ Easier Said than Done: Renewing Maximum Pressure on Iran // The Washington Institute. URL: <https://www.washingtoninstitute.org/policy-analysis/easier-said-done-renewing-maximum-pressure-iran> (accessed: 31.01.2025).

¹⁹⁴ United Nations Security Council. Resolution 1803 (2008).

¹⁹⁵ Thomas C. U.S. Sanctions on Iran, 2024.

¹⁹⁶ Davenport K. Interview with Linus Höller, 2025.

¹⁹⁷ Biersteker T, Eckert S, Tourinho M. Designing UN Targeted Sanctions-1, 2012.

¹⁹⁸ Kheyrie D. Effectiveness of sanctions as a tool of nuclear nonproliferation: case study of Iranian nuclear program, 2023.

Therefore, her work harbors valuable takeaways that I would be remiss if they weren't mentioned here.

Among the findings most relevant here is that Kheyrie independently arrived at the conclusion that sanctions were most effective when coordinated and used in a dedicated manner. In a mechanism that she refers to as a “force multiplier,” she argues that the achievement of the JCPOA demonstrated that sanctions work best as part of broader diplomatic engagement rather than as a standalone tool. Indeed, Kheyrie determined that harsher sanctions often led to a nuclear escalation rather than the intended policy outcome, especially in the immediate response (reminiscent of the first part of the mechanism described by Davenport).¹⁹⁹ There are many more dimensions which apply to the discussion of sanctions on Iran and have been discussed extensively by Kheyrie, but I shall refrain from repeating here. An important one, for example, was that she determined that the extent of the sanctions' impact was important for their success and that, by extension, the target's ability to engage in effective sanctions evasion played a role. Kheyrie's work is an excellent discussion of this, and I will refer any interested readers to her dissertation for further elaboration.

Kheyrie's findings are also relevant to the topic at hand insofar as this hinge point focuses on the dimension of economic pressure imposed on Iran from the outside – but Kheyrie's findings strongly suggest that the economic dimension alone may be insufficient to explain this outcome – i.e., both it and the diplomatic engagement were crucial ingredients to get Iran to back down from the nuclear threshold and work toward a deal like the JCPOA.

Nonetheless, it also remains a fact that the Joint Plan of Action of 2013 emerged out of the period of maximum comprehensive sanctions and those economic measures markedly influenced its conclusion. While the product of a major diplomatic effort by most of the involved stakeholders, the key driving force for Iran to agree to the JPOA (sometimes also referred to as JPA) was the economic pain that the sanctions inflicted on its economy – which will be discussed in some greater detail in the next subsection of this chapter. Under the preliminary agreement, Iran received limited sanctions relief – including access to some frozen assets, reduced restrictions on petrochemical exports, and permissions for the auto industry and precious metals trade – in exchange for halting aspects of its nuclear program. Even this modest relief demonstrated the potential economic benefits of a broader agreement. The Iranian economy showed initial signs of stabilization after years of contraction, creating political space for Iranian negotiators to pursue a comprehensive agreement despite domestic hardline opposition.²⁰⁰ It served as an important proof of concept for

¹⁹⁹ Ibid.

²⁰⁰ Dubowitz M. Iranian Economy Continues its Modest and Fragile Recovery. URL: <https://www.fdd.org/analysis/2014/04/10/iranian-economy-continues-its-modest-and-fragile-recovery/> (accessed: 28.04.2025).

both Iran and the outside powers that a comprehensive deal was possible and beneficial to develop for both sides.

Additionally, the JPA put into writing what the comprehensive agreement sought to achieve for both sides. On the Iranian side, the country would need to comply with the IAEA's rules and the Nonproliferation Treaty's provisions (but would also be afforded the rights it was owed under both). Importantly, however, it also laid out the requirements of the international side, which can also be read as the Iranian demands: That the outside world would comprehensively lift all UNSC, multilateral and national nuclear-related sanctions.²⁰¹

Thus, it was in pursuit of this goal – now codified and agreed to by all sides in the Joint Plan of Action – that Iran engaged with the international community on the road toward the Joint Comprehensive Plan of Action, as well.

Analysts broadly agree that economic sanctions encouraged Iran to return to the negotiating table.²⁰² And indeed, the evidence presented in the following pages makes a strong case for this interpretation. Iran's extreme vulnerability to oil export restrictions—oil accounted for up to 80% of government revenues—made it particularly susceptible to this form of economic coercion.²⁰³ When sanctions reduced exports to historic lows, the resulting fiscal and balance of payments crises created domestic pressure that made diplomatic resolution increasingly attractive compared to continued isolation.

Adding additional support to the analysis based on contemporary information, when Iran later violated the JCPOA's terms following the US withdrawal, Iranian officials explicitly linked these actions to “the failure of JCPOA signatories to meet their commitments under the deal and to deliver sanctions relief,” directly acknowledging the economic-nuclear compliance relationship as the central dynamic at play.²⁰⁴ This shows that while neither the JPOA nor the JCPOA could have been developed without diplomatic work, they also would not have been possible without the economic dimension that played a central role during this time period. Indeed, both the main stick and, by extension, the main carrot that the global powers had and employed against Iran were economic: The stick in the form of a punishingly restrictive global sanctions regime with few loopholes, and the carrot in the form of great possible economic gain should Iran choose to renege on its nuclear ambitions. The high degree of international cooperation and coordination made it all the more effective, with all P5 on the Security Council voting in favor of the resolution and all significant potential trade partners of Iran's adhering to the regime.

²⁰¹ Bipartisan Policy Center. Iran Nuclear Negotiations Crash Course, 2019.

²⁰² Laub Z. International Sanctions on Iran // Council on Foreign Relations. URL: <https://www.cfr.org/backgrounder/international-sanctions-iran> (accessed: 31.01.2025).

²⁰³ Iran's \$450 Billion Oil Loss Due to Sanctions // ISNA News Agency. URL: <http://aftabnews.ir/fa/news/807637> (accessed: 28.04.2025). [هاتحریم از ایران نفت دلاری میلیارد ۴۵۰ زیان].

²⁰⁴ Mills C. What is the status of Iran's nuclear programme and the JCPOA? 2024.

Global collaboration, in particular of the major powers, must be stressed as a significant factor in the making of the deal's success. Stephan Klement, the EU negotiator interviewed for this work, called it a "fundamental convergence of interests."²⁰⁵ The negotiators formed a special form of camaraderie and team spirit, he recalled, being "locked up in the Coburg prison," a jab at the palais that the diplomats and experts spent countless hours in. While, of course, there were differences in national positions, there was a feeling of a shared aim of getting this across the line – and the national governments had strong interests in doing so, each for their own reasons, Klement recalled.²⁰⁶

This is in particular contrast, as we shall see, to the next epoch, during which international consensus broke down. Indeed, it is remarkable that international cooperation continued throughout the JCPOA negotiation phase. As Vladimir Orlov points out, this included the period of a (hitherto) new low of an emerging new Cold War between the East and the West, following the integration of Crimea into Russia. Orlov points out that 2014 and 2015 presented a peculiar and tense moment, with the "United States, UK, France, Germany at the table, among others - and Russia at the same table. And, in a parallel universe, the Americans, the Brits, – they all were imposing sanctions on Russia, because of restored Russian sovereignty over Crimea."²⁰⁷

IV.3.3 Economic Indicators

The sanctions regime and subsequent relief created measurable economic effects that clearly demonstrate the international pressure's impact, although it is important not to construe impact with effectiveness in this case. An analysis of economic indicators serves to further illustrate the effect of the international economic measures against Iran and underscore some of the points made in the above analysis.

One of these is GDP growth. Iran is a developing country with a large population, a large industrial base and considerable potential. Throughout the era of economic sanctions on the country, the annual GDP growth was sometimes positive, sometimes negative, but averaged out to roughly 3%. Without the sanctions regime, researchers estimate that Iran's economic growth would have averaged 4 to 5% annually.²⁰⁸

By other measures, such as the World Bank's dataset, the Iranian economy contracted continuously from 2012 until 2015, when the JCPOA was implemented. According to the World

²⁰⁵ Klement S. Interview with Linus Höller // 2025

²⁰⁶ Ibid.

²⁰⁷ Orlov V, Semenov S. Russia-U.S. Nuclear Nonproliferation Dialogue: Lessons Learned and Road Ahead / PIR Center. Edited by Vladimir Orlov, Sergey Semenov. Moscow: Izdatelstvo Ves Mir, 2021 – 544 pp.

²⁰⁸ Laudati D, Pesaran M. H. Identifying the effects of sanctions on the Iranian economy using newspaper coverage // Journal of Applied Econometrics. 2023.

Bank, Iran had a GDP of \$644 billion in 2012, which dropped to just \$409 billion by 2015.²⁰⁹ The fact that the GDP rebounded and grew by 12.5% in 2016/17, when the JCPOA was first in force, suggests that the economic sanctions were indeed the overwhelming reason for this downturn in this key economic measure. A graph of Iran's annual GDP growth during the relevant period can be found in Appendix I.

Shahrokh Fardoust estimates that in the absence of the nuclear sanctions, Iran's economy could have continued to grow at the pre-2012 rate of a respectable 4.1% a year. This would have meant that per capita real income in 2019 could have been almost 30% higher than the level it was at in 2012; instead, it ended up 13.5% lower (though this was also affected by the imposition of maximum pressure sanctions by the U.S. after Donald Trump's decision to withdraw from the Iran deal).²¹⁰

Sanctions targeted the most important Iranian sector, oil, which accounts for around 80% of the government's revenue. In the period of comprehensive sanctions, oil exports from Iran nearly halved from 2.1 million barrels per day in 2011 to just 1.1 million in 2013.²¹¹ The fact that this decline was linked to the sanctions is not only underscored by the temporal coincidence but also by the subsequent trends: Oil exports rebounded immediately after the JCPOA was reached to pre-comprehensive-sanctions levels, and then fell to a new low after the United States unilaterally left in 2018. All of these trends are clearly visible on the graph in Appendix II, with key events annotated in the caption. Simultaneously, however, the importance of oil to the Iranian economy decreased somewhat. While still remaining a key income source, the oil sector contributed 30.7% to the country's GDP in 2008, but its share had reduced to 10.6% by 2015.²¹²

But although the economic measures were focused primarily on the Iranian oil industry, on isolating its banking sector and on preventing the transfer of arms or arms-related materials to the countries, the economic impacts were widespread and measurable using various indicators and parameters. Naturally, a lot of this impact will be a product of the downturn of these vital sectors of the Iranian economy, but the depth and breadth of the economic challenges that Iran faced in light of the international pressures – and the fact that they temporally coincided with the measures put in place to limit the country's nuclear program – nonetheless proves the impact that they had.

The word impact is deliberately chosen here rather than the word “effect,” although they are often used synonymously. The intended effect of the sanctions was to force Iran to the

²⁰⁹ World Bank. World Bank Open Data, 2025.

²¹⁰ Fardoust S. Macroeconomic Impacts of US Sanctions (2017-2019) on Iran. URL: <https://www.rethinkingiran.com/iran-sanctions-reports/fardoust> (accessed: 25.03.2025).

²¹¹ Iran Crude Oil: Exports, 1980 – 2024 // CEIC Data. URL: <https://www.ceicdata.com/en/indicator/iran/crude-oil-exports> (accessed: 25.03.2025).

²¹² Ghodsi M. Bad policy advice could lead to a catastrophe for Iran's public economy. URL: <https://www.mei.edu/publications/bad-policy-advice-could-lead-catastrophe-irans-public-economy> (accessed: 25.03.2025).

negotiating table regarding its nuclear program, or, by some actors' wishful thinking, to get it to abandon its nuclear ambitions altogether. Whether this effect has been accomplished is discussed elsewhere in this chapter and beyond. But the *impact* on the economic well-being of Iran is easier to measure and clearly visible in the dimensions that are discussed in this subchapter.

IV.3.4 Covert Actions

In the era discussed in this chapter, from 2006 through 2018, Iran's nuclear program became the target of some of the most sophisticated and multifaceted covert campaigns in modern history. They coincided with the economic pressure campaign by the global community against Iran, but were not always coordinated with it and did not always originate from the same main players as the international sanctions regime. The diplomatic impasse that also led to the creation of the global sanctions regime against Iran further resulted in conditions where several nations, particularly those viewing a nuclear-armed Iran as an existential threat, pursued covert means to impede Iran's nuclear advancement. The operations that followed represented an alternative to conventional military strikes while offering plausible deniability to the perpetrators.

For instance, Israel appears to have played an outsized role in the covert activities, while it did not have a significant part in the economic pressure. This is due to the animosity between the two Middle Eastern nations, a propensity among Israeli leadership to not engage with Iran directly, the already negligible bilateral trade between the two parties, Israel's limited influence on the world stage and its being home to a highly capable set of intelligence agencies.

Indeed, "Israeli sabotage" was also cited by Stephan Klement, one of the EU's top negotiators of the JCPOA, in an interview conducted for this work as a crucial factor pushing the Iranians to the negotiating table.²¹³ Simultaneously, however, he said that regional power dynamics were almost a complete afterthought to the Iranian negotiators in Vienna. Israel was not perceived as a genuine military threat, he understood, with the Iranian negotiators being firmly convinced that the country could and would be steered by the United States into not attacking Iran as long as negotiations were ongoing or a deal was in force. Neither was there any interest from Iran regarding any other possible security risks by regional players, as some outside analysts had suggested might be the case.²¹⁴

The perhaps most widely-known instance of covert activities directed against the Iranian nuclear program was the Stuxnet attack, codenamed Operation Olympic Games. Stuxnet was a

²¹³ Klement S. Interview with Linus Höller, 2025.

²¹⁴ Kerr P. Iran's Nuclear Program: Tehran's Compliance with International Obligations // Congressional Research Service, 2025.

carefully crafted computer worm that was designed to target the Siemens-made controllers of the Iranian centrifuge plants, altering both the physical parameters of the centrifuges to be outside of the optimal operating range (and so damaging them over time), and the output of the Siemens controllers to make it look like everything was operating normally. The sophisticated nature of the program as well as the attack, combined with the target that was chosen and successfully infiltrated despite its security measures, has led to a common agreement that a state actor is very likely behind the attacks. This is despite the fact that to date, no government has formally come forward and claimed the cyberattack. It is reported that the cyberattack – which marked a watershed moment in cyber warfare for bridging the digital and physical worlds – resulted in the untimely demise of around 1,000 centrifuges (a fifth of the Iranian total at the time²¹⁵) and may have delayed the nuclear program by as much as a year.²¹⁶

However, reporting has shown that the worm was almost certainly part of a larger operation of cyber campaigns against Iran that began under the American George W. Bush administration and that Stuxnet was further developed in collaboration with Israel.^{217 218} But while the Stuxnet campaign was the most visible – primarily because it escaped its intended target and was ultimately detected by a cybersecurity firm in Belarus – it was not the first. Journalists have reported that U.S. intelligence had already previously sabotaged the Iranian nuclear program under George Bush, with the CIA introducing faulty parts into the Iranian supply chain, including power supplies that were reportedly rigged to explode. The covert American sabotage and intelligence campaign was reportedly started in 2006, with Bush seeing it as the only way to dissuade Israel from launching military strikes against Iran.²¹⁹

While there was no overt military action against Iran in this time frame (with the first direct exchange of military blows between Israel and Iran taking place in 2024), between 2007 and 2012, at least six Iranian nuclear scientists were targeted in assassination operations, with five killed and one wounded.²²⁰ These carefully orchestrated killings were likely part of a covert campaign designed to eliminate key personnel and instill fear among remaining scientists. The methods included fatal motorcycle bombings and shootings.

²¹⁵ Broad W, Markoff J, Sanger D. Israeli Test on Worm Called Crucial in Iran Nuclear Delay // The New York Times, 2011.

²¹⁶ Anderson C, Sadjadpour K. Iran's Cyber Threat: Espionage, Sabotage, and Revenge. URL: <https://carnegieendowment.org/research/2018/01/irans-cyber-threat-espionage-sabotage-and-revenge?lang=en> (accessed: 25.03.2025).

²¹⁷ Sanger D. Obama Order Sped Up Wave of Cyberattacks Against Iran // The New York Times, 2012.

²¹⁸ Kamiński M. Operation "Olympic Games." Cyber-sabotage as a tool of American intelligence aimed at counteracting the development of Iran's nuclear programme // Security and Defence Quarterly, 2020.

²¹⁹ Sanger D. Obama Order Sped Up Wave of Cyberattacks Against Iran // The New York Times, 2012.

²²⁰ Jedinia M. History of Assassinations of Iran's Top Nuclear Scientists // VOA, 2020.

The campaign was likely designed to degrade human capital and induce operational disruption, actions widely attributed to foreign intelligence services. While these operations removed key individuals and may have intermittently slowed specific projects, Iran rapidly substituted personnel, hardened security, and sustained enrichment and related R&D throughout the period. It appears the assassination campaign did not strategically halt the program's advancement. Consequently, these killings are best understood as part of a broader covert pressure track that raised costs and caused delays at the margins without altering the nuclear program's long-term trajectory.

In addition to the assassinations and assassination attempts – of which there may have been more that did not make it into the media – there were also happenings that strongly suggest sabotage. These include explosions at military and IRGC facilities, particularly those related to the rocket forces. While this may seem unrelated to the nuclear program in particular at first, it must be kept in mind that missiles are the most likely means of delivery for any possible Iranian nuclear device. The miniaturization efforts that Iran seemingly has worked on in the past also suggest delivery by missiles.

It is difficult to say with certainty who was behind these covert campaigns and what their policy aims were. It seems clear, however, that they were aimed specifically at the country's nuclear program. Whether the aim was to instill fear, prevent or slow down further progress, eliminate key figures, make individuals involved in the program pay a personal price, cause defections, or any other set of possibilities will likely only become clear if and when archives in the countries that organized these cover campaigns are opened. While it seems probable that Israel was behind many of these operations simply due to their stake in the matter and historically proven propensity for such action-movie-like intelligence operations, it is also entirely possible that other countries had a part too. This could come in the form of intelligence sharing, planning and logistical support of Israeli operations, or simply by running their own, independent covert campaigns. For sure, during the period of heightened attention on the Iranian nuclear program that was discussed in this chapter, most countries' intelligence agencies will have had a keen eye on Iran, and many will have engaged both in information collecting and potentially in more active forms of intelligence operations.

Similarly, the effectiveness of undercover operations is difficult to assess. This is in large part a product of the clandestine nature of these missions. While we know about some of them, many others likely remain under wraps. Even more might have been misinterpreted: A fire at a transformer site might well have been sabotage, but may not have been reported on as such, for instance. Additionally, it is less likely that Iran would acknowledge espionage activities for fear of revealing its own knowledge and countermeasures.

Muhammad Sahimi, writing for the Quincy Institute for Responsible Statecraft, argues that “None of the acts of assassinations and sabotage, with the possible exception of the Stuxnet attack, has appreciably slowed Iran's missile and nuclear programs. The science has become indigenous,” he continues, “and when a program's leader is killed, many are ready to take over.”²²¹ Similarly, Richard Maher, writing for the European University Institute, argued in 2012 that the clandestine operations against Iran were becoming “increasingly ineffective, self-defeating, and counterproductive.”²²²

Based on the process tracing analysis above, economic sanctions emerge as the more significant explanation for Iranian decision-making leading to the JCPOA, although covert actions cannot – and should not – be discarded from the analysis. While they certainly played a role in heightening the sense of urgency and vulnerability in Iran, and contributing to the calculus that a deal may provide a better guarantee for Iranian safety than the status quo, the evidence suggests the quest for economic relief was more decisive, as evidenced by the Iranian statements and actions to this effect.

IV.4 Period of Implementation

For the sake of completeness and in the interest of providing valuable context and analysis for the next and final section, there is a significant post-hinge point period that needs to be analyzed, but that fits neatly into neither of the chapters. This is the brief reign of the JCPOA itself.

The implementation phase of the Joint Comprehensive Plan of Action between January 2016 and May 2018 marked a critical turning point in the trajectory of the Iranian nuclear program, at least while it lasted in its full form. This period saw unprecedented international verification mechanisms and complex sanctions relief processes as mandated by the multilateral agreement. The interplay between economic normalization and nuclear compliance revealed both the potential and limitations of the “economic formula” underpinning the agreement.

The era of the JCPOA began on January 16, 2016, known as “Implementation Day” and more formally marking the IAEA’s certification that Iran had fulfilled its initial nuclear commitments.²²³ In a letter dated that day, the International Atomic Energy Agency communicated to the UN’s Security Council line for line its assessment of Iranian compliance with the terms of the JCPOA. The IAEA Director General, for instance, certified that Iran was “not accumulating

²²¹ Sahimi M. Iran’s nuclear advances went on, even as its scientists were picked off, one by one // Responsible Statecraft. URL: <https://responsiblestatecraft.org/2020/12/01/irans-nuclear-advances-went-on-even-as-its-scientists-were-picked-off-one-by-one/> (accessed: 25.03.2025).

²²² Maher R. The Covert War against Iran’s Nuclear Program: An effective counterproliferation strategy? 2012.

²²³ Davenport K. The Joint Comprehensive Plan of Action (JCPOA) at a Glance. URL: <https://www.armscontrol.org/factsheets/joint-comprehensive-plan-action-jcpoa-glance> (accessed: 09.04.2025).

enriched uranium through its enrichment research and development” activities and that the country’s authorities had “removed the existing calandria from the IR-40 Reactor” at Arak.²²⁴

Among the other key stipulations that Iran had agreed upon under the JCPOA was the reduction of the country’s uranium stockpile by 98% from approximately 10,000 to just 300 kilograms, limiting uranium enrichment to the standard commercial level of 3.67% and reducing installed centrifuges from about 19,000 to 6,104 IR-1 models, with only 5,060 of them permitted to enrich uranium.

To make sure that Tehran remained in compliance, the negotiating parties had agreed on a robust and highly intrusive verification regime at the hands of the IAEA. The agency’s director general, Yukiya Amano, said of this arrangement in October 2017 that “At present, Iran is subject to the world’s most robust nuclear verification regime.”²²⁵ To fulfil its mandate, the IAEA deployed its full range of monitoring equipment, including electronic seals, remote surveillance cameras and online enrichment measurement devices at Iran’s declared nuclear facilities. They were complemented by on-the-ground inspections by the agency’s purpose-assembled inspection teams. By 2018, IAEA inspectors were spending a combined 3,000 calendar days per year on the ground in Iran and had installed 2,000 tamper-proof seals. In just two years, the IAEA had visited more than 190 buildings in Iran.²²⁶ The findings were released by the IAEA consistently during the period of implementation in the form of quarterly reports, sharing the findings of Iran’s continued compliance.

While the rest of the world got significant concessions on Tehran’s nuclear program, Iran got economic benefits out of the deal, primarily in the form of sanctions relief. Nuclear-related sanctions that were imposed by the UN, EU and U.S. were lifted, although many non-nuclear U.S. sanctions remained in place, which somewhat blunted the effect of the lifting of sanctions (particularly as some companies and countries feared the risk of secondary sanctions).

Europe, due to its geographic proximity and self-ascribed role as a significant player in the Iran saga, was the Western region that saw perhaps the most substantial increase in trade with Iran. German economic data showed significant growth in trade with Iran following Implementation Day. According to the German Federal Statistical Office, German exports to Iran increased by 26% in 2016 compared to 2015, reaching €2.6 billion.²²⁷ However, major German banks remained hesitant to finance deals with Iran, primarily due to concern over the remaining U.S. sanctions.

²²⁴ UN Security Council (71st year: 2016) President, IAEA Director General. Note [transmitting report from IAEA on verification and monitoring in the Islamic Republic of Iran in light of Security Council Resolution 2231 (2015)], 2016.

²²⁵ Amano Y. Statement by IAEA Director General Yukiya Amano. URL: <https://www.iaea.org/newscenter/statements/statement-by-iaea-director-general-yukiya-amano-13-october-2017> (accessed: 09.04.2025).

²²⁶ Ibid.

²²⁷ Heller G, Martin M. German exports to Iran soared by 26 percent in 2016, DIHK says // Reuters, 2017.

German media at the time reported that the country's companies continued to struggle with significant hurdles in business with Iran despite the nuclear agreement.

Some of the skepticism of doing business with Iran was also the consequence of the fact that while there was indeed a breakthrough on the nuclear file, the larger animosity between the U.S. and significant parts of the outside world on the one side, and Tehran on the other, remained. Even with its nuclear program on ice, Iran remained a significant regional power and one with ambitions to play a leading role in this strategically important part of the world that, particularly at the time, saw much involvement of outside European and North American powers. One way that modern Iran seeks to influence the events in its surroundings is through the extensive use of proxy forces, and during the period of the deal's existence, Iran was "distributing almost \$20 billion per year to its proxies throughout Lebanon, Gaza, Iraq and Yemen, and it is backing President Assad in Syria," British parliamentarians stated.²²⁸ The broader geopolitical clash in world views and interests between the West and Iran persisted even throughout the nuclear deal. The growing rift between the West and Russia, too, would increasingly come to play a role; Iran, like Russia, chose to support the Assad government in Syria, for instance, while Russia and Iran forged closer links under the lifted international restrictions on Iran that would persist past the breakdown of the JCPOA and further major geopolitical shifts.

While remaining barriers to full economic engagement surely caused some discontent in Tehran, on the flip side, there was some consternation in the outside world, particularly about Iran's plutonium path to the nuclear bomb. The Arak heavy water reactor had been modified to alleviate its weaponization risk, as had been verified by the IAEA in anticipation of Implementation Day.²²⁹ However, reports later emerged that suggested that Iran may have bought the materials required to reconstruct the calandria and resume its plutonium enrichment capacity within a short timeframe. Speaking to an Iranian television channel about the calandria's components in January 2019, the head of the Atomic Energy Agency of Iran, Ali Akbar Salehi, revealed that "We had bought the same quantity of similar tubes. When they told us to pour cement into the tubes... we said: 'Fine. We will pour.' But we did not tell them that we had other tubes."²³⁰

This development, while not strictly prohibited by the JCPOA, raised concerns about Iran's long-term intentions and highlighted a weakness in the agreement's provisions regarding the Arak facility. The agreement did not explicitly prohibit Iran from purchasing replacement calandria tubes, although it barred Iran from pursuing the reactor's original design or constructing new heavy-water reactors for 15 years.

²²⁸ Government Policy on Iran - Hansard - UK Parliament, 2020.

²²⁹ Rauf T. Implementation of the Joint Comprehensive Plan of Action in Iran // SIPRI Yearbook, 2019.

²³⁰ Iran Nuclear Chief: We Purchased Replacements for Nuclear Equipment the JCPOA Required Us to Destroy, 2019.

But despite not being explicitly barred by the deal, the purchase of replacement tubes suggested to outside observers that Iran was maintaining the option to revert to the original design if the agreement collapsed. It also fanned preexisting suspicions that Iran was somehow “gaming” the outside world and had no intentions of using nuclear energy only peacefully. It was pounced on by hawkish foreign media, particularly Israeli news outlets and Iran-skeptical U.S. academics, as proof that Iran had every intention of bending or breaking the rules of the JCPOA as it saw fit to pursue its nuclear weapons program.²³¹

It's these underlying suspicions and the broader geopolitical context that the Iranian nuclear file fell under that ultimately led to the unraveling of the nuclear deal at the hands of the next U.S. administration.

²³¹ Ben-David L. Iranian Official Admits Lying about Filling Arak Plutonium Reactor with Cement. URL: <https://jcpa.org/iranian-official-admits-lying-about-filling-arak-plutonium-reactor-with-cement/> (accessed: 09.04.2025).

CHAPTER V. THE POST-JCPOA WORLD (2018-2025)

On May 8, 2018, Donald Trump, the president of the United States at the time, announced that he would withdraw his country from the Joint Comprehensive Plan of Action, the Iran deal that he had so heavily criticized on the campaign trail. What followed was a period of unprecedented Iranian nuclear escalation, with the country's nuclear program eventually returning in full force, both in the civilian realm and also taking steps that were harder to find legitimate justifications for, such as enriching uranium to near weapons-grade (and small quantities all the way to weapons-grade) levels.

While the JCPOA continues to exist on paper, with only the U.S. having formally left, it is practically dead for all intents and purposes. Attempts by the remaining stakeholders, first and foremost European countries, to salvage what they could were ineffective.

The hinge point that will be analyzed in this chapter will not be the American decision to withdraw, but rather the Iranian choice to break the terms of the deal and begin enriching to higher levels and exceed other limitations (e.g. producing uranium metal, ceasing implementation of the additional protocol) exactly a year after the U.S. withdrew from it. This hinge point was selected because it allows more extensive analysis regarding the effects, or possible lack thereof, of international efforts and actions in this most recent period. The dimension of international action that analysis will primarily focus on is again the economic dimension, as this was the underlying force that kept the JCPOA together and it also played a considerable role in the Iranian considerations of what to do in the aftermath of Trump's decision, as well as informing the European, Russian, Chinese and regional players' calculus.

A secondary dimension that will find recognition is the threat and use of military force. This period has seen a dramatic escalation in regional tensions and remarkable domino effects of regional happenings. The Hamas attack on Israel on October 7, 2023, and subsequent brutal Israeli war on Gaza sent ripples through the region that turned out to also be highly relevant for the case at hand. Not only did the volatility contribute to what became the first set of direct military exchanges between Iran and Israel, in the form of mutual missile and air strikes, but it also fundamentally shifted the balance of power in the Middle East. At the time of writing, it appears that Iran and regional groupings aligned with it are likely to come out of the turmoil significantly weakened. Several of its proxies have faced devastating setbacks, including Hamas in Gaza and Hezbollah in Lebanon. Additionally, the collapse of the Syrian government of Bashar Al-Assad also presents a significant loss of an important tool of power projection to Tehran.

Because of this, it will be important to analyze both the economic dimension, more immediately relevant at the time of the Iranian decision to exceed JCPOA limits, and the dimension

of military pressure, which has become more front-and-center in recent years. A similar approach will be taken as in the previous chapter to capture important dynamics of bidirectional causality.

It is important to note that Iran maintains that its reduced compliance with the JCPOA is not a violation but rather a legally justified response to other parties' failure to fulfill their commitments under the agreement. Iran has cited specific provisions within the JCPOA itself to justify its actions. In May 2019, Iranian President Hassan Rouhani invoked Paragraph 26 of the agreement, which states that Iran can “treat such a re-introduction or re-imposition of the sanctions specified in Annex II, or such an imposition of new nuclear-related sanctions, as grounds to cease performing its commitments under this JCPOA in whole or in part.”²³²

V.1 The American Withdrawal and Immediate Reactions

The American withdrawal had long been teased, but some pundits – and foreign governments – had held onto hope that it might be campaign bluster or a diplomatic pressure tactic, with no actual intention by Trump to withdraw from an agreement that was generally perceived as being the best of the options.

Trump had recertified the Iran deal twice in 2017, highly reluctantly but ultimately deferring to the advice from his advisors.²³³ He again extended the sanctions waiver that was the central American commitment to the deal in early 2018, though he emphasized that this would be Iran's “last chance,” and he only took the step to allow European allies to “fix” the “disastrous” deal.²³⁴

In May, when the deadline came to re-extend the sanctions waiver, Trump chose not to do so and instead withdrew the United States from the agreement altogether. The Americans, key architects of the deal in the first place, were out and their trade restrictions on Iran were back in place. Trump, while announcing the withdrawal, had called the deal “decaying and rotten,” and added that it was “an embarrassment.”²³⁵ The fact that it was a lasting foreign policy legacy of his predecessor may also have played a role in his personal animosity toward it.

Reactions from around the world to the American decision were overwhelmingly negative. “France, Germany, and the UK regret the US decision to leave the JCPOA. The nuclear non-

²³² Kerr P. Iran's Nuclear Program: Tehran's Compliance with International Obligations // Congressional Research Service, 2025.

²³³ Baker P. Trump Recertifies Iran Nuclear Deal, but Only Reluctantly // The New York Times, 2017.

²³⁴ Trump D. Statement by the President on the Iran Nuclear Deal. URL: <https://web.archive.org/web/20180501101421/https://www.whitehouse.gov/briefings-statements/statement-president-iran-nuclear-deal/> (accessed: 31.01.2025).

²³⁵ Fox K. European leaders ‘disappointed’ in Trump's withdrawal from Iran deal. URL: <https://www.cnn.com/2018/05/08/europe/iran-deal-world-leaders-react/index.html> (accessed: 31.1.2025).

proliferation regime is at stake,”²³⁶ wrote Emmanuel Macron, the president of France, on Twitter and echoed the sentiment in a joint press release.²³⁷ The immediate reaction of the pivotal European leaders was to try to rescue the JCPOA. The second sentence of the joint press release was that “together, we emphasize our continuing commitment to the JCPOA.”²³⁸ The EU’s high representative for foreign affairs, Federica Mogherini, addressed Iran directly, urging them: “Do not let anyone dismantle this agreement.”²³⁹ Similarly, the UN’s secretary general said he was “deeply disappointed” and he, too, called on the remaining signatories to “abide fully” by their commitments.²⁴⁰ Russia, too, expressed deep displeasure with the American decision, calling out Washington for its “defiance of the opinions of the majority of states ... while grossly violating international law.” The Russian foreign ministry said further that “there are no and cannot be any ground for undermining the JCPOA. ... It efficiently tackles all the challenges it is designed to address.”²⁴¹ China also condemned Trump’s withdrawal, and while the foreign ministry urged all parties to adhere to the deal, state-run media seemed not to harbor these illusions.²⁴² The state-run Xinhua news agency, for instance, called it a “huge blow to peace and security in the Middle East,” all but calling the deal dead, while other parties still, at least publicly, held onto hope and pledged to work around the U.S.²⁴³

Crucially, Iran also signaled its willingness to remain in the deal. The initial reaction put out by the Iranian presidency emphasized the country’s commitment to the deal, while also making it clear that the onus was now on Europe to find a way to keep it viable.²⁴⁴ Rouhani also expressed frustration that Europe had, in his point of view, wasted four months trying to convince Trump to stay in the deal rather than seeking closer cooperation with Iran and developing “broader interaction between Iran and Europe.”²⁴⁵ While not using the words directly, the Iranian statement

²³⁶ Emmanuel Macron [@EmmanuelMacron]. France, Germany, and the UK regret the U.S. decision to leave the JCPOA. The nuclear non-proliferation regime is at stake. URL: <https://x.com/EmmanuelMacron/status/993920765060878336> (accessed: 31.01.2025).

²³⁷ Macron E, May T, Merkel A. France, UK and Germany regret US decision on Iran. URL: <https://lc.ambafrance.org/France-UK-and-Germany-regret-US-decision-on-Iran> (accessed: 31.01.2025).

²³⁸ Ibid.

²³⁹ France, Britain, Germany «regret» Trump’s decision to leave Iran nuclear agreement. URL: <https://www.pbs.org/newshour/nation/france-britain-germany-regret-trumps-decision-to-leave-iran-nuclear-agreement> (accessed: 31.01.2025).

²⁴⁰ Ibid.

²⁴¹ Russian Reactions on Trump’s Decision To Exit The Nuclear Deal. URL: <https://www.memri.org/reports/russian-reactions-trumps-decision-exit-nuclear-deal> (accessed: 31.01.2025).

²⁴² Rising Powers Condemn US Exit from Iran Deal – Rising Powers Initiative. URL: <https://www.risingpowersinitiative.org/publication/rising-powers-condemn-us-exit-from-iran-deal/> (accessed: 31.01.2025).

²⁴³ Xinhua Headlines: Quitting Iran nuke deal, Trump harms peace, security in Middle East - Xinhua | English.news.cn. URL: http://www.xinhuanet.com/english/2018-05/10/c_137169781.htm (accessed: 31.01.2025).

²⁴⁴ Rouhani H. Europe has limited time to save JCPOA, voice stances on its obligations/Iran’s interests in JCPOA must clearly be determined, guaranteed/JCPOA an int’l agreement; repeated breach a historic shame for US administration. URL: <https://president.ir/en/104291> (accessed: 31.01.2025).

²⁴⁵ Ibid.

heavily implied an emphasis on the economic dimension, expressing the hope that the large European economy might be able to offset the re-imposition of sanctions by the United States.

V.2 Hinge Point: Iranian Decision to Exceed JCPOA Limits

Iran showed considerable restraint and waited one year before exceeding the limits that were set on its nuclear program under the JCPOA. What followed was a calculated, but nonetheless major escalation in its nuclear posture; the country resumed prohibited activities, significantly restricted itself to international inspection and verification possibilities, threatened to leave the NPT on several occasions, sabotaged international nuclear- and nonproliferation-related proceedings, enriched uranium to a high level, and later (starting around 2024) opened the space for public debate within Iran to increasingly openly discuss the possibility of nuclear weapons.

The Iranian decision to drop full compliance with the JCPOA, while of course a delayed reaction to the fact that the U.S. decided to withdraw from the deal and so significantly kneecapped it, was nonetheless a separate event and one that warrants analysis on its own, too. In particular, it is relevant to investigate why Iran, despite the one-year moratorium, felt or decided that this was the best way forward for its own national interests or that there was no other way to proceed. In doing so, we can identify the main actions that the international community took in relation to the decision, and evaluate where they failed – or whether they may have succeeded, considering the circumstances.

Although their view on Iranian compliance with the nuclear deal and the utility of the agreement differed greatly from the preceding Obama administration, the new Trump administration stuck to the centrality of the economic dimension of pressure when it comes to effecting change in Iran's stance or at least punishing the leaders in Tehran for their actions. The withdrawal was backed up by the imposition of sweeping sanctions going even beyond the measures of what had been in place against Iran before and during the JCPOA negotiations. The U.S. government fittingly referred to this slew of measures as its “maximum pressure campaign.”²⁴⁶

The first set of economic measures was implemented by the United States on the 7th of August 2018, prohibiting Iran from buying US currency and precious metals, aimed directly at severing Tehran from the international financial system. Additionally, there were economic

²⁴⁶ Rezaian J. Opinion. A requiem for Trump's failed Iran envoy // The Washington Post, 2020.

sanctions on wide parts of the Iranian industry, including such things as the automotive and aviation sectors, health care and even carpets.²⁴⁷

More sanctions followed three months later in November, including sanctions on 700 individuals, entities, ships and aircraft in addition to all significant banks, oil exporters and shipping companies.²⁴⁸ The sweeping nature of these measures – along with the openly stated intent repeated by U.S. policymakers aplenty – proves that the United States prioritized the economic dimension of international pressure to help it with its persistent Iran problem. This prioritization came from the very top of the administration, with Donald Trump himself saying that crashing Iran’s economy and in particular, its oil exports was his intended goal, reportedly²⁴⁹ adding that “this is the only way to deal with them. We have to squeeze their economy to force them to negotiate.”²⁵⁰

Very unlike the runup to the JCPOA agreement, the outside world presented far from a unified front when it came to dealing with Iran. The United States stood on its own with its decision to find Iran in supposed noncompliance with the deal and especially in its decision to tear the agreement up. There were, of course, transatlantic tensions already brewing between the Trump administration and the European Union and its key members. These were caused by ideological differences and a nonalignment of world views, as well as by Trump’s occasional talk – and action – surrounding “trade wars” and the imposition of tariffs even on friendly nations.

But the disagreement when it came to Iran was put on full display in the year following the U.S. withdrawal from the deal. On January 31, 2019, the European Union launched its INSTEX initiative, which was designed to be a special-purpose mechanism to facilitate trade with Iran while avoiding using the U.S. Dollar, and so avoiding the U.S. financial system and its sanctions. INSTEX, short for Instrument in Support of Trade Exchanges, was initially meant to deal only in humanitarian goods but was viewed and marketed²⁵¹ as a European attempt to leverage its economic clout to support the continued existence of the JCPOA.²⁵²

The initiative was spearheaded by France, Germany and the UK, marking the three most economically significant players in the European Union at the time (although the UK was due to

²⁴⁷ Gürbüz A. Waves of the US Sanctions on Iran: A Chronology. URL: <https://politicstoday.org/waves-of-the-us-sanctions-on-iran-a-chronology/> (accessed: 14.04.2025).

²⁴⁸ Ibid.

²⁴⁹ Maximum pressure: A recurring theme in US-Iran relations. URL: <https://shafaq.com/en/Report/MAXIMUM-PRESSURE-A-recurring-theme-in-US-Iran-relations> (accessed: 28.04.2025).

²⁵⁰ Maximum pressure: A recurring theme in US-Iran relations. URL: <https://shafaq.com/en/Report/MAXIMUM-PRESSURE-A-recurring-theme-in-US-Iran-relations> (accessed: 28.04.2025).

²⁵¹ Le Drian J.-Y, Maas H, Hunt J. Joint Statement on the Creation of INSTEX, the special purpose vehicle aimed at facilitating legitimate trade with Iran in the framework of the efforts to preserve the Joint Comprehensive Plan of Action (JCPOA), 2019.

²⁵² Coppola F. Europe Circumvents U.S. Sanctions on Iran // Forbes, 2019.

exit the EU by January 1, 2020). Six other European countries later joined the scheme as stakeholders, although it was “available to all EU member states.”²⁵³

Much more than a useful tool for cross-border trade avoiding U.S. sanctions, INSTEX was first and foremost of diplomatic importance: It signaled European commitment to the JCPOA despite the U.S. withdrawal and strengthened the continent’s position as a political counterweight in the international community to the American decision.

But as a vehicle to alleviate the economic pressure inflicted by the United States, one must consider INSTEX an almost complete failure. Its first transaction did not take place until a year after the initiative was created, in 2020, when a transfer related to medical needs surrounding the COVID pandemic was made, worth around half a million Euros.²⁵⁴ This was far from sufficient to offset the loss in foreign trade volume that resulted from the reimposition of the American sanctions and from Washington’s “maximum pressure” campaign, which amounted to billions of dollars. Iran had suspected as much, decrying the effort as being much too little as early as March 2019, when the country’s supreme leader called the “financial channel introduced recently ... a bitter joke.”²⁵⁵

It took a year from Trump’s withdrawal from the JCPOA to the time INSTEX was active, which alone would have been enough to call into question Europe’s commitment and/or its willingness to leverage economic might to alleviate the negative impacts of the American decision, even if that might anger Washington. The low volume, anticipated by Iran, would only add insult to injury further down the line. The fact that INSTEX was not a success story is proven further by the fact that it was shut down for good just about five years after it was created.²⁵⁶

While Europeans were struggling to prove their goodwill in disobeying U.S. interests in favor of rescuing the Iranian nuclear deal, the United States further expanded its restrictions squeezing Tehran when, on April 22, the U.S. announced it would terminate the waivers it had issued for eight countries to continue importing Iranian oil. The White House stated that this was meant “to bring Iran’s oil exports to zero.”²⁵⁷

²⁵³ Mogherini F. Chair’s statement following the 28 June 2019 meeting of the Joint Commission of the Joint Comprehensive Plan of Action, 2019.

²⁵⁴ Basquill J. Europe-Iran trade vehicle completes first transaction. URL: <https://www.gtreview.com/news/mena/europe-iran-trade-vehicle-completes-first-transaction/> (accessed: 14.04.2025).

²⁵⁵ Leader likens European financial mechanism to a ‘bitter joke’. URL: <https://www.tehrantimes.com/news/434253/Leader-likens-European-financial-mechanism-to-a-bitter-joke> (accessed: 14.04.2025).

²⁵⁶ Foreign, Commonwealth & Development Office. The 10 INSTEX shareholder states have decided to liquidate INSTEX due to continued obstruction from Iran: E3 statement. URL: <https://www.gov.uk/government/news/the-10-instex-shareholder-states-have-decided-to-liquidate-instex-due-to-continued-obstruction-from-iran> (accessed: 14.04.2025).

²⁵⁷ US to end sanctions waivers for Iranian oil imports // DW, 2019. URL: <https://www.dw.com/en/us-to-end-sanctions-waivers-for-iranian-oil-imports/a-48435237> (accessed: 14.04.2025).

In addition to (largely unsuccessfully) trying to invent new ways of doing business with Iran, the Europeans also reached into their toolkit of regulation to try to mitigate the impact of the reimposition of American sanctions. For this, Europe relied on the Blocking Mechanism, which had been created in the 90s to counteract the American sanctions on countries such as Cuba. The act was updated to now explicitly include Iran. The provision has a complicated history, rooted in part in proceedings litigating between the Europeans and the Americans before the WTO, but at its core, it was meant to create a legal framework to emphasize that European businesses did not have to comply with U.S. sanctions unless there were corresponding European measures in place.²⁵⁸ However, what the measure ultimately primarily seemed to achieve was to create an even greater dilemma for European companies: They now risked prosecution by European courts if they were complying with U.S. provisions against Iran, while also risking losing business with the U.S. and facing secondary sanctions if they did not do so.

Ultimately, the collapse of trade between Europe and Iran indicates that the decision to play it safe rather than to support European geopolitical ambitions prevailed among businesspeople across the Union. It can also be argued that it was a product of insufficient willpower on the part of European policymakers. A counterfactual is impossible to prove for certain, but it seems at least plausible that more assertive policy measures by the European Union or EU states' governments could have incentivized even the risk-averse business world to continue to engage (or even increasingly engage) with Iran.

The breakdown of international agreement on what to do about Iran in the wake of the American bombshell decision is underscored by the different responses that other major powers beyond the traditional transatlantic allies had, too.

From the Russian perspective, the situation reflected the unfairness of U.S. unilateralism. Russian sources highlighted how U.S. secondary sanctions affected not just Iran but Russia's own interests and other countries attempting to maintain legitimate trade with Iran. In some conception of this perspective, economic sanctions are seen as an illegitimate extension of U.S. power rather than a justified response to Iranian behavior.²⁵⁹ While this position was present in the immediate aftermath of Trump's withdrawal, this view on sanctions – even those that Russia had supported through venues such as the UNSC – has become much more pronounced since the imposition of sweeping sanctions against Russia itself following the outbreak of the war in Ukraine.

²⁵⁸ Schueren P. EU Top Court Issues First-Ever Judgment on the EU Blocking Statute Against US Sanctions | Insights // Mayer Brown. URL: <https://www.mayerbrown.com/en/insights/publications/2021/12/eu-top-court-issues-first-ever-judgment-on-the-eu-blocking-statute-against-us-sanctions> (accessed: 14.04.2025).

²⁵⁹ Timofeev I, Sokolshchik Y, Morozov V. Sanctions against Iran: Lessons for Russia in the new international context // Vestnik of Saint Petersburg University. International relations, 2022.

Russia consistently framed itself as a defender of the JCPOA's legitimacy, citing UN Security Council Resolution 2231. Deputy Foreign Minister Sergey Ryabkov argued that Iran's incremental breaches after 2019 were justified responses to U.S. violations, stating Iran had "every right" to reduce compliance after Washington's withdrawal. This narrative positioned Russia as a guardian of multilateralism while undermining Western claims of Iranian intransigence.²⁶⁰

At the same time, there was at least a certain degree of Russian ambivalence toward the failure of the nuclear deal. While there had, of course, been a Russian willingness to engage in the deal because Moscow thought that it would bring benefits, there had also always been a strong counterargument from Moscow's point of view, particularly after 2014. The concern was that a normalization of relations between Iran and the West would negatively affect the fairly friendly relationship between Tehran and Moscow. Indeed, in a leaked audio tape of Mohammad Javad Zarif, the Iranian foreign minister, suggested that Russia had been concerned about the success of the JCPOA "because it was not in Moscow's interests for Iran to normalize relations with the West."²⁶¹ This ambivalence to the success of the JCPOA, present at least in part of the Russian foreign affairs establishment, became even more pronounced post-2022.²⁶²

Trade with Russia also expanded, particularly after Russia's own isolation from the global financial and trade systems starting in February 2022. However, the expanding trade with Iran – growing by 10% just in the first quarter of 2022²⁶³ – was almost certainly not in an attempt to salvage the JCPOA but rather to form an anti-Western axis of geopolitical convenience. It grew not because of the nuclear program or any attempt to restrict it, but for much the same reasons that bilateral trade between Russia and China, India and the DPRK grew in the same time period.

In the aftermath of the American withdrawal, China, too, played a game of walking the tightrope. Beijing was naturally far from wanting to play exactly as Washington wished and indeed presented itself as a counterweight to an erratic America, decrying, much like Russia, U.S. sanctions as being illegitimate. Simultaneously, the Chinese foreign ministry urged all parties to come to a negotiated settlement of the nuclear question. An emerging dynamic in the years after the American withdrawal was the growing Chinese economic interests in Iran. The growing dependence of some Iranian economic sectors on contacts and trade with China presented new

²⁶⁰ Chernenko E. The Russian Ministry of Foreign Affairs Allowed for the Complete Collapse of the Iran Nuclear Deal. URL: <https://www.kommersant.ru/doc/6788146> (accessed: 22.04.2025). [Черненко Е. В МИД РФ допустили полный развал иранской «ядерной сделки»].

²⁶¹ Fassihi F. Iran's Foreign Minister, in Leaked Tape, Says Revolutionary Guards Set Policies // The New York Times, 2021.

²⁶² Notte H. Russia's Invasion of Ukraine. The Iran Nuclear Price Tag // Friedrich Ebert Stiftung, 2023.

²⁶³ Petrovics A, White R. Should human rights derail US-Iran talks? // Responsible Statecraft. URL: <https://responsiblestatecraft.org/us-iran-2671795042/> (accessed: 24.04.2025).

power dynamics for Iran and strengthened China's role as a player in the country, particularly post-2022.²⁶⁴

China has integrated Iran into its ambitious global Belt and Road initiative, with which it hopes to restructure the flow of global trade to be centered on the Middle Kingdom. The burgeoning state-led trade relationship between the two was formalized in 2021 with the adoption of a 25-Year China-Iran Cooperation Agreement, which prioritizes energy imports to China and infrastructure developments in line with the BRI.²⁶⁵

Much like in the Russian case, this almost certainly has very little to do with the Iranian nuclear program directly and more to do with a realignment of global geopolitics and the emergence of a "sanctioned axis," so to speak, of countries at odds with the Western system and under financial and economic restrictions by the U.S. and beyond. Similarly, also, the Chinese government clearly saw some value in the JCPOA when it was being negotiated and adopted, a process backed up by the global community, including through the UNSC, where China maintains a veto. As in Moscow, this calculus seems to have shifted in Beijing since the breakdown of the JCPOA. Other upsides to normalizing and even deepening relations with Iran outweighed the Chinese interest in nonproliferation broadly and a non-nuclear Iran specifically.

V.3 The Iranian Response

In response to the shifting international environment, Iran undertook a series of measured steps. For one, Tehran decided to lay off on outright violation of the JCPOA for the period immediately after the American withdrawal. This response suggests the value that the decision makers in Iran saw in the deal, as well as a willingness to give the rest of the international community a chance to salvage the deal, if they too saw value in it. The European attempts at creating alternative business channels to Iran, for instance, would almost certainly not have happened, or at least would have had even worse success, had Iran decided right away that the deal was obsolete and not worth saving.

The fact that the JCPOA and its provisions were dear to Iran was also underscored by the domestic debate that emerged after the American withdrawal, aside from the fact that the country had even acceded to the agreement in the first place and had remained in compliance with it throughout. Iranian sources discuss that there were two main schools of thought regarding what

²⁶⁴ Azad S. Cutting Both Ways: The Transfer of Chinese Technology to Iran in the Post-JCPOA Headwind // East Asia, 2024.

²⁶⁵ Iran and China sign 25-year cooperation agreement // Reuters, 2021.

Iran ought to do in response to the new international circumstances.²⁶⁶ One group sought to revive the deal or replace it with a new one. The other segment of the conversation thought that the U.S. actions had proven that the sanctions issue would “always remain with the Iranian economy” and therefore it was time to move beyond trying to strike a deal with the Americans and instead restructure and sanctions-proof Iran.²⁶⁷ This latter school of thought was sometimes referred to as the “resistance strategy.”

The resistance economy perspective, which gained significant traction among conservatives and hardliners in Iran, advocated for reducing economic vulnerabilities through domestic production, diversification of exports, and decreased dependence on oil. According to this view, “economic planning should be based on the assumption of continued sanctions” to build a resilient and sustainable economy capable of withstanding external pressures while ensuring people's welfare.²⁶⁸

On May 8, 2019, exactly one year after the U.S. withdrawal from the JCPOA, Iranian President Hassan Rouhani announced that Iran would begin exceeding certain limitations imposed by the agreement. This announcement initiated a carefully calibrated series of steps beyond the JCPOA's constraints, explicitly framed as proportional responses to the economic warfare being waged against the country. The decision marked a fundamental shift in Iran's approach to nuclear compliance and represented a direct reaction to the severe economic coercion applied by the United States and, by extension, much of the international community. One of the deal's key provisions was first broken when, on July 1, Iran announced – and the IAEA confirmed – that it had exceeded the limit on the size of the enriched uranium stockpile the country could hold.²⁶⁹

Iranian officials had repeatedly warned that continued economic isolation despite their compliance with the JCPOA was unsustainable. According to European Parliament analysis, Iran deemed the measures taken by Europe and the global community “insufficient to offset the effects of sanctions, which the US government continues to tighten. Considering that the expected economic benefits of the JCPOA were an essential condition for its agreement to limit its nuclear activities, Iran announced in July 2019 that it was reducing its commitments.”²⁷⁰

Tehran's more assertive posture after the spring of 2019 demonstrated the direct link between economic pressure and nuclear policy decisions. Rather than collapsing under pressure as the Trump administration had hoped and publicly anticipated, Iran instead opted for a calibrated

266 تازه‌های اکوایران. ایران، اقتصاد و تحریم/ برداشت دوم؛ طرفداران نظریه «مقاوم‌سازی اقتصاد» چه می‌گویند؟ URL: <https://ecoiran.com/بخش-سیاست-گذاری-اقتصاد-117/83932-ایران-اقتصاد-تحریم-بر-داشت-دوم-طرفداران-نظریه-مقاوم-سازی-اقتصاد-چه> (accessed: 22.04.2025).

267 Ibid.

268 Ibid.

269 Murphy F. Iran's stock of enriched uranium exceeds nuclear deal's limit, IAEA says // Reuters, 2019.

270 Immenkamp B. EU-Iran: The way forward // European Parliamentary Research Service, 2020.

response in the form of a series of escalatory steps that would gradually increase pressure on European signatories to deliver economic benefits while signaling to the United States the costs of its maximum pressure policy – with the primary cost being the risk of a nuclear or threshold Iran.

The Iranian approach was strategic and incremental. Rather than immediately abandoning all commitments, Iran announced a step-by-step reduction in compliance, with each step carefully calculated to signal resolve without triggering a military confrontation. This approach reflected Iran's “resistance narrative,” which portrayed the country as standing up to unjust pressure from the United States.²⁷¹

The Iranian decision to exceed JCPOA limits demonstrates a clear causal relationship between economic pressure and nuclear policy decisions. When, despite European assurances to the contrary, the economic benefits promised under the nuclear deal failed to materialize and the relief already provided failed to continue, Iran responded by gradually exceeding the technical limitations it had accepted. This hinge point reveals several important dynamics about how foreign economic coercion affected Iranian nuclear decision-making.

First, economic benefits and nuclear restrictions are directly linked in Iran's strategic calculus. The JCPOA was always understood by Iranian leaders as a transaction—nuclear limitations in exchange for economic integration. When one side of the bargain collapsed, Iran felt justified in unwinding the other side. Indeed, the JCPOA itself had provided for such a response.

Second, economic coercion can have counterproductive effects when applied too broadly or punitively. Rather than forcing compliance, maximum pressure pushed Iran to advance its nuclear program beyond limitations that it had previously found acceptable if uncomfortable, ultimately leaving the international community with less visibility and control over Iranian nuclear activities, while accelerating Iran's progress toward becoming a threshold state, whether this may be the central intention or not.

Third, the effectiveness of economic sanctions depends heavily on international consensus. The Trump administration's unilateral withdrawal from the JCPOA undermined the multilateral nature of the agreement, allowing Iran to portray itself as the compliant party facing unjust pressure, and receiving varying degrees of support in this line from other countries at odds with the Western worldview. Additionally, the unilateral action of the United States drove a wedge between it and its traditional allies, that shared the broader policy goal of preventing a nuclear Iran and similar geopolitical worldviews, but now were left at odds with the United States over the sanctions regime and exact measures to be taken in response to the Iranian question.

²⁷¹ Veen E. Evolution of the Middle East as the JCPOA's strategic environment // *Coming out and breaking out*, 2020.

The Iranian case suggests that economic coercion is most effective when it is targeted, multilateral, and offers clear pathways to relief through compliance. When sanctions appear designed to cause regime collapse rather than behavior change, they are more likely to strengthen hardliners' resistance narratives than to achieve their stated policy goals.

This hinge point is an interesting contrast to the previous chapter's. Despite focusing on the same dimension of international pressure – economic coercion – the outcome was very different. The aforementioned reasons, which may be summed up as being products of a more pluripolar and fractured international environment, are a promising explanation for this discrepancy.

V.4 Recent and Future Developments

The world has entered a new and volatile phase in the mid-2020s, characterized by significant geopolitical shifts, regional instability, and renewed international attention. This period has seen steady and escalatory expansion of the nuclear program despite a variety of international actions that span the entire range of the five dimensions of pressures identified at the outset of this work.

Despite campaign promises suggesting a return to the JCPOA, the Biden administration ultimately failed to revive the agreement. This approach represented a significant departure from initial statements when Biden entered office in 2021, when he expressed being “pleased that Iran has continued to agree to engage in discussions” about returning to the nuclear deal.²⁷² However, these negotiations gradually collapsed over the following years, and as the war in Ukraine took over in global policy considerations, Iran moved into the background. By 2024, the Biden administration effectively had “no discernible policy on Iran and its nuclear program.” Although some officials, like former Pentagon official Colin Kahl, continued to suggest that diplomatic resolution was preferable to alternatives, Biden had privately acknowledged by late 2022 that the Iran deal was “dead.” The suspension of the special envoy for Iran, Robert Malley, further signaled the collapse of diplomatic efforts.²⁷³

This policy vacuum had profound consequences for Iran's nuclear trajectory. Without clear engagement or a strategic framework guiding U.S. policy, Tehran accelerated its enrichment activities. According to the Arms Control Association, Iran responded to this diplomatic uncertainty by further and more egregiously breaching the limits that had been agreed on under the JCPOA. Most significantly, Iran began enriching uranium to 60% purity—a level with no

²⁷² Remarks by President Biden and Prime Minister Suga of Japan at Press Conference // The White House, 2021.

²⁷³ Pletka D. Iran Nuclear Deal: Biden Administration Policy Is Missing // Foreign Policy, 2024.

civilian applications.²⁷⁴ This enrichment level can also be considered just below weapons-grade, as the amount of energy and work needed to enrich from 60% to weapons grade is significantly lower than the energy that needs to be expended to get to that level in the first place.

Nonetheless, the U.S. intelligence community in 2024 assessed that Iran was still not actively working on building a weapon, though it was in a “better position” to do so “if it so chooses.”²⁷⁵

Margojev has provided a useful analysis of the shifting state of international affairs as it relates to the possible renegotiation of an Iranian nuclear deal. He divides the post-JCPOA era into two epochs, the first defined by continued European efforts to salvage the deal and so being at odds with the U.S. and closer to Russia’s and China’s approach on Iran. After August 2022, Margojev argues, there was a breakdown of the ability to compartmentalize negotiations with Iran on the Western/European part after it was revealed that Tehran provided attack drones for Russia’s use against Ukraine. Combined with a wave of public protests, which enjoyed considerable resonance with the Western public, engaging in diplomacy with Iran became politically fraught.²⁷⁶ The calculus to the capitals of the E3 therefore shifted, with the positives of an elusive potential deal with Tehran no longer outweighing the political costs domestically and in their relations with other Western countries supporting Ukraine.

While the relative ineffectiveness of European half-hearted diplomacy toward Iran has been outlined in this chapter, Margojev claims that “the Europeans ... could not act independently [of the United States].”²⁷⁷ The facts outlined in this chapter should serve well to at least give the reader pause when it comes to this analysis, but this is an important point of discussion that ought to be addressed. In the author’s interpretation, this chapter presents a considerable ability on the part of the European powers to think and act independently. The inability to achieve a new nuclear deal was not because of any supposed European vassalage to the United States, but rather because of a combination of three main factors: European indecision, the importance of the U.S. to Iran (independently of Europe), and the difficulty of steering free market economies. The key importance ascribed by Margojev to the United States as a make-or-break player in any Iranian nuclear negotiations in the past half-decade and beyond nonetheless stands and is well-supported not only in the paper, but also by the work at hand.

This last of the three points for the European failings is one that was kindly pointed out to me in a one-on-one interview with Stephan Klement, who represented the European Union

²⁷⁴ The Status of Iran’s Nuclear Program // Arms Control Association. URL: <https://www.armscontrol.org/factsheets/status-irans-nuclear-program-1> (accessed: 24.04.2025).

²⁷⁵ Ibid.

²⁷⁶ Margojev A. Long Time no Find. Iran and its Nuclear Program // Nuclear Nonproliferation and Arms Control: Digital Papers, 2024. C. 104.

²⁷⁷ Ibid.

throughout the entirety of the JCPOA negotiations and was intimately involved in drafting technical specifics. A key point of dissonance and misunderstanding between the Iranians and the outsiders, particularly Western free market economies, was the inability of Western capitals to “guarantee” any particular economic response. Washington, Berlin and co. could lift sanctions, but they could not force companies in their countries to invest in Iran, trade with it, or insure its ships.²⁷⁸ These dynamics were on display after the collapse of the deal, when Europe sought to salvage what was left by providing instruments to allow for continued engagement of the private sector with Iran. The fact that these measures were, as we have seen, often half-baked certainly did not aid their chances.

The more ambitious nuclear program in Iran was accompanied by a renewed policy debate within Iran. In 2024, the year that also saw the first direct military engagements between Iran and its regional arch-rival, Israel, there was talk by some senior officials in Iran about whether it was time to rethink the supreme leader’s fatwah against nuclear weapons. In November, an advisor to the current Supreme Leader revealed that Iran would “modify its nuclear doctrine” if “an existential threat arises.”²⁷⁹ These comments suggest both that Iran does not yet actively have a nuclear weapons program but also that it increasingly sees itself as a threshold state and its nuclear program as a geopolitical insurance strategy.

As Western engagement faltered, Iran increasingly pivoted toward Russia, culminating in a comprehensive strategic partnership agreement signed in January 2025.²⁸⁰ This agreement replaced a previous pact from 2001 and established a framework for deeper cooperation across multiple domains. The treaty emphasized “expanding trade routes, reducing reliance on the U.S. dollar, and enhancing military collaboration without formal alliance commitments.” Importantly, it codified Iran’s continued supply of drones and potential ballistic missile transfers to Russia. Both countries framed their partnership within the context of promoting “a just and multipolar world order.”²⁸¹

This deepening relationship with Russia has direct implications for the present and future of Iran’s nuclear program. According to Iranian government spokeswoman Fatemeh Mohajerani, “Russia’s role as a permanent Security Council member is important, and the nuclear cooperation between Iran and Russia naturally gives it a key part to play” in any future nuclear deal with the U.S. One proposal even suggested Russia could serve not just as a destination for Iran’s stockpile

²⁷⁸ Klement S. Interview with Linus Höller, 2025.

²⁷⁹ The Status of Iran’s Nuclear Program // Arms Control Association. URL: <https://www.armscontrol.org/factsheets/status-irans-nuclear-program-1> (accessed: 24.04.2025).

²⁸⁰ Full text of Iran-Russia Comprehensive Strategic Partnership Agreement. URL: <https://irangov.ir/detail/456479> (accessed: 24.04.2025).

²⁸¹ Ibid.

of highly enriched uranium but also act as “a possible arbiter in the event of breaches to the agreement.”²⁸²

This suggests a strategic alignment of Tehran with Moscow that goes beyond what had existed before the exit from the JCPOA of the United States. While the trade relationship with Russia undoubtedly can alleviate some pressure on Iran, the numbers so far suggest that it is no replacement for a normalization of relations with the West and full access to the global financial and trade worlds. But the calculus among Iranian leadership seems to have shifted, now prioritizing the strategic balancing power that the country perceives it can gain from its greater closeness with Russia vis-à-vis the West.

Crucially, the polarization of international politics since the war in Ukraine also means that many of the dynamics necessary for the creation of the JCPOA would be absent at present. As Russia becomes more invested in its relationship with Iran, the international consensus and cooperation necessary to constrain Iran's nuclear ambitions have further eroded; similarly, the Western antagonism to engaging even diplomatically with Russia and some of its partners would present a difficult starting point.

Regionally, major events and shifts have taken place in the past few years that have effects on Iran's regional position and so on its nuclear calculus. For one, the war in Gaza commenced in October 2023. It set off a cascade of events across the Middle East, including the Houthi blocking of Red Sea shipping lanes out of Yemen and, arguably, the downfall of Syria's longtime ruler, Bashar Al-Assad. It has also precipitated the first direct military engagement between Israel and Iran in the form of a mutual exchange of long-range drones, cruise missiles and ballistic missiles in the spring of 2024 and again in autumn.

The direct military confrontation marked a significant turning point in the relationship between Iran and Israel. Rather than relying on proxies, Tehran demonstrated a willingness to engage directly when its perceived core interests were threatened. However, the missile barrage of October 1, which included roughly 300 drones and missiles, was “calibrated carefully to allow Israel and its partners to shoot down most of the Iranian systems,” observers have argued, suggesting Iran wanted to signal capability without triggering overwhelming retaliation.²⁸³

Although the geopolitical and strategic dimensions of this conflict are larger, they nonetheless directly relate to and interact with the nuclear program. This connection is also clearly present in the minds of Iranian policy and decision makers, as evidenced by the fact that Iran

²⁸² Nuclear cooperation gives Russia key role in US talks, Tehran says. URL: <https://www.iranintl.com/en/202504221312> (accessed: 24.04.2025).

²⁸³ Davenport K. Iran-Israel Tensions May Push Iran to Rethink Nuclear Arms // Arms Control Association. URL: <https://www.armscontrol.org/act/2024-05/news/iran-israel-tensions-may-push-iran-rethink-nuclear-arms> (accessed: 24.04.2025).

decided to close its nuclear facilities to inspections by the IAEA on the day after launching its aerial attack on Israel. It was also in the immediate aftermath of the exchange of aerial bombardment that Iran publicly stated that its nuclear doctrine “could change” if nuclear sites were to be attacked by Israel.²⁸⁴ The use of direct military force – one of the five dimensions of international pressure that I identified early on in this work – thus appears to have had an acceleratory effect on the Iranian nuclear program, at least in the short run. Israeli strikes against Iran and its proxies did not dissuade Tehran from pursuing its nuclear program but instead pushed it to double down on it, make it less transparent, and consider reworking its nuclear doctrine. Much more than technical details – the number of centrifuges, the level of enrichment, which are relatively easy to change on a whim – such changes to the mindset and collective norms and imagination are much more complicated to reverse.

Iran can generally be assessed as having come out of the past two years of events in the Middle East weakened in its position there. Several of its most valuable proxy groups, which have served as key pillars of Iran’s power projection in the region, have been significantly weakened, with their leaders eliminated and their stockpiles of weapons decimated. Hamas has faced heavy losses at the hands of Israel’s indiscriminate invasion of Gaza, for instance, while groups in Syria and Lebanon were similarly targeted by Israeli strikes. The Houthis in Yemen, also Iranian-supplied, had significant success in their attacks against commercial shipping vessels but made themselves a target of international ire in response, precipitating combat engagements with European countries and strikes by the United States (in addition to the ongoing war with Saudi Arabia).

The return of Donald Trump to the White House in 2025 marked yet another pivot point in the Iranian nuclear saga. Despite his previous withdrawal from the JCPOA in 2018, and much to the surprise of many outside observers, Trump initiated a new round of nuclear talks with Iran, beginning in April 2025. According to multiple reports, Trump sent a letter to Iran’s Supreme Leader Ayatollah Ali Khamenei suggesting the possibility of negotiations for a new nuclear deal. As reported by CNN, Trump gave Iran a period of two months to accept an agreement that would lead to Iran reducing its nuclear presence or ending its nuclear program completely.²⁸⁵

The negotiations, which are facilitated by Oman (as were the initial phases of conversations leading to the JCPOA) may present the first direct engagement between American and Iranian officials in almost a decade. Iran has insisted that the talks were not direct and relied on

²⁸⁴ KJ. If nuclear facilities threatened, Iran doctrine could change. URL: <https://en.mehrnews.com/news/214062/If-nuclear-facilities-threatened-Iran-doctrine-could-change> (accessed: 24.04.2025).

²⁸⁵ Critical Nuclear Talks Between the US and Iran Amid Trump’s Threat. URL: <https://arabic.cnn.com/middle-east/article/2025/04/12/us-and-iran-to-begin-critical-nuclear-talks-as-trump-threatens-war> (accessed: 24.04.2025). [ترامب تهدید ظل في وإيران أمريكا بين «حاسمة» نووية مفاوضات].

intermediaries. Following the initial round of talks, which both sides characterized as “constructive,” a second round took place in Rome, which was then followed up by a third in Muscat, Oman.^{286 287}

Although still early, an indication that both sides are taking this initiative seriously and that there may indeed be the opportunity for a deal is that in addition to the diplomatic meetings between both sides, a group of technical experts from Iran and the U.S. has been convened that began their discussions on April 23 in Oman. This was confirmed by Iran’s foreign minister, Abbas Araqchi. He called it the “next phase” of negotiations on Iranian state television and said that the experts would “have the opportunity to start designing a framework for an agreement.”²⁸⁸ The group has met once and is scheduled to meet a second time following the third round of political talks, at the time of writing.

The process is to date fairly murky, and few details have become publicly available about specifics that a deal might include. But what is publicly known is remarkably reminiscent of the process that led to the 2015 JCPOA, including the pivotal role of Oman and the hush-hush nature of the taboo of direct diplomatic engagement between the two countries. Another similarity is the possibility for an interim agreement – the role that the JPOA played in the 2010s before the conclusion of the JCPOA. The JPOA, as discussed earlier, was instrumental in later achieving the – as is in the name – comprehensive plan. It seems at least plausible that a similar interim agreement would serve well as a trust-building measure in this case, too, and facilitate the possible conclusion of a new Iran nuclear deal under the Trump administration. The interim agreement was reportedly floated by the Iranian side.²⁸⁹

A key difference to Obama’s diplomatic approach, however, is Trump’s negotiation style of coercive diplomacy. Although the Obama approach certainly wasn’t friendly – after all, it was backed up with the weight of U.S. sanctions and weight in global diplomacy – Trump has openly threatened military action if a deal is not reached within 60 days (although he did not specify exactly when the 60-day deadline was). Trump has previously overseen military engagement against Iran in the form of the early 2020 assassination of a top Iranian general, Qasem Soleimani. The threat of U.S. military action against Iran may be assessed as being significantly more credible (regardless of whether one believes this is a good policy choice) than under the Obama presidency;

²⁸⁶ Verhandelt Trump einen neuen Atom-Deal mit dem Iran? URL: <https://www.deutschlandfunk.de/atomgespraeche-iran-usa-abkommen-100.html> (accessed: 24.04.2025).

²⁸⁷ Hansler J, Tanno S. US and Iran express optimism following second round of nuclear talks // CNN Politics. URL: <https://www.cnn.com/2025/04/19/politics/iran-talks-rome-nuclear-program/index.html> (accessed: 25.04.2025).

²⁸⁸ Hafezi P. Iran, US task experts with framework for a nuclear deal after «progress» in talks // Reuters, 2025.

²⁸⁹ Ravid B. Scoop: Iran raised possible interim nuclear deal with U.S, sources say. URL: <https://www.axios.com/2025/04/24/iran-us-interim-nuclear-deal> (accessed: 25.04.2025).

this marks a key difference in the negotiations happening now compared to those that took place in the 2010s.

Another key difference, of course, is all that has happened since then. The negotiations in the 2010s were unprecedented; the ones that commenced in 2025 are very much preceded in the form of the JCPOA. Both sides know that the JCPOA failed, and neither side professed much love for the deal, especially in its later days. This provides challenges that any new conversations and subsequent agreements must be able to overcome, both in order to be successful and to endure.

It is worth taking a moment to examine this recent period of increased global and regional turmoil through the lens of the frameworks model used throughout this work.

Diplomatic pressure has fluctuated dramatically, from the vacuum under the later years of the Biden administration to the coercive diplomacy central to the beginning of Trump's second term. Rather than producing clear restraint by Iran on its nuclear program, inconsistent diplomatic engagement appears to have created opportunities for advancement. Periods of diplomatic disengagement seem to have coincided with Iran's most significant nuclear advances, while renewed negotiations have at least temporarily paused further escalation.

Economic sanctions remain a primary tool by much of the outside world but have shown diminishing returns as Iran has adapted through partnerships with Russia and China. The threat of snapback sanctions continues to hold some leverage, but Iran's increasingly diversified economic relationships have reduced their potential impact. Iran has developed a "deterrent architecture"²⁹⁰ that incorporates both technical nuclear advancement and economic resilience.

Military threats have become more explicit, culminating in direct exchanges between Iran and Israel. The correlation between heightened regional tensions and Iran's nuclear calculations is evident in statements from Iranian officials suggesting that security threats might prompt reconsideration of nuclear weapons development. This dimension may be increasingly important if regional security continues to deteriorate.

Normative pressure has declined significantly as global focus shifts to great power competition and regional conflicts. With diminished attention to non-proliferation norms, Iran appears less constrained by international opinion. This is evident in Iran's reduced compliance with IAEA monitoring and increasing boldness in enrichment activities, as well as the relative disinterest that much of the global community appears to be showing in response to it outside of specialized venues.

²⁹⁰ Piccat A. La arquitectura disuasiva del programa nuclear iraní - entre la ambigüedad estratégica y la búsqueda de legitimidad. URL: <https://www.escenariomundial.com/2025/04/23/la-arquitectura-disuasiva-del-programa-nuclear-irani-entre-la-ambigüedad-estrategica-y-la-búsqueda-de-legitimidad/> (accessed: 24.04.2025).

Covert operations likely continue, though with less public visibility. The residual impact of past operations like the assassination of nuclear scientist Mohsen Fakhrizadeh in 2020 likely influenced Iran's decision to further harden and disperse its nuclear infrastructure, making it more resilient to future attacks. They have also almost certainly factored into the Iranian strategic calculus surrounding the nuclear program and any potential future plans for nuclear weapons acquisition.

Looking ahead, several trajectories appear possible for Iran's nuclear program, each shaped by how international pressure dimensions interact. Among the more likely ones are the four following:

1. **Negotiated Constraint:** The current Trump administration talks could produce a temporary agreement that caps enrichment and exports existing stockpiles, potentially to Russia. Rather than a comprehensive solution, this would likely represent a limited, transactional arrangement motivated by immediate security concerns. At the time of writing, the negotiations are not yet far progressed, and it would be haphazard to speculate whether they have a real chance of success or especially what any deal agreed upon might look like.
2. **Technical Threshold Maintenance:** Without a deal, Iran could maintain its current technical position just below weaponization, deriving strategic benefits from nuclear ambiguity while avoiding the consequences of actually producing weapons. This appears to be Iran's current strategy.
3. **Breakout Scenario:** If regional security dramatically deteriorates, particularly if Israel strikes Iranian nuclear facilities, Tehran might decide that the benefits of actual weaponization outweigh the costs. The temporary closure of facilities to inspectors during the April 2024 missile exchange demonstrated how quickly Iran could create windows for unmonitored advancement.
4. **NPT Withdrawal:** Should the snapback mechanism be activated in October 2025, Iran might follow through on threats to withdraw from the NPT, creating a new legal framework for its nuclear activities outside international constraints. This would mirror North Korea's path and could accelerate weaponization.

The fourth point is not merely fear-mongering by outside observers, but rather well-founded by rhetoric coming out of certain hardline segments of the Iranian political elite. For instance, as early as February 2020, a set of almost two dozen Iranian members of parliament signed a declaration calling on the country to immediately exit the NPT if the IAEA were to refer

it to the Security Council for noncompliance under the provisions of the JCPOA.²⁹¹ One MP set an ultimatum for Europe to lift all sanctions and mitigate the economic pain for Iran, and that “if they could not meet the demand, Iran would leave the Non-Proliferation Treaty.”²⁹²

Since then, the tone has stayed bellicose. Alaeddin Boroujerdi, a member of Iran's National Security and Foreign Policy Committee, stated in late 2024 that “withdrawal from the Nuclear Non-Proliferation Treaty, especially within Parliament and among the representatives of the nation, is considered a serious idea in defense of the national interests of the country.” Notably, he clarified that withdrawal would not necessarily mean Iran intends to produce nuclear weapons.²⁹³

²⁹⁴ Other lawmakers, however, have pushed back on the idea of leaving the NPT, saying that it would not be sensible and arguing that Iran is better off in the near-universal treaty than outside of it.²⁹⁵

Following the Geneva Preparatory Committee for the NPT review conference, Deputy Foreign Minister Majid Takht-Ravanchi made explicit threats about NPT withdrawal. In December 2024, after talks with UK, France, and Germany representatives, he warned that “one of the options we raised was to withdraw from the NPT and that we could abandon the NPT” if the snapback mechanism reinstates UN sanctions.²⁹⁶

The contrast is striking between the formal diplomatic language that was used during the actual proceedings of the Geneva PrepCom and the explicit threats made in discussions afterward. While Ambassador Bahreini's PrepCom statements remained within conventional diplomatic bounds, sticking to the tried and tested line of emphasizing Iran's rights under the NPT, Takht-Ravanchi's post-Geneva warnings represented a clear escalation in rhetoric.

At the 2025 New York PrepCom, international concerns about Iran's threats were evident, with France's Ambassador Camille Petit stating that “Iran's repeated public statements about its ability to produce nuclear weapons, and the possibility of changes to its 'nuclear doctrine', are deeply alarming.”²⁹⁷

²⁹¹ 19 MPs sign letter to quit NPT. URL: <https://www.tehrantimes.com/news/444772/19-MPs-sign-letter-to-quit-NPT> (accessed: 07.06.2025).

²⁹² Mehr News Agency. MP proposes Iran's withdrawal from NPT. URL: <https://en.mehrnews.com/news/166512/MP-proposes-Iran-s-withdrawal-from-NPT> (accessed: 07.06.2025).

²⁹³ US Concern Over Iran's Withdrawal from the NPT Treaty. URL: <https://www.imna.ir/news/581653/-پیامدهای-خروج-از-NPT-جیست-ایران-از> (accessed: 07.06.2025). [NPT نگرانی آمریکا از خروج ایران از معاهده].

²⁹⁴ Wong J, Grajewski N. Will Iran Withdraw from the Nuclear Non-Proliferation Treaty? URL: <https://warontherocks.com/2024/11/will-iran-withdraw-from-the-nuclear-non-proliferation-treaty/> (accessed: 07.06.2025).

²⁹⁵ Leaving The NPT Is Not a Sensible Option for Iran, Lawmaker Says. URL: <https://www.iranintl.com/en/202206197088> (accessed: 07.06.2025).

²⁹⁶ PressTV. Iran's deputy FM warns of possible withdrawal from NPT in case of snapback activation. URL: <https://www.presstv.ir/Detail/2024/12/04/738453/Iran-Majid-Takht-Ravanchi-NPT-snapback-mechanism-JCPOA> (accessed: 7.6.2025).

²⁹⁷ Third NPT Preparatory Committee - Statement by Ambassador Camille Petit, Head of the French Delegation - Pillar II: Non-Proliferation - (May 5, 2025 in New York), 2025.

While a clear political decision to leave the NPT does not yet appear to have been taken, the normalization of this discourse, coupled with the open discussion of Iran's potential nuclear weapons ambitions, is concerning and shows that the country has gone a long way from tacit experimentation with enrichment technologies to considering itself a threshold nuclear power.

Conclusion²⁹⁸

The longitudinal study of the Iranian nuclear program and its interactions with the global community presented here leads to a couple of key observations that can help to inform future analysis and policymaking regarding this case and beyond. The interplay between the Iranian actions and reactions and those of the international community since 1950 presents a unique opportunity for an in-depth international relations study in the nonproliferation realm. While Iran may be at the forefront of global headlines once again at the time of writing these words in April 2025, other possible proliferations and proliferation concerns – justified or not – are sure to emerge in the future. The observations and lessons learned from this particularly rich case, then, are likely to have broad applications at present and in the future and at the very least should serve as a starting point for further research and analysis.

The historical analysis demonstrates that Iran's nuclear program has evolved through distinct phases, each characterized by different patterns of interaction with international pressure. The program's trajectory has not been linear but rather responsive to changing international dynamics. While international pressure did not always yield the results intended by those exerting the pressure, what is indisputable is that there was a complex web of interactions between the outer world and the Iranian nuclear program. Despite its secrecy and sometimes professed untouchability, this proves that the international environment does, in fact, have deep impacts on the nuclear program – and vice versa. Significantly, for instance, the experience of the Iran-Iraq war and the international community's non-response to Iraqi chemical weapons use created a profound security dilemma that fundamentally altered Iran's strategic calculations surrounding nuclear capabilities, civilian and military. This “strategic loneliness” appears to have been a crucial turning point that directly influenced subsequent nuclear decisions.

This research also moved forward the Iran literature by identifying distinct domains of international pressure and analyzing each of their interactions with the Iranian nuclear program, including laterally across years. Different types of foreign pressure have had varying impacts on Iran's nuclear program.

Diplomatic pressure demonstrated initial success following the 2002 revelations of clandestine facilities at Natanz and Arak, with the EU-3 negotiations resulting in a temporary

²⁹⁸ This section was written before the military strikes against Iranian nuclear facilities carried out by Israel and the United States in June 2025. This, as well as the lessons learned, will be addressed in a separate addendum later in this paper. It also addresses the methodological challenges that apply and limit the applicability to date for inclusion in rigorous analysis.

suspension of uranium enrichment. However, diplomatic pressure alone proved insufficient for long-term constraints when not backed by other measures.

Economic sanctions appear to have significantly influenced Iran's willingness to negotiate seriously on its nuclear program, eventually contributing to bringing Iran to the table for the JCPOA. The comprehensive sanctions regime with near-universal global buy-in created domestic pressure that altered the cost-benefit calculation for Iranian leaders. However, economic pressure alone – as was the case under the maximum pressure campaign reinstated after the US withdrawal from the JCPOA – appeared insufficient without an added component of global diplomacy and/or global norms pressures.

Military threats and actions (both direct and indirect) had complex effects. Iraq's use of chemical weapons against Iran, coupled with international inaction, appears to have accelerated Iran's interest in developing strategic deterrence capabilities. Subsequent Israeli and American threats may have reinforced Iran's perception that indigenous nuclear capabilities were necessary for national security. Simultaneously, a case may be made that the latest set of negotiations between the U.S. and Iran, which were still ongoing at the time of writing, may have been facilitated by the credible threat of military strikes by the U.S. or its ally Israel if there had been no movement to those countries' satisfaction on the nuclear file.

Normative pressure showed effectiveness in earlier periods, influencing Iran's decision to join the NPT under the Shah, but diminished considerably after the Iran-Iraq war experience. This suggests that security imperatives can override normative considerations when a state perceives existential threats. It also underscores the importance of nonproliferation treaties functioning as and being perceived as security treaties by the states signing up to them – global norms against nonproliferation, including nuclear, will be significantly stronger if all states parties see it as being in their security interest to uphold those norms. The Iranian threat to leave the NPT, should a snapback take place at the end of the JCPOA period, should serve as a warning sign that the NPT might not be seen as strengthening the security of some NNWS, especially in light of the lack of Article VI progress by NWS.

The JCPOA period suggests that the most effective constraint on Iran's nuclear program came through coordinated, multilateral pressure combined with genuine diplomatic engagement and economic incentives. This indicates that comprehensive approaches acknowledging Iran's security concerns while maintaining pressure may be most effective at influencing Iranian nuclear decisions.

Throughout all the domains of international pressure, a key observation is a pattern that consistently reappears in the Iranian response. This pattern appears to often entail initial defiance or escalation, followed by later conciliatory moves “when the spotlight is off.” This dynamic

appears consistently across different periods and types of pressure, suggesting a strategic approach to managing international pressure while maintaining domestic legitimacy. It may also be a symptom of domestic processes within Iran, such as the need by top policy makers to save face with their various constituencies. This presents a possible area for future research: Determining the origins of this pattern and whether it is due to specificities of the Iranian case or is more broadly applicable.

Another important takeaway is that this research demonstrates how changes in Iranian political figures have significantly influenced the direction of nuclear policy. Although the top leadership of the country has remained consistent, this complicated hybrid governance structure has afforded the country remarkable flexibility in its positions and so, its interactions with the outside world. The contrasting approaches under Ahmadinejad versus Rouhani highlight how domestic political factors mediate the impact of international pressure. This suggests that the effectiveness of international actions depends partly on the receptiveness of Iran's domestic political environment at the time.

A recurring theme throughout the program's history is Iran's commitment to self-reliance and indigenous nuclear capabilities. This appears partially motivated by the international community's perceived unreliability (particularly during the Iran-Iraq war) and partly by national pride and sovereignty concerns. This drive for technological independence has persisted regardless of the type or intensity of international pressure. Perhaps even more tellingly, language about self-reliance and autarky remained present in Iranian statements and communications regardless of whether there was a period of détente or high tensions. It must therefore likely be treated as one of Iran's hard red lines, a non-negotiable. This does not, however, mean that there are specific options that must inherently be ruled out for how to manage this self-set demand.

These findings have significant implications for non-proliferation efforts beyond the Iranian case. The research suggests that international actions will influence a threshold state's nuclear decisions, but their effectiveness depends critically on:

1. Understanding the security perceptions of the state in question
2. Coordinating multilateral responses rather than relying on unilateral actions
3. Balancing pressure with diplomatic engagement and clear incentives
4. Considering the domestic political context and how it mediates international pressure
5. Addressing underlying security concerns that drive proliferation decisions

The global geopolitical and security environment has changed drastically over the past half decade. A period of relative global stability and comparatively low global defence budgets has ended and given way to a period of heightened geopolitical tensions, great power competition, and

new wars. It seems conceivable that this period might also precipitate new proliferation concerns. Several countries in East Asia have flirted with the idea of “going nuclear” recently and in the past; among them, Taiwan faces an acute threat from the PRC, which has promised to reunify the island with the mainland by 2027, including by force, if necessary. A nuclear debate also exists in South Korea, intensified by North Korea’s strengthening position and the retreat of the U.S. from the world stage, which might call into question the durability and veracity of Washington’s nuclear umbrella over the southern half of the peninsula.

These lessons from the Iranian case provide valuable insights for addressing future non-proliferation challenges. The findings suggest that while international actions can significantly influence nuclear decisions, they must be calibrated carefully to address the complex security, political, and normative factors that drive state behavior in this domain.

Addendum: Israeli-American Strikes on the Iranian Nuclear Program and Their Consequences

In June 2025, after work on this research paper was completed, an unprecedented military escalation between Israel and the United States on one side, and Iran on the other, commenced. On June 13, the Israeli air force launched widespread air raids against key locations in Iran associated with the nuclear program, targeting nuclear facilities, including enrichment plants, and the private residences of key nuclear scientists and decision makers involved in the program. The operation, codenamed “Rising Lion,” continued for over a week and also saw large salvos of ballistic missiles and loitering munitions sent by the Iranian military and paramilitary forces against Israel, as well as some involvement of the Houthis in Yemen, an Iranian proxy group.²⁹⁹

The Iranian-Israeli strikes were ultimately overshadowed by American involvement. Publicly, President Trump had weighed the option of getting directly militarily involved but decided to hold off for a while. Instead, the U.S. Air Force and Navy launched military strikes on June 22, including using “bunker-busting” munitions and Tomahawk cruise missiles. The strikes targeted the Fordow uranium enrichment plant, the Natanz nuclear facility and the Isfahan nuclear technology center.³⁰⁰

The impact of the strikes is difficult to estimate and highlights one of the key methodological issues with placing too heavy weight on preliminary analysis of this new episode in the Iranian nuclear program’s interactions with the outside world: There has not been enough time since to see for certain how this affects the program’s trajectory, and not enough time has passed for there to be sufficient reliable information available about either the strikes or the consequences.

Immediately confirmable consequences were primarily diplomatic: The nuclear negotiations between the United States and Iran that had been ongoing when the hot conflict began collapsed completely and Iran suspended its cooperation with the IAEA. International reactions to the strikes also further caused disarray and disunity over the diplomatic messaging surrounding the Iranian nuclear program and what types of pressure are legitimate or not; notably, the IAEA condemned military strikes on safeguarded facilities.

What is harder to measure, especially at this early point, is the strike’s impact on the Iranian nuclear program itself. One key point of contention is the fact that it appears Tehran may have been able to evacuate much or all of its high-enriched uranium stockpile before the strikes, which

²⁹⁹ Lam L. Israel-Iran: How did latest conflict start and where could it lead? URL: <https://www.bbc.com/news/articles/cdj9vj8g1g2o> (accessed: 14.08.2025).

³⁰⁰ Mackintosh T, Yousif N. What we know about US air strikes on three Iranian nuclear sites. URL: <https://www.bbc.com/news/articles/cvg9r4q99g4o> (accessed: 14.08.2025).

would mean a significantly shortened breakout time. Additionally, the physical damage to the facilities has been contested, with some estimates saying the strikes may have set Iran back only by months, and other experts claiming that the nuclear program has been thrown back by years. Furthermore, while many Iranian nuclear scientists were killed and, with them, valuable experience was almost certainly lost, it appears unlikely that this will fundamentally erase know-how that Iran has acquired; however, even more so than with the physical damage, it is nearly impossible for outside observers to estimate the extent to which this is a detriment to the technical development of the Iranian nuclear program.

On a more strategic level, there are also questions about the effectiveness of these strikes in achieving their overarching goal: preventing a nuclear Iran. Indeed, a strong case may be made that they had the opposite impact. I wrote about this in some detail in an article that came out in the immediate aftermath of the strikes.³⁰¹

It is too soon to say what Iran will do in the medium term in response to the Israeli and American strikes on its facilities. There is a possibility, however slim, that Tehran will refrain from rebuilding its capabilities and that the strikes quenched any appetite to try to go nuclear over fear of similar or worse consequences should they reach near the threshold ever again. The more common interpretation, however, seems to be that the strikes further strengthened those factions in Iran that would like to push the country toward becoming a nuclear power. It is a similar mechanism to the one that was identified in this work as having been at play during and after the Iran-Iraq war, when the military force used by Iraq – and the insufficient international condemnation of the use of WMDs, in that case, against Iran – led to a shifting strategic consciousness in Tehran and the restarting of the country's nuclear program under new management.

As this work has identified, the military dimension to international pressure – of which the American-Israeli strikes are as clear an example as there can be – tends to have accelerated the Iranian push down the nuclear path. The lessons taken from these cases would imply that the same should happen this time around.

The military strikes also present a notable inflection point in the types of international pressure that are dominating. While economic pressure has played a key role in the international community's interactions with the Iranian program, the strikes meant that the military dimension took primacy. Even the Europeans, who were not involved in the military operations and had apprehensions about it, were confronted with the new reality that the main dimension affecting the

³⁰¹ Höller L. № 3 (5), 2025. Strikes on Iran are not the victory many think. URL: <https://pircenter.org/en/editions/№-3-5-2025-strikes-on-iran-are-not-the-victory-many-think/> (accessed: 14.08.2025).

Iranian nuclear program now was the threat and use of military force, not the economic pain that Europe had more leverage over.

The strikes also ended the tentative diplomatic engagement that had been taking place under the new Trump administration. A small crack of the door has been left open, with Iranian officials saying that the country would be open to direct talks with the U.S. if suitable conditions are met, while also significantly restricting the topics that are open to discussion. A source for diplomatic pressure still being exerted is the ghost of the JCPOA and specifically, its snapback mechanism. The E3 have set Iran an ultimatum of the end of August to re-engage in negotiations or face the reimposition of comprehensive UN sanctions (economic pressure) under the JCPOA's snapback mechanism.³⁰²

In the normative dimension, pressure against proliferating and against possessing nuclear weapons in general still exists, but is far from the dominant force presently shaping Iranian decisions. This is emphasized by the country's decision to suspend its cooperation with the IAEA following the strikes. If the normative dimension were the main consideration for Tehran, such a move would have been unthinkable. However, the effectiveness of normative pressures in the Iranian case has been further undermined by the norm-breaking actions of the country's adversaries in the form of the unprovoked military strikes by Israel and the American involvement, both of which are easy to argue fall outside of what is allowed under international law.

The final dimension, covert action, is difficult to assess so shortly after the event took place. It seems likely that Israeli and American intelligence played a major role in the covert operations. Israeli intelligence, for example, would have identified the whereabouts of key Iranian nuclear figures, while American intelligence likely played a role in targeting and mission planning specifics. However, in both of these cases, these covert actions would have been in the form of information gathering for overt actions and therefore would not really constitute the type of international pressure that was identified earlier in this paper. To see whether and how covert actions are continuing to exert pressure on the Iranian nuclear program now that the aerial strikes have ceased, we will have to wait many years until memoirs are written and archival documents are declassified.

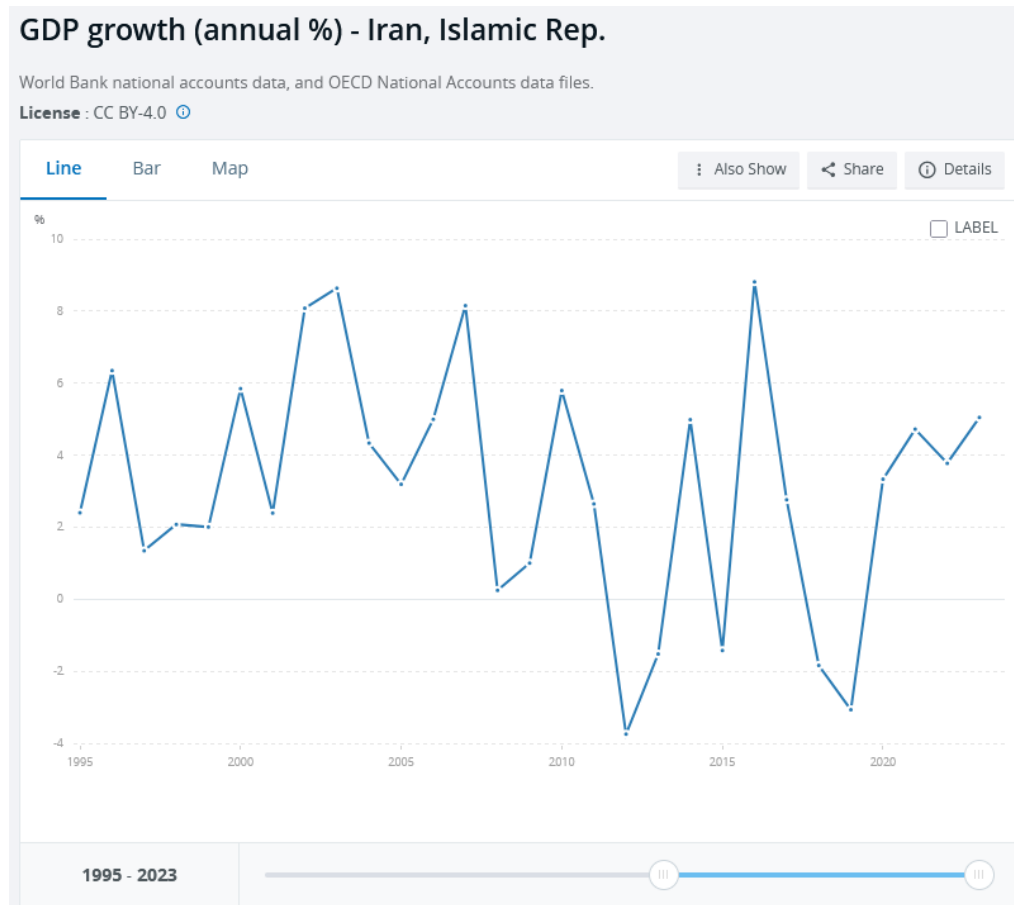
What is already certain, however, is that the Israeli-American military strikes against Iran will be a key hinge point in any future analysis of the Iranian nuclear program, regardless of what the medium- and long-term outcomes within Iran are. They also have the potential to fundamentally alter the patterns of nuclear proliferation globally, as other countries with nuclear ambitions or threshold abilities may reconsider their own proliferation vs. nonproliferation

³⁰² Jon. Iran: EU leaders threaten snapback sanctions over nukes // DW, 2025. URL: <https://www.dw.com/en/iran-eu-leaders-threaten-snapback-sanctions-over-nukes/a-73620576> (accessed: 14.08.2025).

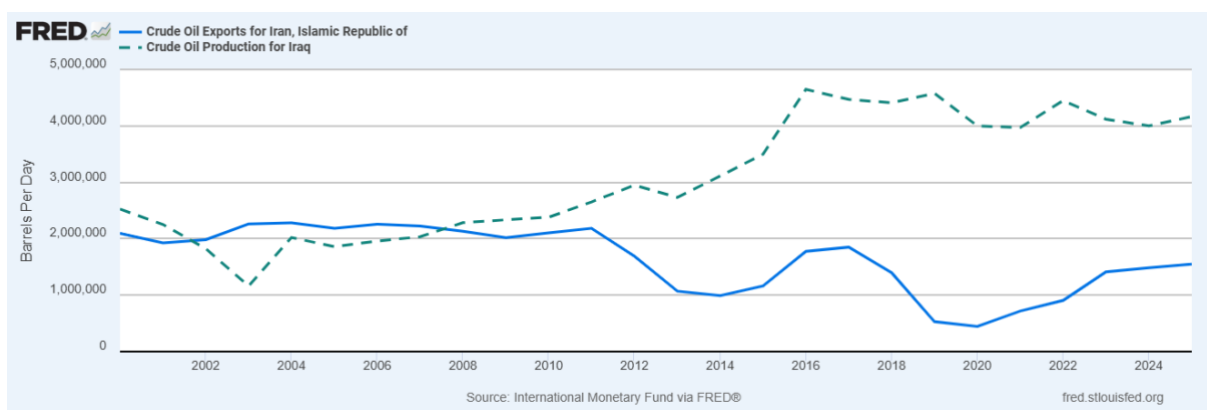
equation also in light of changing global geopolitical circumstances. It is no exaggeration to say that the Israeli-American strikes have the potential to prove to be a key inflection point for the global history of nuclear nonproliferation.

ANNEXES

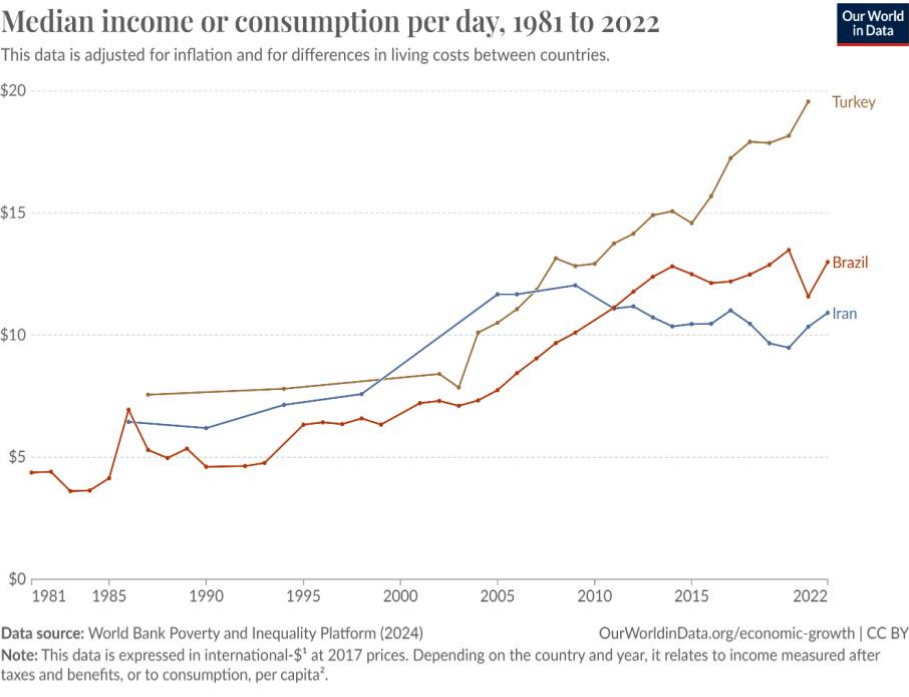
Appendix I. Graph of the annual GDP growth of Iran, according to the World Bank. Note the generally lower GDP growth rates starting in the late 2000s, when global sanctions came into force against the country. Also note the significant rebound in 2016, after the implementation of the JCPOA.



Appendix II. Graph of average daily crude oil production in Iran and Iraq, 2000–2025. It should highlight Iran’s production drop during the sanctions before the JCPOA (early 2010s), the recovery after the JCPOA, and the decline under Trump’s “maximum pressure” policy. By contrast, Iraq’s production rises steadily in the same period, underscoring that the downturns were specific to Iran and linked to global and U.S. sanctions campaigns.



Appendix III. A chart of the median income per day of Iran and two comparable countries, Brazil and Turkey. Note how Iranian prosperity has been largely stagnant since the imposition of external economic pressure in the aftermath of the 2002 nuclear revelations.



1. **International dollars:** International dollars are a hypothetical currency that is used to make meaningful comparisons of monetary indicators of living standards. Figures expressed in international dollars are adjusted for inflation within countries over time, and for differences in the cost of living between countries. The goal of such adjustments is to provide a unit whose purchasing power is held fixed over time and across countries, such that one international dollar can buy the same quantity and quality of goods and services no matter where or when it is spent. Read more in our article: [What are Purchasing Power Parity adjustments and why do we need them?](#)

2. **Per capita (income):** "Per capita" here means that each person (including children) is attributed an equal share of the total income received by all members of their household.

About The Author

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He holds two master's degrees in relevant fields: An MA in Nonproliferation and Terrorism Studies from the Middlebury Institute of International Studies at Monterey, and an MA in International Relations from the Moscow State Institute for International Relations, MGIMO University.

He was a member of the final cohort of dual-degree students studying in this unique format, bridging the West and the East, before the program's suspension in 2025. Additionally, Hoeller holds a BSc in Journalism, Political Science and International Studies from Northwestern University.

He serves in an advisory role to the Organisation for the Prohibition of Chemical Weapons in The Hague, Netherlands, and has previously worked as a researcher, innovating in open-source techniques, for the James Martin Center for Nonproliferation Studies in Washington and California, as well as the Vienna Center for Disarmament and Non-Proliferation in Austria.

Linus Hoeller currently serves as Europe Correspondent and OSINT Investigator for Defense News, based in Berlin.



**Reviews of the master's thesis defended at MGIMO University, on
which this report is based**

“Looking at the whole Iranian nuclear program from 1950s to date is a huge task which should be applauded. Author's conclusions are interesting, independent, and worth further debating.”

**Dr. Vladimir A. Orlov,
Director and Founder, PIR Center; MGIMO University Professor**

“The work represents an excellent longitudinal analysis of the key international drivers and inhibitors of the Iranian nuclear program over time. Mr. Höller's choice of topic is of great scholarly interest by enhancing our understanding as to why a country's nuclear program may ebb and flow over time, and how different types of international incentives and disincentives may play different roles at different stages of a country's nuclear program.”

**Dr. Hanna Notte,
Director, Eurasia Nonproliferation Program at the James Martin Center for
Nonproliferation Studies (CNS) and a Senior Associate (non-resident) in the Europe,
Russia, and Eurasia Program at the Center for Strategic & International Studies (CSIS) in
Washington DC**