

EMERGING NUCLEAR DYNAMICS IN WEST ASIA AND NORTHEAST ASIA

Exploring New Proliferation Potential

Abhishek Verma

Foreword by

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FOREWORD

Nuclear dynamics the world over have been witness to an unprecedented churn since the end of the cold war. Some scholars have characterised the period as the third nuclear age in their writings with the risks of inadvertent and accidental escalation due to the effects of emerging technologies like cyber and artificial intelligence in the nuclear domain. The end of the new Strategic Arms Reduction Treaty between Russia and the United States in February 2026 and the continuing build up of the nuclear stockpile by China in a world that is increasingly becoming unstable does not augur well for peace. In this scenario the nuclear dynamics in West and Northeast Asia also face proliferation risks in an environment that is characterised by an 'absent dialogue' between the leading nuclear powers of the world.

'Emerging Nuclear Dynamics in West Asia and Northeast Asia' carries out a timely analysis of the risks of nuclear proliferation in two regions that are not only volatile but also characterised by emerging power dynamics with shifting loyalties and alliances. This monograph carries out a detailed analysis of the nuclear developments in Saudi Arabia, the United Arab Emirates, Turkiye, Egypt, Japan and South Korea. Each of these countries are governed by their own internal dynamics and politics, external challenges, uncertainties accentuated by ongoing and endemic conflicts, the lack of nuclear restraint and the failure of dialogue to prevent conflict. Unilateral military action by the United States and Israel on Iran's nuclear sites have only reinforced the perception amongst states that only nuclear capability would remain a decisive guarantor for

strategic leverage and regime survival. While the jury is out whether such actions reduce nuclear proliferation risks or are counter-productive, the fact remains that such brinkmanship has not led to meaningful dialogue or peace.

All the six countries examined in this study have different levels of latency, or capacity to acquire nuclear weapons within a short time frame without having crossed the formal threshold of weaponisation. This study is a scholarly analysis based on research on key parameters of material capability, strategic rationale, commitment to NPT and alliance dynamics of each of these countries. Viewed from a realist perspective the author draws his conclusions on the levels of nuclear latency of each of these nations that vary considerably.

This work would be of interest to scholars, strategists and students of geopolitics who seek to gain a better understanding of the nuclear dynamics of West and Northeast Asia. Dr. Abhishek Verma deserves credit for his detailed research and analysis that would add value to the discourse on nuclear studies and regional security debates. This monograph is another attempt by CAPSS to encourage scholars, veterans and others with a proclivity to carry out research and take a deep dive into issues of aerospace power, national security, nuclear security and strategy and neighbourhood studies to write and get their work published.

Air Vice Marshal **Anil Golani** (Retd)

PREFACE

In recent years, nuclear restraint has begun to look increasingly fragile. From Iran's accelerated enrichment activities and reduced transparency with international inspectors to North Korea's open articulation of preemptive nuclear use, the global non-proliferation regime is confronting pressures not seen since the end of the Cold War. What distinguishes the current moment is not merely the persistence of the nuclear challenges, but the convergence of multiple conflicts across regions. Each of these conflicts reinforces the perception that nuclear capability remains a decisive guarantor of regime survival and strategic leverage. The danger has been further accentuated due to the recent conflagration in West Asia and the altered threat perception in Northeast Asia. Against this backdrop, long-standing assumptions about the inevitability of nuclear restraint among technologically advanced states are being quietly, but steadily, questioned. This monograph investigates the proliferation potential of key states in two critical flashpoints—West Asia and Northeast Asia—by analysing the interplay of material capacity, strategic rationale, non-proliferation commitment, domestic consensus, and alliance dynamics. This study is framed against a backdrop of escalating nuclear brinkmanship, which is actively eroding the foundational principles of the global non-proliferation architecture.

The most immediate challenge to the West Asian regional security order continues to emanate from the Islamic Republic of Iran. Despite sustained diplomatic engagement, recent findings by the International

Atomic Energy Agency (IAEA) point to a serious erosion of monitoring and verification. The Agency has repeatedly highlighted unresolved safeguards issues related to the possible presence of nuclear material at four undeclared sites—Turqzabad, Lavisian-Shian, Varamin, and Marivan—for which Tehran has yet to provide technically credible explanations. Compounding these concerns, Iran had accumulated uranium enriched up to 60 per cent U-235, placing it uncomfortably close to weapons-grade levels. On the basis of current stockpiles and centrifuge capacity, most technical assessments estimated Iran's breakout time to have shrunk to weeks, if not days—well below the threshold required for an effective international response. Against this backdrop, recent US kinetic actions¹ against Iranian nuclear and military infrastructure, including the Fordow Fuel Enrichment Plant have generated sharply divergent interpretations. From Washington's perspective, the strike on the Iranian nuclear sites was “historically successful”. US Defence Secretary Pete Hegseth stated during a press conference at the Pentagon, “Because of decisive military action, President Trump created the conditions to end the war, [while also] decimating—choose your word—obliterating, destroying, Iran's nuclear capabilities.”² Critics, however, argue that such attacks risk reinforcing Iran's perception of existential vulnerability, thereby strengthening domestic incentives to retain or even accelerate a latent nuclear capability as a deterrent of last resort.

Importantly, available evidence suggests that while the strikes may have disrupted specific facilities or supply chains, they have not eliminated Iran's underlying technical knowledge, dispersed its enrichment infrastructure or its accumulated expertise—factors that are inherently resilient to military action. Moreover, IAEA Director General Rafael Mariano Grossi stated in an interview that “the nuclear material enriched at 60 per cent is still in Iran.”³ As a result, Iran remains a central proliferation catalyst in the region. Its advancing nuclear programme continues to shape the strategic calculations of regional rivals, particularly Saudi Arabia and Turkiye, by normalising hedging

behaviour and weakening confidence in both diplomatic restraint and external security guarantees. In this sense, Iran's nuclear trajectory does not merely pose a direct threat—it functions as a structural driver of horizontal proliferation pressures across West Asia.

Tehran's nuclearisation sends an undeniable cascade of security dilemmas across West Asia, profoundly impacting Israel, Saudi Arabia, Egypt, the United Arab Emirates (UAE), and Türkiye. While preemptive counter-proliferation strikes—such as those historically conducted by Israel against facilities in Syria and Iraq, or cyber attacks targeting Iranian infrastructure—may seem strategically appealing, scholarly evidence suggests their futility. As observed by experts like Kelsey Davenport (2022), such actions are frequently counter-productive, as Iran's customary response has been to increase the physical hardening of its nuclear sites and accelerate its enrichment activities.

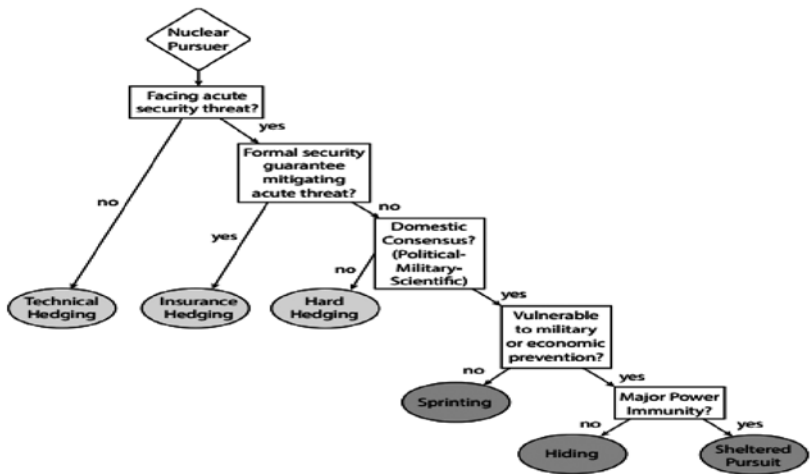
Concurrently, the nuclear pot in Northeast Asia continues to boil due to the persistent brinkmanship of the Democratic People's Republic of Korea (DPRK). Pyongyang has overtly threatened to employ its nuclear arsenal preemptively if provoked, fielding a growing collection of increasingly sophisticated Intermediate-Range Ballistic Missiles (IRBMs), Intercontinental Ballistic Missiles (ICBMs), and short-range solid-fuel missiles. These advancements pose a direct and escalating threat, particularly to the security of South Korea and Japan. The DPRK's continuous testing cycle, and the consensus among intelligence agencies that a seventh nuclear test remains inevitable, serve as a constant source of regional destabilisation, forcing Washington's allies to fundamentally reassess the credibility of extended deterrence.

These acute regional nuclear dynamics are further amplified by the ongoing Russo-Ukrainian War. The conflict and the associated rhetoric of nuclear escalation have been widely interpreted by both regional and extraregional states as a critical case study in the utility of great-power security guarantees. This has prompted profound security realignment, perhaps best exemplified by the recent decisions of Finland and Sweden

to formally join the North Atlantic Treaty Organisation (NATO) after decades of non-alignment, underscoring the renewed importance of collective defence in a post-Cold War security architecture.

In the subsequent sections of this monograph, a comprehensive analytical template is explored to assess the regional responses to the dual challenges of an Iranian nuclear breakout and North Korean nuclear coercion. This template incorporates material capacity, strategic rationale, commitment to non-proliferation, domestic political consensus, and alliance dynamics. Based on this methodology, the proliferation potential of the regional security rivals in both West Asia and Northeast Asia will be systematically examined.

Fig 1: Vipin Narang’s Proliferation Strategy Theory



Theoretical Framework

The decision calculus that leads a state toward or away from nuclear weapons acquisition is governed by a complex and often contradictory set of structural, domestic, and normative variables. To systematically examine the proliferation potential of key West Asian and Northeast Asian states, this study employs a multifaceted theoretical lens, synthesising

established models of nuclear decision-making. The foundational argument for nuclear acquisition is rooted in structural realism. Scott Sagan, in his seminal work, “Why Do States Build Nuclear Weapons? Three Models of the Bomb”, delineates the Security Model, which posits that states pursue nuclear weapons to increase national security against foreign threats in an anarchical international system.⁴ Within this framework, a nuclear deterrent becomes the ultimate mechanism for balancing against a nuclear-capable rival. Balancing can occur either through internal balancing (independent nuclear acquisition) or external balancing (reliance on a nuclear-armed ally’s extended deterrence).

Expanding on this structural notion, Kenneth Waltz’s *Theory of International Politics* (Waltz, 1979) emphasises that the anarchical systemic structure fundamentally incentivises states toward self-reliant security choices. While Waltz’s structural logic suggests that weaker states will seek security under the umbrella of a stronger nuclear state, this argument possesses a notable omission concerning two critical dynamics: (1) the implications for the weaker state’s nuclear proclivity if it gains substantial relative material power over time; and (2) the consequences when the nuclear protector’s commitment to extended deterrence is perceived as wavering or conditional. This critique is highly pertinent to the current study, given the intensified debates among political elites in South Korea and Japan—including figures such as former Japanese Prime Minister Shinzo Abe—regarding the reliability of the US’ extended deterrence. This scepticism has been exacerbated by the Russo-Ukrainian War and the growing range of North Korean ICBMs, such as the Hwasong-17 and Hwasong-18, which demonstrably place the US mainland within range. The fundamental realist tenet of “self-help”, thus, provides a continuous, powerful incentive for hedging.

Furthermore, John Mearsheimer’s *Offensive Realism* advances the idea that states must perpetually acquire power, as the quantum required for security is inherently unknowable.⁵ Under this logic, the pursuit of

regional hegemony to ensure survival and security becomes paramount, with nuclear weapons acquisition representing the most rapid pathway to achieving strategic dominance. This realist conclusion—that “all the states that can go nuclear, should go nuclear—and the sooner, the better” (Jacques, 2006)—faced significant criticism as the predicted widespread proliferation failed to materialise. This challenge to the Security Model is addressed by Vipin Narang’s Proliferation Strategy Theory (PST) (Narang, 2022). PST refines the realist antecedent by providing a systematic framework for understanding how a state will pursue nuclear weapons once the decision is made. Narang argues that while an acute, high-threat security environment is the necessary condition for an active nuclear weapons strategy, it must be mediated by factors such as domestic political consensus and material capacity. For the purposes of this analysis, the high-threat security environment—driven by Iran’s advanced nuclear status and North Korea’s sustained nuclear coercion—is presumed to be a given, thus, incentivising rival states in both regions to consider active nuclear proliferation.

The limitations of purely rationalist, security-driven predictions necessitated the integration of subjective and normative considerations. The Constructivist School of Thought transcends the material-security dimension by emphasising the Norms Model and the weapon’s utility as a symbol of identity and status. Jacques Hymans⁶ formalises this idealist analysis at three distinct levels:

International Level: Focussing on norms of non-proliferation, the nuclear non-use taboo, and the state’s self-conception as a “good international citizen.”

Domestic Level: Centred on societal constituencies, bureaucratic politics, and the balance of power between nuclear advocates and opponents.

Individual Level: Analysing the decisive role of the top leadership, as nuclear programmes are often highly secretive and concentrated under tight executive control.

Hymans asserts that idealist perspectives offer a “much better fit with the historical record of proliferation than realism does” (Hymans, 2006, p. 459), particularly in explaining the non-proliferation decisions of states with significant latent nuclear capabilities. The rarity of nuclear weapon states suggests that non-proliferation norms have been a prominent factor in the decision-making calculus. Furthermore, the value assigned to nuclear weapons by the existing nuclear weapon states—often termed “watching the bomb’s stock price”—influences the proliferation incentive. Serious disarmament efforts or the deemphasising of nuclear strike options in military doctrines would signal that nuclear weapons are a liability, not a strategic asset.

Contextual Application: The Case of Iran and the Korean Peninsula: In West Asia, nuclear decision-making is heavily influenced by two determining factors: national security and United States’ interests and alliances.⁷ During the era of Shah Mohammad Reza Pahlavi, Iran’s initial pursuit of nuclear energy was supported by the US’ Atoms for Peace Programme, following its signing of the Non-Proliferation Treaty (NPT) in 1970. This was a utilitarian choice by the US, viewing the Shah’s regime as a protectorate of stability in Gulf. Following the 1979 Islamic Revolution, Iran, despite contradictory religious edicts, reactivated its weapons programme in the 1980s. As Charles C Mayer has detailed, Iran’s motivations are multilayered: systemic (external threats), individual (the nuclear myth for nationalist support), and state-level (institutional bureaucracies).⁸

The most significant historical impetus for Iran’s nuclear pursuit was the existential threat posed by Iraq’s chemical and biological weapons, alongside the pervasive threat from Israel and the United States. In the contemporary era, this resolve intensified following targeted American and Israeli actions against Iranian assets, compounded by the Trump Administration’s adventurism—the withdrawal from the Joint Comprehensive Plan of Action (JCPOA) and the “maximum pressure” campaign. These aggressive acts, including the deployment of assets like

the USS *Abraham Lincoln* carrier strike group and large-scale foreign military sales to Saudi Arabia, only served to strengthen the Iranian regime's security-driven resolve to attain nuclear deterrence. While this fits squarely within Sagan's Security Model, Professor Paul Poast offers a critical constructivist nuance, suggesting that Iran's quest may be a defensive move aimed at altering a military imbalance that currently favours its rivals (Israel and Saudi Arabia) due to strong US defence ties. Poast ultimately concludes that the Iranian programme is also consistent with the "notion of status seeking (prestige)."⁹

In Northeast Asia, the Korean Peninsula remains deeply entrenched in the ideological and territorial cleavages of the Cold War. The security dynamics are perpetually subservient to the great power rivalry between the US and China. This highly vulnerable geopolitical complex is further exacerbated by North Korea's advancing missile capabilities, which now include long-range systems like the Hwasong-17 and Hwasong-18 capable of reaching the entire continental United States. The resulting US deployment of military assets to guard South Korea and Japan against North Korean coercion risks provoking China, thereby inextricably linking the Chinese security architecture with the Korean dynamics and increasing the regional security dilemma.¹⁰

To conclude, the analysis of potential nuclear proliferation in West Asia and Northeast Asia must move beyond simplistic realist predictions. This study utilises the synthesis of these models to analyse the proliferation potential of Saudi Arabia, Egypt, the UAE, Turkiye, South Korea, and Japan based on five key parameters: (1) material capability (nuclear power, fissile material, delivery systems); (2) strategic rationale (immediate security threats, prestige, bilateral dynamics); (3) commitment to non-proliferation regimes (NPT, Additional Protocol); (4) domestic political consensus on nuclear proliferation; and (5) nuclear weapons and alliance dynamics (extended deterrence, counter-proliferation efforts).

All the six countries reflect differentiated levels of latency. Nuclear latency refers to a state's capacity to acquire nuclear weapons within a

relatively short time-frame without having crossed the formal threshold of weaponisation. Scholars conceptualise latency not merely as a technical condition but as a strategic posture. Jacques Hymans views nuclear latency as the outcome of restraint shaped by national identity and normative self-conceptions, while Vipin Narang treats it as a deliberate hedging strategy conditioned by the threat environment, domestic consensus, and material readiness.¹¹ From a realist perspective, latency represents an intermediate position between reliance on extended deterrence and full nuclear acquisition, allowing states to preserve strategic ambiguity while avoiding the political and legal costs of overt proliferation.

Drawing on this framework, the monograph concludes that the six countries under investigation exhibit differentiated levels of nuclear latency rather than a uniform proliferation trajectory. Saudi Arabia and Türkiye display emerging latency, driven by deteriorating regional security environments and a growing interest in the nuclear infrastructure, but constrained by technological gaps and alliance considerations. Egypt demonstrates low-to-moderate latency, possessing long-standing nuclear ambitions and symbolic commitment, yet lacking the material depth and political momentum for a rapid breakout. The UAE represents a case of constrained or deliberately suppressed latency, having significant civilian nuclear capacity but embedding strong non-proliferation norms and intrusive safeguards into its programme. In Northeast Asia, South Korea and Japan constitute advanced latent nuclear states: both possess sophisticated fuel-cycle knowledge, industrial capacity, and delivery platforms, but remain institutionally restrained by alliance dependence on the US' extended deterrence and domestic normative barriers. Collectively, the study finds that nuclear latency today functions less as a transitional stage toward inevitable weaponisation and more as a strategic hedge shaped by regional threat perception, alliance credibility, and the erosion (but not collapse) of the global non-proliferation regime.

Readers are encouraged to interpret the chapters in conjunction with Table 6, which quantifies the proliferation potential of the six countries

under study. The table operationalises the theoretical framework by assigning scores across five key parameters—material capability, strategic rationale, commitment to non-proliferation regimes, domestic political consensus, and alliance dynamics—allowing for a systematic comparison of latent nuclear capacity. This quantitative representation complements the qualitative analysis, illustrating how different states exhibit distinct levels of nuclear latency and the complex interplay among technological capabilities, political will, and external constraints. By bridging the conceptual framework with empirical scoring, Table 6 provides a structured lens for assessing both emerging and advanced latent nuclear states, as well as cases where nuclear latency is deliberately constrained.

Declaration: The author acknowledges that AI tools were used solely for the purpose of providing drafting and language-polishing suggestions. The author takes full responsibility for the content of this publication. The arguments, interpretations and conclusions made in the monograph are entirely the outcome of the author's own understanding of the subject.

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ABBREVIATIONS

AEGIS	Advanced Electronic Guided Interceptor System
CSA	Comprehensive Safeguards Agreement
CTBT	Comprehensive Nuclear Test Ban Treaty
DPRK	Democratic People's Republic of Korea
HGV	Hypersonic Glide Vehicle
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
IRBM	Intermediate-Range Ballistic Missile
JCPOA	Joint Comprehensive Plan of Action
JASDF	Japan Air Self-Defence Force
JGSDf	Japan Ground Self-Defence Force
JMSDF	Japan Maritime Self-Defence Force
JMFA	Japan Ministry of Foreign Affairs
LDP	Liberal Democratic Party (Japan)
LNG	Liquefied Natural Gas
MOX	Mixed Oxide Fuel
MRBM	Medium-Range Ballistic Missile
MFAJ	Ministry of Foreign Affairs of Japan
NSA	National Security Archive
NSS	National Security Strategy
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NTI	Nuclear Threat Initiative
PAC-3	Patriot Advanced Capability-3
ROK	Republic of Korea

SQP	Small Quantities Protocol
SRBM	Short-Range Ballistic Missile
SDF	Self-Defence Forces (Japan)
THAAD	Terminal High Altitude Area Defence
UAE	United Arab Emirates
UN	United Nations
WMD	Weapon of Mass Destruction

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1. SAUDI ARABIA: CAUGHT IN THE DYNAMICS OF UNCERTAINTIES

Introduction

Saudi Arabia has long been perceived as a potential aspirant for nuclear weapons, a perception rooted in the broader context of Middle Eastern rivalries since the Islamic Revolution in Iran. The origins of this suspicion can be traced to the 1980s, when the ideological and geopolitical competition between Sunni-dominated Saudi Arabia and Shia-dominated Iran intensified, particularly as Iran's connections to the Abdul Qadeer Khan network became evident.¹ The defection of Saudi diplomat Mohammed Khilewi in 1994 further amplified concerns regarding Riyadh's nuclear intentions, although subsequent investigations yielded no conclusive evidence of an active weapons programme. Khilewi alleged that Saudi Arabia had contemplated the development of nuclear weapons as early as the 1970s, motivated by an acute perception of threat from Israel. This perceived vulnerability, in turn, shaped the United States' reluctance to provide Riyadh with advanced weapons systems during the Iran–Iraq War.²

Proliferation anxieties resurfaced following Saudi Arabia's acquisition of Intermediate-Range Ballistic Missiles from (IRBMs) China, a move that coincided with the failure of negotiations over advanced weapons systems with the United States. In the aftermath of the 2003 Iraq invasion, *The Guardian* reported that Riyadh, as part of its strategic security reassessment, was considering the option of

acquiring nuclear weapons to ensure deterrence and regional stability.³ More recently, former Foreign Minister Adel al-Jubeir's declaration that "if Iran acquires nuclear capability, we will do everything we can to do the same" has been interpreted as a reaffirmation of Saudi Arabia's conditional nuclear posture.⁴

Developments in the 2020s have further reinvigorated global scrutiny of Saudi Arabia's nuclear trajectory. The kingdom's exploration of domestic uranium reserves in regions such as Al Ula and Hail, confirmed through geological surveys and joint projects with the China National Nuclear Corporation have underscored its growing technical and material base.⁵ Simultaneously, Saudi Arabia has pursued civil nuclear cooperation with multiple partners—including Russia's Rosatom, South Korea's Korea Electric Power Corporation (KEPCO), and the United States—while insisting on its right to enrich uranium on national soil.⁶ Negotiations with Washington over a prospective civilian nuclear cooperation framework, often referred to as a "123 Agreement," have focussed on whether Riyadh will commit to non-enrichment clauses similar to those accepted by the United Arab Emirates (UAE). Although the kingdom has indicated its readiness to implement a comprehensive safeguards agreement with the International Atomic Energy Agency (IAEA), it has yet to ratify the Additional Protocol, leaving questions about transparency and long-term intentions unresolved.

These evolving dynamics—set against the backdrop of regional normalisation initiatives with Israel, renewed uncertainty surrounding the future of the Joint Comprehensive Plan of Action (JCPOA), and shifting US security commitments—have collectively heightened attention to Saudi Arabia's latent proliferation potential. The subsequent analysis evaluates this potential through five parameters: material capability, strategic rationale, commitment to non-proliferation regimes, domestic political consensus, alliance dynamics, and prospective counter-proliferation measures.

Material Capability of Saudi Arabia

Nuclear Power Infrastructure: Saudi Arabia currently does not possess indigenous nuclear power generation capability. However, it has long-term plans to operate up to 16 civilian nuclear power reactors over the next two decades, with an interim goal of generating approximately 3.6 GW (Giga Watt) of nuclear energy by 2030 from two planned nuclear power plants.⁷ The discovery of substantial uranium deposits in the central and northwestern regions—particularly around Al Ula, Hail, and Asir—has encouraged Riyadh to utilise domestic reserves to diversify its energy base, which remains overwhelmingly dependent on hydrocarbons. Saudi authorities have repeatedly emphasised their intent to pursue the “entire nuclear fuel cycle,” encompassing yellowcake production, uranium conversion, and low-enrichment processes, ostensibly for peaceful purposes and potential export markets.⁸

Energy Minister Prince Abdulaziz bin Salman reaffirmed in 2023 that Saudi Arabia would “utilise its national uranium resources with full transparency and in accordance with international commitments,” further indicating that enrichment and fuel fabrication would be carried out for both national use and export.⁹ The Saudi Nuclear Energy Holding Company (SNEHC) continues to oversee the construction and operation of nuclear facilities and to coordinate international partnerships. The kingdom is also in the advanced stages of completing its first research reactor at the King Abdulaziz City for Science and Technology.¹⁰

In 2024–25, Riyadh entered negotiations with the United States over a civilian nuclear cooperation framework (the “123 Agreement”) that would permit US participation in its reactor projects. Central to these talks is the Saudi insistence on retaining the right to enrich uranium domestically—an issue that has drawn global scrutiny because of its potential dual-use implications.¹¹ Simultaneously, cooperation with China and Russia in reactor design, as well as South Korea’s participation through KEPCO, has expanded the kingdom’s technical options for establishing a domestic nuclear infrastructure.

Fissile Material and Nuclear Technology Experience: Speculation persists regarding the development of a uranium processing facility at Al Ula, possibly for yellowcake production, marking a critical step toward establishing a self-sustaining nuclear fuel cycle. A confidential Chinese assessment reported by *The Guardian* suggested that Saudi Arabia possesses sufficient mineable uranium ore to support an indigenous programme. Riyadh's broader goal of nuclear "self-sufficiency" has been repeatedly articulated by senior officials.¹² As noted by Mark Hibbs of the Carnegie Endowment for International Peace, the strategic benefit of indigenous uranium procurement is that it avoids dependency on external suppliers who may impose peaceful-use conditions.¹³ While Saudi Arabia continues to maintain that its nuclear activities remain peaceful, the cumulative expansion of its uranium exploration programme, coupled with the absence of an Additional Protocol with the IAEA, sustains concerns about the long-term transparency of its nuclear ambitions.

Delivery Systems and Missile Capability: Historically, Saudi Arabia's missile development trajectory has been intertwined with its security concerns vis-à-vis Iran and Israel. During the Cold War, despite its strategic partnership with the United States, Riyadh turned to Beijing for missile technology. In 1987, it clandestinely acquired the Chinese Dongfeng-3 (CSS-2) IRBM (range 2,500–3,000 km), and later, in 2007, procured the upgraded Dongfeng-21 (CSS-5) with improved accuracy and a range of approximately 1,700 km.

According to the Nuclear Threat Initiative, Saudi Arabia does not possess a Weapon of Mass Destruction (WMD) programme but does maintain IRMBs capable of delivering unconventional warheads.¹⁴ Satellite imagery released in 2024 revealed ongoing activity at a missile production site near al-Dawadmi, suggesting that Saudi Arabia has developed solid-fuel ballistic missile production capabilities with Chinese technical assistance.¹⁵ Although Chinese authorities assert that the systems are fitted with conventional warheads, analysts view such capacities as indicative of a latent deterrence posture. The United

States, constrained by its obligations under the Missile Technology Control Regime (MTCR), has refrained from supplying ballistic missile technology to Riyadh. China, though not a formal MTCR member, has pledged only voluntary adherence to its guidelines, enabling it to continue selective transfers. Mark Fitzpatrick of the International Institute for Strategic Studies argues that Saudi Arabia's acquisition of long-range ballistic missiles, despite their limited military utility in conventional warfare, is best understood as a nuclear hedging strategy—maintaining a platform that could, if necessary, be mated with a nuclear payload.¹⁶

Following the 2019 Iranian attack on the Saudi oil infrastructure, Riyadh deployed advanced air defence systems, including the US' Terminal High Altitude Area Defence (THAAD). After the United States withdrew its THAAD batteries in 2021, Saudi Arabia initiated domestic production of key components. In 2022, the General Authority of Military Industries (GAMI) approved localisation of missile interceptor launchers and canisters as part of its target to indigenise over 50 per cent of defence expenditure.¹⁷ These developments, coupled with indigenous missile-assembly capabilities, enhance Saudi Arabia's potential delivery systems for any future strategic weapons programme.

Clandestine Acquisition Through Pakistan: Beyond indigenous capacity, speculation continues regarding Saudi Arabia's potential recourse to Pakistan as an external source of nuclear capability. American and Israeli intelligence assessments in 2013 suggested that Riyadh could rapidly access nuclear weapons technology if Iran were to achieve a nuclear breakout.¹⁸ This perception derives from the long-standing strategic and financial relationship between the two states, dating back to Saudi financial assistance for Pakistan's nuclear programme—sometimes referred to as the “Islamic bomb” initiative. Saudi–Pakistani defence cooperation was notably visible in 1999 and 2002 when Saudi defence officials visited Pakistan's Kahuta enrichment facility and observed the Ghauri missile tests. Former White House Coordinator for Arms Control Gary Samore, asserted in 2013 that “the Saudis believe that they

have some understanding with Pakistan that, *in extremis*, they would have claims to acquire nuclear weapons”.¹⁹ Similarly, former Israeli intelligence officials have claimed that Riyadh may have pre-financed aspects of Pakistan’s nuclear weapons development and could access such capabilities if regional security conditions deteriorate.²⁰

In recent years, as Pakistan’s economic vulnerability has deepened, its dependence on Saudi financial support has provided Riyadh with continued leverage. Analysts suggest that Pakistan’s willingness to exchange military cooperation and technical assistance for Saudi budgetary aid remains a feature of this partnership. The Saudi–Pakistan Strategic Mutual Defence Agreement (SMDA), signed on September 17, 2025, carries significant nuclear implications despite its formally defensive framing. The agreement explicitly mentions that “any aggression against either country shall be considered an aggression against both”, and it “aims to develop aspects of defense cooperation between the two countries and strengthen joint deterrence against any aggression.” By aligning with Pakistan, the only Muslim-majority nuclear-armed state, Saudi Arabia gains access to an implicit extended deterrence arrangement without overtly violating its NPT commitments. This creates a form of latent nuclear umbrella, enhancing Riyadh’s deterrence against Iran and, indirectly, Israel. For Pakistan, the agreement elevates its strategic relevance and leverages nuclear capability for diplomatic and economic gain. However, the pact risks intensifying regional security dilemmas, provoking counter-alignments involving India, Israel, and the United States, and complicating global non-proliferation norms.

Overall, Saudi Arabia’s material capability does not presently indicate an operational WMD programme. Nonetheless, its expanding uranium exploration, prospective enrichment ambitions, indigenous missile production capacity, and enduring defence cooperation with Pakistan collectively provide it with the latent infrastructure necessary to pursue a weapons option should the geopolitical environment so demand. The convergence of civil nuclear development, strategic hedging, and

external linkages underscores the kingdom's position as a state possessing significant proliferation potential rather than an immediate nuclear weapons programme.

Rationale for Acquiring Nuclear Weapons

Scott Sagan identifies three principal drivers for nuclear acquisition: security, domestic politics, and norms. Among these, the most compelling rationale for Saudi Arabia lies in security considerations.²¹ Vipin Narang's framework on nuclear proliferation strategies similarly accords primacy to existential security threats as the foremost determinant of a state's decision to pursue nuclear weapons. In the realist tradition, John Mearsheimer posits that the security of states can never be absolutely guaranteed, thereby compelling them to seek power maximisation for survival.²² Within this logic, nuclear weapons constitute the ultimate instrument of deterrence and power projection. The subsequent analysis situates Saudi Arabia's nuclear rationale within its evolving regional threat perceptions and strategic environment.

The security landscape of West Asia, and particularly the Persian Gulf, has undergone profound transformation since the late 20th century. The earlier decades were marked by the Arab–Israeli conflict, the 1979 Iranian Revolution, and the Iran–Iraq War—each contributing to Riyadh's strategic anxieties. As the custodian of Sunni orthodoxy and regional status quo, Saudi Arabia faced the dual challenge of containing revolutionary Iran and responding to Israel's enduring nuclear opacity. However, the contemporary environment has shifted markedly. Communist influence has receded, Iraq no longer poses a substantial threat, and the Abraham Accords (2020) initiated a gradual normalisation between Israel and several Gulf monarchies.²³ Against this backdrop, Iran's expanding nuclear capabilities have emerged as the primary and persistent security concern for Riyadh.

The revelation of Iran's clandestine nuclear activities in the early 2000s and the subsequent conclusion of the JCPOA in 2015 heightened

Saudi scepticism regarding Tehran's nuclear ambitions. While Riyadh cautiously supported the JCPOA initially, the Trump Administration's unilateral withdrawal in 2018 was welcomed by the Saudi leadership as a reassertion of US pressure on Iran. Yet, the subsequent erosion of the nuclear deal, coupled with Tehran's steady advancement of its enrichment programme, reaching 60 per cent purity by early 2023 has deepened Riyadh's apprehensions.

In 2024–25, regional nuclear dynamics have grown even more complex. In January 2025, Saudi Energy Minister Prince Abdulaziz bin Salman explicitly declared that the kingdom would “enrich and sell uranium”, marking the first formal acknowledgment of plans to develop domestic enrichment capacity.²⁴ This announcement follows the December 2024 decision to rescind Saudi Arabia's Small Quantities Protocol (SQP) with the International Atomic Energy Agency (IAEA), allowing for the implementation of a Comprehensive Safeguards Agreement (CSA)—a move intended to project transparency while retaining flexibility for future enrichment.²⁵

Simultaneously, negotiations with the United States over a Section 123 civil nuclear cooperation agreement have intensified. Although US Energy Secretary Chris Wright noted in April 2025 that both nations are on a “pathway” toward such an agreement, Riyadh continues to insist on its sovereign right to enrich uranium—an issue that remains the central obstacle.²⁶ Saudi Arabia's insistence on enrichment rights, despite American concerns, illustrates its desire to preserve a latent nuclear option in the light of perceived uncertainties surrounding US security guarantees. The erosion of faith in extended deterrence, particularly following Washington's retrenchment from Middle Eastern security commitments and the precedent of Western hesitation during the Russia–Ukraine conflict, has amplified Riyadh's desire for strategic autonomy.

Iran's accelerating nuclear advances and regional activism reinforce this logic. In April 2025, Tehran proposed a regional enrichment

consortium that would include Saudi Arabia and the UAE under IAEA oversight—a move widely interpreted as an attempt to legitimise enrichment activities regionally while diffusing Western pressure.²⁷ Although framed as a cooperative initiative, such a proposal underscores the competitive nature of nuclear capability in the Gulf, where technological parity translates directly into deterrence credibility.

The Saudi leadership has consistently articulated a conditional stance on nuclear acquisition. In 2018, Crown Prince Mohammed bin Salman asserted that “Saudi Arabia does not want to acquire any nuclear bomb, but without a doubt, if Iran developed a nuclear bomb, we will follow suit as soon as possible”.²⁸ This rhetoric, far from being symbolic, reflects Riyadh’s attempt to hedge strategically. As Ali Ahmed of the Harvard Kennedy School observes, Saudi ambiguity on the nuclear question functions as a political instrument—both to deter adversaries and to leverage international pressure against Iran. Moreover, the gradual recalibration of Saudi foreign policy marked by diversification of security partnerships with China, Russia, and Pakistan further reduces the deterrent value of an exclusive US umbrella. The ongoing collaboration with China on missile technologies and defence localisation projects exemplifies Riyadh’s pursuit of multidirectional strategic hedging.²⁹

In summary, Saudi Arabia’s rationale for potential nuclear acquisition is rooted in three intertwined dynamics: (1) Iran’s advancing nuclear and missile capabilities and the failure of JCPOA restoration; (2) declining confidence in US security guarantees and the resultant quest for strategic self-reliance; and (3) the regional normalisation process that paradoxically compels Riyadh to assert its deterrence posture vis-à-vis both Tehran and Tel Aviv. The combination of these factors suggests that while Saudi Arabia remains officially committed to non-proliferation, its nuclear trajectory increasingly reflects a hedging strategy—maintaining the latent capacity to weaponise if the regional balance of power so demands.

Commitment to Non-Proliferation Regimes

Saudi Arabia's early posture toward global non-proliferation frameworks had been shaped by its regional security context and long-standing antagonism with Israel. Its ontological insecurity, compounded by the 1979 Islamic Revolution in Iran, reinforced the kingdom's desire to maintain strategic flexibility. Like Iran, Saudi Arabia signed the NPT in 1968 as a non-nuclear weapon state but ratified it only in 1988—reportedly under pressure from the United States. In 2005, Riyadh also concluded a Comprehensive Safeguards Agreement (CSA) with the International Atomic Energy Agency. As Mark Hibbs, Senior Fellow at the Carnegie Nuclear Policy Programme, observes, Saudi officials have often expressed ambivalence toward the NPT regime, underscoring a pragmatic rather than normative adherence to non-proliferation norms.³⁰ Although Saudi Arabia remains a treaty member, statements by senior officials that explicitly link potential nuclear acquisition to Iran's programme reflect a conditional commitment to the NPT. In the same year, Riyadh also signed the Small Quantities Protocol (SQP)—a provision allowing states with minimal nuclear activities to forgo intrusive inspection in exchange for periodic declarations.³¹ This was initially interpreted as an endorsement of the kingdom's peaceful nuclear intentions.

However, as Saudi Arabia's domestic nuclear ambitions expanded—particularly in the light of plans to develop uranium enrichment capacity—the IAEA has intensified its calls for stronger safeguards. IAEA Director-General Rafael Grossi stated that “when they (Saudi Arabia) upgrade their activities, including by the introduction of nuclear material in the kingdom, then we will have to have a stronger safeguard system”.³² The statement underscores international concerns over Riyadh's limited transparency and its continued reluctance to adopt the IAEA's Additional Protocol, which provides for more comprehensive verification measures. Hibbs had earlier cautioned that Saudi Arabia should conclude and fully implement the Additional Protocol to reassure the international community of its non-proliferation intent.

Further controversy emerged during the Trump Administration, when questions were raised about the transfer of sensitive nuclear technologies to Saudi Arabia without sufficient congressional oversight. US Senator Tim Kaine described these developments as “fuelling a dangerous escalation of tension in the region.”³³ These apprehensions have not fully dissipated, especially amid Riyadh’s ongoing insistence on domestic uranium enrichment rights as part of its proposed civil nuclear cooperation agreement with Washington. A notable recent development occurred in December 2024, when Saudi Arabia formally rescinded its Small Quantities Protocol (SQP), thereby activating its Comprehensive Safeguards Agreement (CSA) in full.³⁴ This decision—long urged by the IAEA and Western governments—marks an important step toward transparency and accountability. Nonetheless, it also indicates Riyadh’s determination to expand its nuclear activities under a more formalised safeguards framework while still avoiding accession to the Additional Protocol.

Saudi Arabia’s approach to multilateral disarmament instruments has also evolved. Historically, the kingdom strongly endorsed the idea of a total legal ban on nuclear weapons. It was among the 127 states supporting the “Humanitarian Pledge” that sought to stigmatise, prohibit, and eliminate nuclear weapons. During deliberations at the United Nations General Assembly, Riyadh initially voted in favour of resolutions leading to the Treaty on the Prohibition of Nuclear Weapons (TPNW) and urged states to sign, ratify, and accede to it. However, since 2021, Saudi Arabia has abstained from voting on subsequent TPNW resolutions and has not signed or ratified the treaty. This shift reflects a growing tension between Saudi Arabia’s declaratory commitment to global disarmament and its pragmatic security calculus in a volatile regional environment. Riyadh’s abstention from the TPNW process signals a deliberate attempt to retain a strategic latitude—to ensure that it remains capable of responding to any potential nuclear eventuality in the region without being constrained by the legal obligations of the treaty.

In 2025, this tension was visible. While the rescission of the SQP and engagement with the IAEA represent important confidence-building measures, Saudi Arabia's pursuit of uranium enrichment rights and its ambivalent stance toward the TPNW illustrate the dual-track nature of its non-proliferation policy: formal compliance paired with latent hedging potential.

Domestic Political Consensus on Nuclear Proliferation

Saudi Arabia's traditional nuclear policy has long reflected a rhetorical commitment to non-proliferation and the establishment of a Nuclear-Weapon-Free Zone (NWFZ) in West Asia. Historically, this position has been reinforced by Riyadh's strong strategic and economic ties with the United States, which have provided both extended deterrence and political assurance. Consequently, Saudi leaders have consistently denied any intention to acquire nuclear weapons, even during the turbulent decades of the late 20th century. However, it is equally evident that when the perceived threat from Iran intensifies, Saudi statements have exhibited ambiguity—oscillating between adherence to non-proliferation norms and veiled assertions of pursuing an indigenous nuclear option. In 2006, the Saudi ambassador to the United States, while rejecting direct speculation about nuclear proliferation, suggested that if Iran were to develop nuclear weapons, “many neighbouring states will also follow its example”.³⁵

This strategic ambiguity has gradually evolved into a more assertive stance in the wake of shifting geopolitical alignments. The waning credibility of US security commitments—demonstrated by its retrenchment from Afghanistan and perceived hesitancy in Ukraine—has contributed to a recalibration of Saudi threat perceptions. Against this backdrop, Riyadh's recent discourse on nuclear acquisition appears more vocal, resolute, and policy-driven than in previous decades. The statements of Crown Prince Mohammed bin Salman (MBS) since 2023, reaffirming that Saudi Arabia will match Iran “step for step” if it acquires a

nuclear weapon, encapsulate this more forthright attitude.³⁶ The political consensus underlying such pronouncements remains consolidated within the ruling elite, which monopolises strategic decision-making in the kingdom's highly centralised polity.

Public discourse in Saudi Arabia, particularly in the post-2018 Vision 2030 reform era, reveals a carefully managed national narrative in which the royal family retains overwhelming legitimacy as the ultimate guarantor of national security.³⁷ Online campaigns and editorials in pro-government media outlets frequently reiterate the kingdom's right to defend itself against existential threats, with some hardline commentators invoking the notion of divine sanction for self-defence against a potential Iranian nuclear capability. This domestic political environment, therefore, provides a permissive consensus for the monarchy's nuclear rhetoric, while limiting space for dissenting opinions. Religious and identity-based dynamics also reinforce this consensus. As the birthplace of Islam and custodian of its two holiest sites, Mecca and Medina, Saudi Arabia's self-conception as a Sunni stronghold against Shia Iran carries deep ideological undertones. Within this context, nuclear decision-making is perceived not only as a strategic necessity but also as a religiously sanctioned obligation to protect the faith's sanctuaries from perceived Shia encroachment. As Nizzah and Siti argue, Saudi Arabia's national identity as a Salafi state upholding anti-Shia sentiment is instrumental in shaping its Iran policy, particularly in relation to Tehran's nuclear ambitions.³⁸ This ideological framing legitimises nuclear assertiveness as both a political and theological imperative.

In sum, Saudi Arabia's domestic political consensus on nuclear issues is characterised by elite centralisation, religious legitimisation, and a growing strategic assertiveness influenced by perceived US disengagement and Iran's nuclear trajectory. These factors collectively sustain a latent yet durable alignment of societal narratives and elite decision-making in favour of maintaining a credible nuclear option, should regional conditions necessitate it.

Nuclear Weapons and Saudi Arabia's Alliance Dynamics

Besides Israel, Saudi Arabia has long been regarded as the United States' principal interlocutor in managing West Asian security affairs. For nearly seven decades, the foundation of the US–Saudi dyad has rested on a tacit exchange of security for oil.³⁹ The relationship dates back to the historic 1945 meeting between US President Franklin D. Roosevelt and Saudi Arabia's founder, King Abdulaziz ibn Saud, aboard the USS *Quincy* in the Suez Canal—a symbolic inception of an enduring strategic partnership. Over the decades, this relationship has experienced occasional tensions, including the 1973 oil embargo, but deepened substantially after the 1979 Iranian Revolution. The partnership, however, has periodically been tested by diverging political values and security perceptions, including the involvement of Saudi nationals in the 9/11 attacks, Washington's reduced dependence on Gulf oil due to the shale boom, and Riyadh's 2017-led blockade of Qatar, host to the largest US military base in the region.⁴⁰ More recently, the assassination of journalist Jamal Khashoggi and the humanitarian crisis in Yemen have emerged as enduring irritants between the two capitals.

The Trump Administration's unilateral withdrawal from the JCPOA, though initially welcomed by Riyadh, exacerbated its security anxieties. The subsequent Vienna negotiations aimed at reviving the nuclear deal—amid Iran's enrichment of uranium to 60 percent purity and its rigid demand for sanction relief—were perceived in Saudi Arabia as detrimental to its regional security calculus. The Biden Administration's approach was notably different from that of its predecessor. Although President Biden initially characterised Saudi Arabia as “a global pariah” over Khashoggi's murder, strategic pragmatism has since prevailed. Following Russia's 2022 invasion of Ukraine, US engagement with Saudi Arabia has intensified once again, primarily due to the kingdom's influence on global energy markets and its pivotal role in containing Iranian assertiveness.⁴¹ A significant geopolitical shift occurred on March 10, 2023, when China successfully mediated the restoration of

diplomatic relations between Saudi Arabia and Iran—two long-time adversaries in the Persian Gulf. This diplomatic breakthrough, hosted in Beijing, culminated in a joint communiqué emphasising “mutual respect for sovereignty and non-interference in internal affairs.” The episode represented a symbolic departure from Washington’s traditional role as the chief security broker in West Asia and underscored China’s growing geopolitical footprint in the region.⁴² The normalisation between Riyadh and Tehran, although tentative, demonstrated Beijing’s increasing ability to exercise influence through diplomatic and economic channels rather than military coercion.

China’s mediation efforts align with its broader strategic narrative of promoting “dialogue and peace” as a counterpoint to the US security architecture in the region. As Chinese Foreign Minister Wang Yi remarked, “This is a victory for dialogue, a victory for peace... a major positive development in a turbulent world”.⁴³ This diplomatic success has further consolidated China’s reputation as a stabilising actor in West Asian politics while serving its energy interests, given that approximately 40 percent of China’s crude oil imports originate from the Gulf. As Chief Executive of the Foundation for Defence of Democracies, Mark Dubowitz, observes, “The agreement demonstrates that the Saudis no longer trust Washington to have their back, that Iran sees an opportunity to peel away American allies, and that China is emerging as the major-domo of Middle Eastern power politics.”⁴⁴

These evolving alliance dynamics have profound implications for Saudi Arabia’s nuclear posture. The perceived erosion of US security reliability—combined with China’s expanding regional influence and Iran’s nuclear advancements—has pushed Riyadh to diversify its strategic partnerships while seeking autonomy in its defence calculus. The Saudi leadership’s insistence on retaining the right to enrich uranium as a precondition for civil nuclear cooperation with the United States illustrates this aspiration for strategic independence.⁴⁵ In the emerging multipolar context of West Asia, Saudi Arabia’s alliance choices and

nuclear trajectory are no longer constrained solely by its traditional partnership with Washington but are increasingly shaped by a pragmatic balancing between the great powers

Potential Counter-Proliferation Efforts

The history of counter-proliferation in West Asia provides ample precedent for preemptive action against suspected nuclear programmes. In June 1981, the Israeli Air Force destroyed Iraq's under-construction Osirak nuclear reactor to prevent Baghdad from accessing plutonium for potential weapons development. Similarly, in 2007, Israel launched Operation Orchard against an undeclared nuclear reactor in Syria, and in 2010, it was widely believed to have orchestrated the Stuxnet cyber attack on Iran's Natanz uranium enrichment facility, substantially sabotaging its centrifuge operations. Libya's decision to dismantle its clandestine WMD programme following the 2003 US-led invasion of Iraq also underscored the potency of coercive counter-proliferation mechanisms in the region. Within this historical frame, the question arises of whether a prospective Saudi nuclear programme could be susceptible to similar forms of counter-proliferation targeting by regional or extraregional actors.

From Saudi Arabia's current security dynamics, three plausible counter-proliferation contingencies can be envisaged. The first involves a direct Israeli preemptive strike on suspected Saudi nuclear facilities, replicating the precedents of Iraq and Syria.⁴⁶ The second scenario envisions Iranian sabotage or missile attacks—either overt or covert—targeting Saudi strategic installations. The third involves proxy attacks by the Houthi movement, acting as Tehran's regional surrogate, against Saudi critical infrastructure, including nuclear assets, similar to the earlier strikes on the Abqaiq and Khurais oil processing facilities.

Over the past four decades, however, the Israeli threat perception vis-à-vis Saudi Arabia has markedly diminished. The Abraham Accords brokered under the Trump Administration normalised relations between Israel and several Arab states, including the UAE, Bahrain, Morocco, and

Sudan. According to *The Wall Street Journal*, defence delegations from Saudi Arabia, Qatar, the UAE, Jordan, Bahrain, and Egypt held a closed-door meeting with the Israeli Defence Forces Chief of Staff in Egypt to discuss regional security coordination, facilitated by the United States.⁴⁷ Reportedly, the group agreed to share intelligence and coordinate early-warning mechanisms for drone, ballistic, and cruise missile attacks. This indicates a growing anti-Iranian security compact between Israel and the Arab monarchies, reducing the likelihood of any Israeli-led kinetic counter-proliferation against Riyadh's potential nuclear ambitions.

The United States has also restructured its regional command architecture to bolster integrated defence networks. In a notable shift, the Pentagon transferred Israel's defence coordination from the US European Command (EUCOM) to the US Central Command (CENTCOM), thereby consolidating regional security linkages. US lawmakers have since debated the establishment of a joint regional air and missile defence system integrating Israeli and Gulf Arab capabilities against Iranian threats. President Biden's visit to Jeddah in mid-2022 symbolised Washington's effort to reinvigorate a united Israeli-Arab front against Iran. The resolution of disputes over the Tiran and Sanafir Islands further facilitated incremental normalisation between Israel and Saudi Arabia. Against this backdrop of emerging cooperative security arrangements, any direct counter-proliferation strike by Israel against Saudi installations would jeopardise an increasingly valuable regional alignment against Tehran.

Iran, meanwhile, has so far refrained from engaging Saudi Arabia directly in military confrontation, largely due to Riyadh's superior conventional capabilities and continued defence cooperation with the United States.⁴⁸ Tehran's asymmetric strategy, however, leverages proxy warfare through the Houthi movement in Yemen, which has repeatedly targeted Saudi critical infrastructure. The 2019 attacks on the Aramco facilities at Abqaiq and Khurais and subsequent missile strikes on the Jeddah oil depot in 2022 illustrate the vulnerability of Saudi strategic

assets to precision strikes by non-state actors. Despite ongoing diplomatic normalisations between Riyadh and Tehran, brokered by Beijing in March 2023, Houthi hostilities persisted sporadically through 2024, underscoring the fragility of the *détente*.⁴⁹

A key vulnerability in Saudi Arabia's counter-proliferation resilience stems from its dependence on American defensive systems. Amid strained bilateral relations following the Khashoggi affair, the United States withdrew Patriot and THAAD missile batteries from Saudi territory in 2021. Although select defensive deployments have since resumed, the temporary withdrawal exposed the limitations of Saudi self-reliance and the potential susceptibility of critical installations to missile or drone strikes. Without comprehensive missile defence coverage, even limited proxy assaults could compromise strategic infrastructure, including future nuclear facilities.

Yet, Washington's strategic interests in maintaining Saudi stability cannot be overlooked. Despite episodic tensions, Saudi Arabia remains central to the US security architecture in the Gulf, both as an energy supplier and as a counter-balance to Iranian expansionism. As such, the United States is unlikely to allow a complete deterioration of the Saudi security capacity. Nevertheless, continued uncertainty over US commitments has already prompted Riyadh to diversify its defence partnerships, including increased cooperation with China in ballistic missile technology and strategic infrastructure security.⁵⁰

In sum, while Saudi Arabia faces theoretical vulnerabilities to counter-proliferation interventions—whether by Israel, Iran, or non-state proxies—the evolving regional security architecture, combined with Riyadh's deepening external partnerships, renders such efforts increasingly complex and diplomatically costly. The interplay of emerging multipolar alignments and deepening technological interdependence across West Asia is gradually transforming traditional models of counter-proliferation into more political, rather than purely kinetic, instruments of containment.

Saudi Arabia is categorised as a “High Risk” state characterised by reactive hedging because it maintains a latent capacity to weaponise as a calculated response to the threat of an Iranian nuclear breakout, rather than an immediate desire for an arsenal (see Table 6). Ranking highest in the Proliferation Risk Index with a score of 19/25, the kingdom’s posture is driven by a Material Capability (4/5) that includes plans for 16 reactors, an insistence on domestic uranium enrichment rights to utilise indigenous deposits in Al Ula and Hail, and a sophisticated delivery infrastructure comprising Chinese-sourced DF-3 and DF-21 missiles alongside the 2025 Strategic Mutual Defence Agreement with Pakistan which provides an implicit “latent nuclear umbrella”. This is reinforced by a Strategic Rationale (4/5) centred on the “Iran Factor,” where Crown Prince Mohammed bin Salman has pledged to “follow suit” if Tehran nuclearises, and a Non-Proliferation Commitment (4/5) viewed as pragmatic and conditional, evidenced by Riyadh’s refusal to ratify the IAEA Additional Protocol and its shift to abstaining from TPNW resolutions to retain strategic latitude. Furthermore, a strong Domestic Political Consensus (4/5)—rooted in elite centralisation and the religious obligation to protect the holy sites—combines with shifting Alliance Dynamics (3/5), where declining faith in US security guarantees has prompted Riyadh to seek strategic autonomy and diversify partnerships with China and Russia.

Conclusion

This chapter has examined the potential trajectory of Saudi Arabia’s nuclear proliferation and its regional implications in the context of an Iranian nuclear breakout. Despite Riyadh’s longstanding security partnership with the United States, the kingdom possesses both the political will and the material capability to pursue an indigenous nuclear programme if strategic imperatives demand it. As discussed, multiple reports have indicated Saudi efforts toward uranium extraction and enrichment research, aimed at achieving greater self-sufficiency in

nuclear source materials. Growing doubts over the credibility of US security commitments—particularly following episodes of strained bilateral relations—have further incentivised Saudi policymakers to explore autonomous strategic options.

Iran's accelerating nuclear progress, coupled with the persistent deadlock in the Vienna negotiations, presents a multidimensional dilemma for Riyadh. Should diplomatic efforts fail, an unchecked Iranian nuclear capability could trigger a regional nuclear arms race, fundamentally altering West Asia's strategic balance. Conversely, any renewed agreement that accommodates Tehran's demands—such as sanctions relief or the delisting of the Islamic Revolutionary Guard Corps (IRGC) from the US Foreign Terrorist Organisation registry—would also heighten Saudi security anxieties. Thus, strategic ambiguity and calibrated balancing are likely to define Riyadh's approach in the near term. While Saudi Arabia's formal adherence to non-proliferation frameworks such as the NPT and IAEA safeguards remains officially intact, recent statements by senior Saudi officials have cast a degree of uncertainty over Riyadh's long-term commitment. The consolidation of power within the royal leadership, coupled with ideological and geopolitical antagonism toward Iran, has fostered an emerging domestic consensus in favour of reciprocal deterrence should Tehran cross the nuclear threshold.

Finally, as the preceding section highlighted, Saudi Arabia's potential nuclear infrastructure faces tangible counter-proliferation risks—particularly from Iranian proxies such as the Houthis, who have demonstrated their capability to target critical Saudi installations. However, direct counter-proliferation interventions by Israel or the United States appear increasingly improbable, as such actions would risk undermining the evolving regional security alignment against Iran. In this evolving landscape, Riyadh's nuclear posture will be shaped less by overt proliferation choices and more by a complex calculus of deterrence,

dependency, and diversification—reflecting the new multipolar reality of West Asian security in 2025.

In contrast to Saudi Arabia's latent pursuit of nuclear hedging and strategic self-sufficiency, the following chapter examines two regional actors—the United Arab Emirates (UAE) and Egypt—whose nuclear trajectories have been characterised by restraint, institutional commitment to non-proliferation norms, and an emphasis on civilian nuclear development under international safeguards. Their approach presents an illuminating counterpoint to Saudi Arabia's strategic ambiguity, offering valuable insights into how non-nuclear pathways can coexist with national security aspirations in a region increasingly defined by competing deterrence logics.

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2. THE UNITED ARAB EMIRATES AND EGYPT: THE DUO ON THE NON-NUCLEAR COURSE

Introduction

The United Arab Emirates (UAE) and Egypt represent two critical states in West Asia and North Africa (WANA) whose nuclear trajectories have remained firmly anchored in non-proliferation commitments despite persistent regional instability and external security pressures. Their cases stand in contrast to the latent proliferation tendencies observed in states such as Saudi Arabia and Iran, illustrating that energy security and geopolitical stability need not inevitably translate into nuclear weapon ambitions. The UAE's first nuclear power station—the Barakah Nuclear Power Plant (NPP), the first such facility in the Arabian Peninsula—has become a hallmark of the region's evolving nuclear landscape. Located in the Al-Dhafra region, the Barakah facility reached criticality in August 2020, when the first of its four planned reactors achieved a sustained fission reaction.¹ With the subsequent operationalisation of all four reactors in 2024, the Barakah plant now contributes nearly 25 per cent of the UAE's domestic electricity demand.² This development, while technically consistent with peaceful nuclear energy use, has nonetheless generated an international debate due to the region's historical volatility, ideological rivalries, and entrenched nuclear anxieties.

The broader regional context remains fraught with security uncertainties. The UAE has faced drone and missile attacks by Yemen's

Houthi rebels, including the high-profile January 2022 incident when Abu Dhabi reportedly intercepted three ballistic missiles aimed at its international airport.³ These attacks underline the strategic vulnerabilities of the UAE, which remains an active member of the Saudi-led coalition—backed by the United States—that intervened in Yemen in 2015 following the ousting of President Abd-Rabbu Mansour Hadi. In the eventuality of an Iranian nuclear breakout, the potential psychological and military empowerment of Iran-backed militias could intensify the UAE's threat perceptions. This might, in turn, strengthen domestic voices advocating for the “ultimate deterrent,” especially if Saudi Arabia—a close coalition partner—were to pursue nuclear weapons as hinted by Crown Prince Mohammed bin Salman in his 2023 interview with Fox News.⁴

However, to date, the UAE has maintained an exemplary record of transparency and compliance under the IAEA framework. The country remains a signatory to the NPT and the IAEA Additional Protocol, and it has voluntarily pledged to forgo domestic uranium enrichment and reprocessing—a stance often described as the “gold standard” of nuclear cooperation (NPT Review Conference Report, 2023). In addition, the UAE's partnership with South Korea's Korea Electric Power Corporation (KEPCO) for reactor construction, and with the United States under the 123 Agreement reflects a deliberate strategy of aligning its civilian nuclear ambitions with robust international safeguards.⁵

In contrast, Egypt presents a more complex but still predominantly non-nuclear narrative. While the country has long been a committed adherent to global non-proliferation regimes, its past was characterised by intermittent ambitions for weapons of mass destruction, including limited use of biological weapons during regional conflicts.⁶ In 2005, the IAEA reportedly discovered evidence of unreported nuclear experiments in Egypt that could have potential weapons applications—a claim Cairo strongly denied, asserting full transparency of its nuclear activities.⁷

The US Senate Committee on Foreign Relations report “Chain Reaction: Avoiding a Nuclear Arms Race in the Middle East” (2008) projected that Egypt would refrain from pursuing nuclear weapons even in the event of an Iranian nuclear acquisition, primarily due to concerns over Israeli retaliation and potential deterioration in US-Egypt relations.⁸ The continued benefits of the Camp David Accords (1978) and substantial US military and economic assistance continue to anchor Egypt’s restraint policy. Nonetheless, the country’s balancing act has become increasingly delicate in the light of evolving Israeli normalisation trends with the Arab states and the potential Saudi hedging behaviour. In recent years, Egypt has instead revitalised its civilian nuclear programme with the construction of the El-Dabaa Nuclear Power Plant, being developed in cooperation with Russia’s Rosatom. The project, which commenced concrete pouring for its first reactor in 2023, is expected to generate over 4,800 MW (Mega Watt) upon completion by 2030 (IAEA Country Profile, 2024).⁹ Egypt’s renewed nuclear engagement, thus, appears geared toward energy diversification and technological modernisation, rather than military application.

Considering these developments, this chapter evaluates the proliferation potential and policy orientation of both the UAE and Egypt along the same analytical parameters applied to Saudi Arabia: (1) material capabilities; (2) rationale for acquiring nuclear weapons; (3) commitment to non-proliferation regimes; (4) domestic political consensus on nuclear proliferation, and alliance dynamics; and (5) potential counter-proliferation vulnerabilities. Together, the UAE and Egypt offer valuable insights into how states in volatile regions can pursue nuclear energy while upholding non-proliferation norms, even as their security environments remain deeply intertwined with the strategic manoeuvres of the nuclear-armed and threshold states.

Material Capability of UAE and Egypt

The UAE represents a unique case in the nuclear landscape of the Middle East. As the first Arab state to operationalise a civilian nuclear power programme, it occupies a strategic position in the debate over the potential militarisation of nuclear technology in the Gulf. The construction and progressive commissioning of the Barakah NPP in the Al-Dhafra region—developed under a \$20 billion agreement with South Korea’s KEPCO—signalled a watershed in the region’s energy diversification efforts.¹⁰ As of 2024, three of the four APR-1400 reactors had become operational, generating over 4,200 MW of electricity, while the fourth reactor was expected to be completed by mid-2025. The Barakah project, thus, symbolises the UAE’s ambition to transition toward a low-carbon economy, in line with its “Net Zero 2050” commitments, while retaining strategic energy autonomy.

Despite these positive overtures, international experts have expressed apprehensions regarding the long-term security and proliferation implications of such nuclear expansion in a geopolitically volatile region. Critics such as Paul Dorfman have argued that “this is the wrong reactor, at the wrong place, at the wrong time,” emphasising the potential risks of nuclear power plants in regions prone to armed conflict and missile threats.¹¹ Similarly, Mycle Schneider’s assertion that “a nuclear power plant in a country is like a pre-deployed nuclear weapon for the enemy” underscores the blurred lines between civilian and potential military applications of nuclear infrastructure. These concerns are accentuated by the UAE’s proximity to active conflict zones and its exposure to external threats, particularly from the Iranian-backed Houthi rebels. Qatar’s apprehension about accidental radioactive leakage reaching Doha within hours of an incident at Barakah further exemplifies the regional unease surrounding this development.¹²

Nevertheless, the UAE’s nuclear posture has been largely shaped by its adherence to robust non-proliferation norms. The 2009 “123 Agreement” with the United States remains the cornerstone of its

nuclear policy, under which Abu Dhabi voluntarily renounced domestic uranium enrichment and plutonium reprocessing capabilities.¹³ This commitment—often cited as the “gold standard” in nuclear cooperation—distinguishes the UAE from other aspirant nuclear states in the region. The country’s transparency measures and continuous engagement with the IAEA have reinforced its image as a responsible nuclear actor. The IAEA’s 2024 safeguards report reaffirmed the absence of undeclared nuclear material or activities in the UAE, underscoring the integrity of its commitments.¹⁴ However, despite formal compliance, underlying anxieties persist regarding the sustainability of the UAE’s restraint posture under the evolving regional circumstances. Following the 2015 JCPOA with Iran, senior Emirati officials had publicly questioned their continued adherence to the enrichment ban, noting that if adversaries are accorded the “right to enrich,” regional allies would inevitably demand parity.¹⁵ The statement hinted at latent strategic aspirations that could resurface should the regional nuclear balance shift dramatically—particularly if Iran or Saudi Arabia were to acquire nuclear weapons. The UAE’s deepening defence partnerships, such as the 2020 Abraham Accords with Israel, have further strengthened its deterrence posture. The 2022 Israel-UAE defence collaboration on anti-drone technologies and naval security demonstrates Abu Dhabi’s effort to augment its conventional deterrence architecture without overtly crossing the nuclear threshold.¹⁶

The UAE’s missile and air defence capabilities represent another critical dimension of its strategic calculus. The country possesses a limited number of Scud-B ballistic missiles, acquired from North Korea in 1988. Yet, its true strength lies in its layered missile defence system, which is among the most advanced outside the NATO. The US-supplied THAAD system—operational since 2011—was used for the first time in combat in 2022 to intercept Houthi-fired ballistic missiles. It is complemented by the Patriot PAC-3 system and the Russian Pantsir-S1 medium-range system, collectively providing multi-tiered coverage

against short, medium, and long-range threats.¹⁷ In January 2023, the UAE signed a \$3.5 billion contract with South Korea to procure the Cheongung II KM-SAM (Surface-to-Air Missile) system, and it continues negotiations with Israel to acquire the Barak-8/ER system to strengthen its lower-tier air defence.¹⁸ This extensive missile shield substantially mitigates the rationale for a nuclear breakout, reinforcing the UAE's commitment to conventional deterrence rather than nuclear armament.

In contrast, Egypt's nuclear trajectory has evolved through a more complex historical continuum—one oscillating between latent ambitions and structural constraints. Egypt's nuclear programme, initiated in the 1950s under President Gamal Abdel Nasser, was originally framed as a peaceful endeavour but soon assumed strategic undertones amid the regional insecurity of the Arab-Israeli conflict.¹⁹ The Inshas Nuclear Research Centres 2.5 MW reactor, commissioned in 1961 with Soviet assistance, symbolised Egypt's early scientific aspirations. However, subsequent political, economic, and geopolitical disruptions—particularly post-Chernobyl—led to a prolonged dormancy in its nuclear plans.

A revival occurred in the mid-2010s under President Abdel Fattah el-Sisi, culminating in a landmark \$25 billion agreement with Russia in 2015 to construct the El-Dabaa NPP. The project envisions four 1,200 MW VVER (Water-Water Energetic Reactor) reactors, with construction of the first unit commencing in 2022 under Rosatom's supervision.²⁰ As of 2025, El-Dabaa's first reactor is in advanced stages of construction, with grid connection expected by 2027. The IAEA's 2024 inspection mission confirmed compliance with all safeguards obligations, highlighting Egypt's transparency in cooperation with international agencies. While this project is primarily designed for civilian electricity generation, the presence of a full nuclear fuel cycle and Russian technical involvement inevitably evokes concerns regarding dual-use potential—especially given Cairo's past record of undeclared activities. In 2005, IAEA inspectors had discovered evidence of

unreported nuclear experiments, although the Egyptian government dismissed these claims as misinterpretations.²¹

From a delivery system's perspective, Egypt has long maintained a credible missile development programme. During the 1960s, Cairo pioneered indigenous missile designs such as the al-Zafir and al-Qahir, later supplemented by external collaborations with North Korea, Iraq, and Argentina. Current arsenals reportedly include the R-300 Elbrus (Scud-B), Project T (North Korean Scud variants), and multiple artillery rocket systems.²² Egypt's acquisition of the Russian S-300VM (Antey-2500) in 2017 marked a significant leap in its air defence architecture, enabling engagement of multiple targets—including ballistic and cruise missiles—at ranges up to 250 km.²³ Complementing these are US-supplied Patriot-3 and Harpoon Block II systems, which strengthen Egypt's integrated defence network. Nevertheless, sporadic reports of illicit arms procurement—such as the 2016 US interception of a North Korean arms shipment containing 30,000 rocket-propelled grenades—have revived concerns over Egypt's residual missile ambitions.²⁴ Despite possessing a foundational technological base and delivery systems, Egypt's nuclear breakout potential remains constrained by structural dependencies and strategic calculus. The enduring value of US military and economic assistance, coupled with Cairo's adherence to the Camp David framework, disincentivises any deviation from its non-proliferation commitments. Furthermore, Egypt's precarious economic condition and dependence on Russian financing for El-Dabaa preclude any diversion of nuclear resources toward military ends in the foreseeable future.

In sum, while both the UAE and Egypt possess the technical infrastructure and strategic motivation that could theoretically enable a future nuclear breakout, their respective domestic, diplomatic, and institutional constraints act as significant moderating forces. The UAE's model of "nuclear restraint through transparency" and Egypt's heavy reliance on external partnerships for civilian nuclear energy collectively

underscore a pragmatic adaptation to regional insecurity rather than an outright pursuit of nuclear weaponisation. However, as the broader West Asian nuclear order remains fluid—with Iran’s programme advancing and Saudi Arabia’s posture evolving—these “non-nuclear” actors will continue to balance between normative commitments and emerging strategic imperatives.

Rationale for Acquiring Nuclear Weapons

The UAE’s security dynamics with Iran flows from two geographically apart but strategically aligned pathways. With the United States’ closer military ties with the UAE and Saudi Arabia as an alliance partner against the Iranian-backed Houthi rebels in Yemen, the UAE has multifaceted security concerns with Iran. As discussed in previous sections, the UAE had already indicated its intentions in 2015 after the JCPOA came into existence. In contemporary politics, where attempts are being made to revitalise the Iran deal amidst the IAEA’s reports confirming that Iran has already enriched uranium up to 60 per cent, the UAE’s nuclear anxieties are rising. Saudi Arabia has already explicated that it will acquire nuclear weapons if Iran does so. Eventually, if such a situation emerges, the UAE will be left out with no option but to acquire nuclear weapons or face the wrath of the Iranians as a consequence of being a Saudi alliance partner. As a matter of fact, it is already facing the consequences of its alliance with the Saudis in the form of missile attacks from the Iranian-backed Houthis rebels.

UAE-Iran: The UAE has also found itself squeezed in the US-Iran confrontation. In the aftermath of the assassination of top Iranian nuclear scientist Mohsen Fakhrizadeh in 2020, Iran threatened to attack the Gulf state if the Islamic Republic came under US attack from Emirati territory.²⁵ Growing bonhomie with Israel could also be under constant Iranian surveillance. In the early 2020s, the UAE’s permanent representative to UN stated, “The idea with any nuclear security issue is that you need to establish the risk. We then establish the measures

to counter such risks, and they are changing.... Therefore, the measures should always be ahead in terms of adopting any additional measures to counter [new] risks. This is, in theory, how to address it, so you can't say 'I'm safe today, because it's an evolving process.'"²⁶ The statement is testament to the fact that the UAE could not completely rely on the strength of bilateral relations as the security architecture is evolving and reeling with many other alliance complexities. The UAE's statement at the Tenth NPT Review Conference explicitly indicated its deep concerns over the Iranian nuclear threshold.

A relative thaw in the relationship between the two appeared when China brokered a deal between Iran and Saudi Arabia. As a reflection of the conspicuous rapprochement, Ali Shamkhani, secretary of the Supreme National Security Council, visited the UAE in March 2023 to expand bilateral regional and international cooperation. The thaw was in the making for some time as the UAE reestablished diplomatic ties with Iran in September 2023 after a hiatus of more than six years.^{27,28}

UAE-Israel: The relationship between Abu Dhabi and Tel Aviv has improved particularly since 2015 when Israel was allowed to establish a diplomatic office in Abu Dhabi. In August 2020, the Abraham Accords Peace Agreement was signed between Israel and the UAE, brokered by the United States. Since then, the economic, technological and cultural relations have blossomed.²⁹ Bilateral trade between the two had already touched more than \$1.5 billion and was expected to clock \$10 billion after the Free Trade Agreement (FTA) signed between the two countries in June 2022. Long-term business investment was also underway with Abu Dhabi Mubadala Petroleum, which, in one of the biggest commercial deals, bought 22 per cent stakes in Israel's offshore Tamar Natural Gas Fields for \$1.1 billion.

In the security realm, Israel and the UAE were 'reportedly', in discussions to place Israeli advanced air defence systems in the Gulf, immediately after the series of missile attacks in the UAE by the Iranian-backed Houthi rebels in Yemen. After the attack, the then Israeli Prime

Minister Naftali Bennett sent a letter to the Abu Dhabi crown prince, stating, “We stand ready to offer you security and intelligence support in order to help you protect your citizens from similar attacks”.³⁰ Meanwhile, Iran has explicitly conveyed to the Emirati officials that the Israelis’ foothold in the Gulf would destabilise the Gulf region. Iranian Foreign Minister Hossein Amir-Abdollahian told his UAE counterpart Sheikh Abdullah bin Zayed Al Nahyan, “Efforts should be made to prevent initiators of tension from establishing a foothold in the region”.³¹

In the case of Egypt, Gawdat Bahgat has outlined three rationales for Egypt to acquire nuclear weapons over the post-war period. Initially the Egyptian perception of Israel as a ‘sworn enemy’ for decades after World War II, drove their political conduct. Second, an important motivation is the leadership and prestige issue. Egypt projected itself as the leader of the Arab world based on demographic (most populous Arab country), political, economic and cultural factors (vibrant soft power like the popularity of Egyptian movies and TV programme). Israel and other potential proliferators like Iraq, Iran, and now, Saudi Arabia, have significantly surfaced Cairo’s nuclear inferiority.³² In view of the counter-productive nature of nuclear acquisition, Egypt has sought to fulfill prestige and security ambitions by building strong conventional weapons capability, stockpiling chemical weapons and championing the call for making the entire Middle East a nuclear weapons-free zone.

Egypt-Iran Relations: The security relations between Iran and Egypt have been innately subservient to the domestic political leadership and the foreign policy orientation of both these countries. The leadership of Colonel Nasser in Egypt and the US-friendly Shah regime in Iran had inevitably led to a tumultuous relationship between the two in the early second half of the 20th century. The Shah perceived Nasser’s conduct as an “instrument of Soviet expansionism” while Nasser criticised the Shah’s alignment with the West, and more critical, with Israel. The Islamic Revolution in Iran incidentally coincided with the

Camp David Accords through which Egypt made peace with Israel, further alienating Islamic Iran. This time, Egypt's cordial relations with the West thwarted strong political and security ties between the two regional heavyweights. Since the China-brokered deal between Iran and Saudi Arabia in March 2025, relations between Egypt and Iran are expected to get reenergised. After the Saudi deal, the spokesperson of Iran's Ministry of Foreign Affairs, Nasser Kannaani stated, "The region needs the potential of Iran-Egypt relations. We believe in the necessity of taking new steps in relations."³³

Egypt-Israel Relations: Egypt's relationship with Israel, following its creation in 1948, had been defined in terms of the acrimonious Arab-Israel rivalry. Egypt under President Nasser claimed leadership of Arab nationalism and, thereby, led the coalition of Arab states against Israel. Consciousness about an Israeli nuclear bomb and the necessity for Egypt's own nuclear weapons was realised after the 1956 Suez campaign when Britain, France and Israel attacked Egypt. In 1961, President Nasser declared that "if Israel obtains nuclear weapons, we will secure atomic weapons at any cost."³⁴ Stoligen, in his book *Nuclear Choices* has documented the sharp break in Egypt's nuclear policy from heavy investment in nuclear weapons acquisition by President Nasser to the more transparent and peaceful nuclear ambitions of his successor President Sadat.³⁵ Israel's activities at the Dimona Nuclear Research Centre alarmed Egypt, prompting it to approach the Soviet Union in 1964 and the People's Republic of China (PRC) in 1967, to buy their nuclear weapons. The Soviet Union could provide only vague assurance for nuclear protection from Israel's attack, while the PRC turned down the request, advising Egypt to proceed on its own with "self-dependence".

It was Israel's nuclear programme and unwillingness to sign the NPT that forced Egypt to postpone NPT ratification to 1981. Even later, Egypt worked relentlessly to confront Israel's position on the issue of a Weapons of Mass Destruction Free Zone in West Asia. Although relations normalised after the Camp David Accords, Hosni Mubarak

continued sustained efforts to highlight Israeli antipathy towards non-proliferation regimes, including the NPT and the Comprehensive Test Ban Treaty (CTBT). In its frequent advocacy of the West Asian Nuclear Weapons-Free Zone, Egypt calls on Israel to renounce the ambiguous stance on its nuclear weapons programme and fallow the international safeguards process on its nuclear power plants.

Egypt-Saudi Arabia Relations: Traditionally Egypt and Saudi Arabia have had convergence of economic and security interests. Hosni Mubarak maintained a cordial relationship with Saudi Arabia, and Saudi Arabia maintained sustained financial commitments for Egypt to contain the Islamist forces and maintain peaceful regional stability.³⁶ The orientation of Egypt's alliance structure altered slightly when the Arab Spring ousted President Mubarak, and Mohamed Morsi became the first civilian head of state. The preferred partners became Turkiye and Qatar in West Asia.

The advent of Abdel Fattah al-Sisi to power in 2013 resynergised the economic and foreign policy interests and orientation of both Egypt and Saudi Arabia. President Al-Sisi needed massive financial assistance to revive the tattered economy, which was provided by the Gulf monarchies, led by Saudi Arabia. In return, the Gulf wanted Egypt to mend its ways on contentious issues such as the Syrian crisis, Muslim Brotherhood, etc. The security convergences were also observed in Egypt's joining the Saudi-led coalition (by sending four warships to the Gulf of Aden) for its military intervention in Yemen, an expedition named 'Operation Decisive Storm'. In 2015, Al-Sisi claimed, in a clear indication of a strong bond between the two West Asian powers, "Egypt will not abandon its brothers in the Gulf; we will protect them if it is required," adding that Yemen's strategic Bab al-Mandeb Strait is a matter of Egyptian and Arab national security.³⁷ Reflecting the deepening ties with Saudi Arabia, Egypt joined Saudi Arabia's call for boycotting Qatar in 2017, as also transferring the sovereignty of the islands of Sanafir and Tiran to Saudi Arabia.

The US Senate report of 2008 mentioned that two critical factors would determine the decision of those countries to acquire nuclear weapons. These are Israel's reaction to Egypt's nuclear acquisition and danger to the much-revered peace after the Camp David Accord and the US- Egypt strong military-to-military ties. However, this strategic calculation would undergo a significant reshuffle in case the Saudis acquire nuclear weapons after Iran's acquisition, and Israel considers an inevitable response, impacting the overarching regional security architecture, as the cost-benefit analysis of nuclear acquisition would also shift substantially.

Commitment to the Non-Proliferation Regimes

The UAE has emerged as one of the most steadfast adherents of global non-proliferation norms and institutions. Since its formation as a federation in 1971, the UAE's strategic orientation toward nuclear technology has been firmly pacifist and deeply embedded within the framework of international law. As a non-nuclear weapon state, it acceded to the NPT in 1996, concluded a comprehensive safeguards agreement with the IAEA in 2003, and brought into force the Additional Protocol in 2010. During the preparatory meeting for the 15th NPT Review Conference, the UAE's Permanent Representative to the IAEA, Ambassador Hamad Ali Al Ka'abi, reaffirmed the country's position by stating that the UAE's accession to these instruments was a deliberate choice to "ensure global security" and to institutionalise transparency in its nuclear activities. A significant milestone in the UAE's non-proliferation trajectory was the 2009 US-UAE "123 Agreement", which remains a model for nuclear cooperation, built upon the so-called "gold standard." Under this agreement, Abu Dhabi committed to pursue nuclear energy exclusively for peaceful purposes, renouncing any domestic uranium enrichment or plutonium reprocessing capability.³⁸ Instead, the UAE opted for long-term international arrangements for nuclear fuel supply and waste management, thereby precluding

the accumulation of sensitive materials that could be diverted for weaponisation.

Complementing these commitments, the Emirates Nuclear Energy Corporation (ENEC) issued a formal policy statement emphasising three guiding principles: complete operational transparency, adherence to the highest international standards of safety and security, and strict conformity with IAEA evaluations of long-term sustainability. The UAE's participation in related global legal frameworks—including the IAEA Convention on the Physical Protection of Nuclear Material (2003), UN International Convention for the Suppression of Acts of Nuclear Terrorism (2005), and UN Security Council Resolution 1540 (2004)—further reinforces its international credentials as a responsible nuclear actor. This comprehensive alignment of domestic and international commitments reflects not only a legal obligation but also a strategic choice: the UAE has consistently framed its nuclear programme as an instrument of modernisation, energy diversification, and international legitimacy rather than a pathway toward military capability.

In contrast, Egypt's approach to non-proliferation has been shaped by the enduring asymmetry created by Israel's undeclared nuclear arsenal and the perceived inequities embedded within the global nuclear order. Cairo signed the NPT in 1968 but ratified it only in 1981, following the Camp David Accords (1978) and the normalisation of relations with Israel. Egyptian officials have consistently criticised the treaty's "discriminatory" character—arguing that it entrenches a permanent divide between the nuclear "haves" and "have-nots" and has failed to address Israel's exceptionalism. Consequently, Egypt has long championed the establishment of a Middle East Nuclear Weapons-Free Zone (MENWFZ), viewing regional denuclearisation as an essential precondition for effective global non-proliferation. Despite its formal adherence, Cairo's record has not been without controversy. In 2005, the IAEA reported evidence of previously undeclared nuclear experiments

in Egypt, raising concerns about possible weapons-related research. The Egyptian government dismissed these allegations, insisting that all its nuclear activities were conducted under IAEA supervision.³⁹ Historical statements by the Egyptian leadership have occasionally reinforced international scepticism. For instance, President Hosni Mubarak remarked in 1998 that although Egypt did not intend to join the “nuclear club,” it would not hesitate to do so if national security imperatives demanded.

Egypt’s reluctance to sign the IAEA Additional Protocol has further constrained its access to advanced Western nuclear technologies, as most supplier states require its adoption for nuclear cooperation. Nonetheless, this has not precluded engagement with alternative partners. Cairo’s 2015 agreement with Russia’s Rosatom for the construction of the El-Dabaa Nuclear Power Plant proceeded outside the Additional Protocol framework, highlighting a pragmatic shift toward non-Western suppliers. In 2021, Egypt signed its fourth Country Programme Framework (CPF) for 2022–27 with the IAEA, identifying priority areas in radiation safety, nuclear security, and knowledge management.⁴⁰ This renewed engagement demonstrates Egypt’s willingness to modernise its nuclear governance while maintaining strategic autonomy. Egypt’s engagement with other arms control and disarmament instruments has been equally selective and shaped by regional political realities. It remains one of the nine states whose ratification is required for the CTBT to enter into force. Egyptian officials have linked ratification directly to Israel’s accession to both the NPT and CTBT, arguing that unilateral compliance would perpetuate regional asymmetry.⁴¹ Similarly, Cairo has signed but not ratified the Biological and Toxin Weapons Convention (BTWC) and remains outside the Chemical Weapons Convention (CWC), citing the same rationale. Historical accounts of Egypt’s use of chemical weapons during the 1960s North Yemen civil war—allegations consistently denied by Cairo—underscore its ambivalent legacy in the realm of weapons of mass destruction.

Egypt is also not a member of the Missile Technology Control Regime (MTCR) or the Hague Code of Conduct against Ballistic Missile Proliferation (HCoC), further reflecting its cautious stance toward multilateral export-control arrangements perceived as limiting strategic autonomy. Notwithstanding these reservations, Cairo has been a vocal proponent of universal nuclear disarmament. It supported the Humanitarian Pledge in 2015–16 and voted in favour of negotiations leading to the Treaty on the Prohibition of Nuclear Weapons (TPNW), although it has not yet signed or ratified the instrument. Egyptian representatives to the United Nations described the TPNW's adoption in 2017 as a “landmark achievement” that reflected the majority's aspiration for a world free of nuclear weapons, while clarifying that domestic ratification remained under governmental review (ICAN– International Campaign to Abolish Nuclear Weapons).

Taken together, the UAE and Egypt represent divergent but instructive models of engagement with the global non-proliferation regime. The UAE exemplifies a policy of legal maximalism and strategic transparency, positioning itself as a model non-nuclear state in a volatile region. Egypt, by contrast, pursues a policy of conditional compliance, wherein its commitment to non-proliferation is mediated by regional security asymmetries and the unresolved question of Israel's nuclear status. Despite occasional controversies, neither state presently exhibits an institutional inclination or material preparation for a nuclear breakout. However, the persistence of regional inequities—particularly the perception of selective enforcement of global norms—continues to test the durability of their respective commitments.

Domestic Political Consensus on Nuclear Proliferation, and Alliance Dynamics

The domestic political consensus and alliance structures in both the UAE and Egypt play a decisive role in shaping their respective nuclear trajectories. In the UAE's case, internal political cohesion, its strategic

identity, and its alliance network with Western and regional partners reinforce a non-proliferation posture. For Egypt, by contrast, the interplay of historical military nationalism, shifting external alignments, and domestic legitimacy concerns render its nuclear calculus more complex, though still restrained by alliance dependencies and economic pragmatism.

UAE–Iran relations remain shaped by a blend of geopolitical rivalry, economic interdependence, and sectarian tension. While the overarching security environment in the Gulf has deteriorated with the uncertainty surrounding the future of the JCPOA and regional missile developments, the UAE has sought to balance deterrence with diplomacy. Notably, Dubai maintains significant commercial ties with Tehran and hosts a sizeable Iranian expatriate community, even as Abu Dhabi has increasingly aligned its foreign and security policy with the United States and Israel. Finlinson offers a dual-framework explanation of the UAE’s nuclear restraint, combining the National Role Conception (NRC) and the Cultural Topography Framework (CTF).⁴² The NRC highlights how the UAE’s self-perceived identity—as a modern, cooperative, and responsible regional actor—manifests externally through adherence to global non-proliferation norms. This identity underpinned the landmark 2009 US–UAE “123 Agreement”, which committed the Emirates to a nuclear energy programme based on complete transparency, prohibition of domestic enrichment, and adherence to the highest non-proliferation standards. The CTF dimension, meanwhile, underscores the UAE’s preference for conventional deterrence through advanced military technology and interoperability with US and allied forces. Together, these perspectives affirm that Abu Dhabi’s strategic culture is institutionally and ideationally averse to pursuing nuclear weapons.

Since 2020, the UAE’s normalisation of relations with Israel through the Abraham Accords has introduced a new layer of security interdependence. The UAE and Israel have since expanded cooperation in intelligence sharing, air defence, and cyber capabilities. Negotiations

regarding the deployment of Israeli missile defence systems—such as the Iron Dome and Barak 8—in the Emirati theatre, alongside existing US Patriot and THAAD batteries at Al-Dhafra Air Base, underscore the deepening of a trilateral deterrence framework.⁴³ These developments have arguably reduced the strategic incentives for a nuclear breakout. However, Iran’s perception of encirclement and its continued support to the Houthi rebels in Yemen sustain a volatile regional dynamic. The January 2024 missile and drone attacks on Abu Dhabi by the Houthi forces again exposed the UAE’s vulnerabilities, despite its advanced defence systems. Nevertheless, Abu Dhabi has opted for further military integration with the US Central Command (CENTCOM) and closer security consultations with Israel, rather than reconsidering its nuclear abstinence. Thus, domestic and alliance dynamics continue to entrench the UAE’s reliance on extended deterrence rather than autonomous nuclear capabilities.

The Egyptian Context: Egypt’s nuclear trajectory has historically mirrored the evolution of its political economy and regional aspirations. Under President Gamal Abdel Nasser, the ideology of Arab nationalism and state-led industrialisation fostered a militarised and self-reliant security ethos, including aspirations for nuclear capability. Egypt’s defeat in the 1967 Arab–Israeli War, however, undermined these ambitions and forced economic retrenchment. The subsequent Infitah (economic liberalisation) policy under President Anwar Sadat in 1974 marked a strategic realignment—prioritising economic development, foreign investment, and rapprochement with the West over military expansion. Sadat’s policy shift, underpinned by the 1978 Camp David Accords, effectively tethered Egyptian security to US assistance and a regional order premised on arms control.

As Mohamed Kadry observes, Sadat recognised that resolving the Arab–Israeli conflict was a precondition for national development.⁴⁴ Hence, his engagement with the US and participation in arms control

arrangements were instrumental, not ideological. This pragmatism continued under President Hosni Mubarak, who upheld nuclear restraint despite intermittent domestic criticism from Islamist and nationalist factions advocating a weapons programme to restore “national pride”.⁴⁵ Under President Abdel Fattah al-Sisi, Egypt has sustained its dual-track strategy—maintaining the US alliance while diversifying its strategic partnerships, notably with Russia and China. The \$25 billion Russian-financed El-Dabaa Nuclear Power Plant project epitomises this approach, reflecting both Egypt’s energy security ambitions and Moscow’s growing influence in its defence-industrial ecosystem.⁴⁶ The agreement’s terms, wherein Russia finances 85 per cent of the project cost repayable over 22 years, embed a structural dependence that could translate into strategic leverage for Moscow.

While the El-Dabaa project is framed as a civilian initiative under IAEA safeguards, its dual-use potential cannot be entirely dismissed. Analysts such as Berman and Albo argue that the project enhances Egypt’s technological base and bureaucratic familiarity with nuclear operations—capabilities that, in a crisis scenario, could shorten its latency period.⁴⁷ However, any nuclear breakout would exact prohibitive political and economic costs, particularly the potential loss of over \$80 billion in cumulative US military and economic aid since 1978.

In this context, Cairo’s nuclear restraint is reinforced not by moral or normative commitments, but by structural constraints within its alliance network and economic calculus. Egypt’s dependence on US and Gulf assistance, coupled with its participation in global non-proliferation frameworks, continues to limit its nuclear ambitions. However, should the regional balance shift dramatically—particularly through an Iranian or Saudi nuclear breakout—Egypt’s strategic ambiguity could narrow down.

Both the UAE and Egypt remain on a non-nuclear trajectory, though for distinct reasons. The UAE’s nuclear abstinence stems from

its identity as a globalised, norm-abiding actor and its heavy reliance on the Western-led deterrence architecture. Egypt's restraint, by contrast, is grounded in economic pragmatism, alliance dependency, and regime security considerations rather than a deep-rooted normative commitment. Yet, in both cases, the interplay of domestic political consensus and alliance dynamics continues to act as a stabilising constraint—at least until a potential regional proliferation cascade, triggered by Iran or Saudi Arabia, reshapes the strategic equation.

Potential Counter-Proliferation Efforts

The Middle East remains the most volatile region in the world with regard to preemptive military action against emerging or perceived nuclear threats. Historically, counter-proliferation has not been an abstract policy consideration but a practised doctrine—most notably by Israel, which has demonstrated a consistent willingness to undertake preemptive air strikes to neutralise potential adversarial nuclear programmes. As Executive Director of the Non-Proliferation Policy Education Centre, Henry Sokolski, observed, “It is not a place that allows for mere academic speculation about the possibility of someone else taking a whack at a reactor. If you go back just even a few years, you can get to 13 aerial strikes against reactors in the region.”⁴⁸ These include Israel's destruction of Iraq's Osirak reactor in 1981 and the Syrian Al-Kibar facility in 2007, both of which have set enduring precedents for anticipatory self-defence in the regional strategic culture.

Within this fraught security landscape, the UAE Barakah NPP—located in the Al-Dhafra region—has emerged as both a technological milestone and a potential vulnerability. As the first operational nuclear power plant on the Arabian Peninsula, Barakah symbolises the UAE's commitment to civilian nuclear energy under strict international oversight. Yet, its strategic visibility also renders it susceptible to attack, particularly given the ongoing regional rivalries and proxy conflicts. Dorfman, in his technical critique, has noted that while Barakah is a

relatively modern facility, it lacks the “Generation III+ Defence-in-Depth” features that provide enhanced structural resilience against aircraft or missile strikes.⁴⁹ This technological limitation heightens the theoretical vulnerability of the plant to both conventional and asymmetric attacks.

Empirical developments have already underscored such risks. In December 2017, Yemen’s Houthi rebels claimed to have launched a cruise missile toward the under construction Barakah nuclear reactor, though the UAE swiftly dismissed the claim as false.⁵⁰ However, subsequent Houthi missile and drone attacks on Emirati infrastructure—most notably the January 2022 strikes on Abu Dhabi International Airport—have demonstrated the tangible nature of such threats. The Houthis’ growing arsenal of Iranian-supplied precision-guided munitions and drones has effectively extended the reach of non-state actors into the Gulf’s critical infrastructure. Given this evolving threat environment, any escalation involving Iran’s nuclear programme could provoke retaliatory or preemptive actions targeting the UAE’s nuclear assets, either as symbolic targets or as perceived leverage points.

The Barakah facility’s strategic location near key US and allied military installations—such as the Al-Dhafra Air Base hosting US Patriot and THAAD missile systems—offers a measure of deterrence and defence integration. However, in the event of a regional conflagration, especially one involving Israel and Iran, the possibility of collateral or deliberate strikes on nuclear infrastructure cannot be ruled out. This vulnerability underscores the dual-edged nature of nuclear energy projects in volatile regions—they simultaneously embody technological progress and strategic exposure. The UAE’s response has been to deepen its integration within the US-led regional security architecture, enhance cyber and physical protection protocols, and establish multilayered redundancy in its nuclear safety systems.

Egypt’s historical experience also situates it within the broader regional narrative of counter-proliferation. During the 1960s, Cairo’s

pursuit of missile technology—with assistance from former German scientists—provoked significant alarm in Israel, which perceived it as a precursor to a potential WMD capability.⁵¹ Israel's covert campaign to neutralise these efforts—reportedly through sabotage and targeted assassinations—illustrates how deeply entrenched preemptive doctrines are in the regional strategic psyche. Since the Camp David Accords of 1978, however, Egypt's relations with Israel have undergone a structural transformation. Today, security cooperation between Cairo and Tel Aviv encompasses intelligence sharing, counter-terrorism coordination in Sinai, and joint efforts to maintain stability in Gaza. This evolving relationship drastically reduces the likelihood of direct Israeli counter-proliferation action against Egypt. Nonetheless, should Egypt deviate from its current trajectory and pursue a clandestine nuclear weapons capability, it would likely face severe diplomatic and strategic backlash—not only from Israel but also from the United States and Gulf partners. Egypt's alignment with these actors, reinforced by substantial US military aid and regional economic cooperation, effectively constrains any inclination toward nuclear adventurism.

In the contemporary strategic environment, both the UAE and Egypt face an intricate calculus. While neither state currently exhibits an intent to pursue nuclear weapons, their geographic proximity to Iran and their participation in overlapping alliance systems make their nuclear infrastructure inherently politicised. The precedent of preventive strikes in the region amplifies the risks associated with even peaceful nuclear development. Consequently, both states have invested heavily in transparency, international cooperation, and defensive preparedness as forms of counter-proliferation insurance. These measures, while primarily defensive, contribute to maintaining regional stability by reducing the incentive—and justification—for preemptive military action against their nuclear facilities.

Egypt and the UAE are positioned at the lower end of the Proliferation Risk Index (see Table 6), representing divergent but stable

models of nuclear restraint in a volatile region. Egypt is categorised as Low-Moderate Risk (Status-Constrained) with a score of 11/25, reflecting a strategy where nuclear ambiguity and the development of the Russian-financed El-Dabaa NPP are used primarily for diplomatic leverage and regional prestige rather than weaponisation. While Egypt possesses a foundational missile legacy and a history of undeclared experiments, its Material Capability (2/5) and Strategic Rationale (2/5) are limited by a precarious economic state and a deep structural dependence on the US alliance and the Camp David Accords, which make a nuclear breakout strategically counter-productive. Conversely, the UAE is classified as Very Low Risk (institutionalised restraint) with the study's lowest score of 6/25, having established itself as a "gold standard" for non-proliferation by voluntarily renouncing domestic enrichment and reprocessing in its 123 Agreement with the US. The UAE's Material Capability (1/5) is strictly civilian-oriented through the Barakah NPP, and its Non-Proliferation Commitment (1/5) is reinforced by its identity as a responsible global actor and a reliance on advanced conventional "shields" like the THAAD and Patriot systems. Ultimately, both states are anchored in a non-nuclear trajectory by alliance dependencies and the regional culture of preemption, which would make any clandestine activity a trigger for severe military or economic retaliation.

Conclusion: Assessing the Non-Nuclear Trajectory of UAE and Egypt

The preceding analysis of the UAE and Egypt demonstrates that both states, despite possessing the technological, infrastructural, and geopolitical capacity to initiate nuclear weapons programmes, are structurally and strategically disincentivised from pursuing such an option. The assessment of five parameters—material capability, commitment to non-proliferation, domestic political consensus, alliance dynamics, and counter-proliferation pressures—collectively affirms the continuation of their non-nuclear trajectory in the foreseeable future.

In material terms, the UAE's operationalisation of the Barakah NPP constitutes a landmark achievement in the Arab world's civilian nuclear enterprise. However, the programme remains stringently bound by international safeguards and bilateral commitments, particularly the 123 Agreement with the United States, which legally and politically precludes uranium enrichment and plutonium reprocessing. Although sporadic statements from Emirati officials in the aftermath of the JCPOA hinted at reconsidering enrichment rights, these did not translate into policy actions. Instead, the UAE has strengthened its compliance infrastructure and continued to champion nuclear transparency as a pillar of its national strategy. The state's highly sophisticated missile and air defence systems—comprising the THAAD, Patriot PAC-3, and Pantsir-S1—serve as a deterrent substitute, reinforcing the logic that advanced conventional defence, not nuclear armament, remains the preferred means of ensuring national security.

Egypt's material capability, though historically shaped by Cold War ambitions, has evolved towards peaceful utilisation under international supervision. The El-Dabaa Nuclear Power Plant agreement with Russia's Rosatom, valued at US\$ 25 billion, underscores Cairo's pursuit of nuclear energy for developmental rather than military purposes. The contractual and financial dependence on Russian expertise, technology, and fuel supply chains inherently constrains Egypt's ability to weaponise its nuclear infrastructure without external detection or sanction. Additionally, Egypt's extensive missile and air defence architecture, including the US-supplied Patriot systems and Russian S-300VM batteries, provides credible deterrence without crossing the nuclear threshold.

Both states have also demonstrated enduring commitments to the non-proliferation regimes. The UAE's adherence to the NPT, CTBT, IAEA Safeguards, and Additional Protocol—alongside its voluntary renunciation of enrichment capabilities—represents a model of compliance within the Gulf region. Egypt's record, although complex, reflects a pragmatic balancing act between its rhetorical opposition

to Israel's nuclear exceptionalism and its practical reliance on non-proliferation norms for international legitimacy and economic stability. Cairo's reluctance to ratify the CTBT or the Chemical Weapons Convention (CWC) is rooted more in regional asymmetry than in proliferative intent. Its recent cooperation framework with the IAEA for 2022–27 further demonstrates institutional alignment with peaceful nuclear objectives.

Domestic political considerations in both countries reinforce these structural constraints. In the UAE, the federal leadership's conception of national identity—anchored in modernisation, economic diversification, and normative internationalism—renders nuclear weapons acquisition antithetical to its image as a responsible global actor. Egypt's domestic consensus, shaped by decades of economic liberalisation, US assistance, and regime stability, likewise militates against the political and economic costs of a nuclear breakout. Although nationalist voices occasionally invoke nuclear deterrence as a symbol of sovereignty, the ruling elite remain committed to economic recovery, regional stability, and strategic diversification rather than nuclear confrontation.

Alliance dynamics serve as the most decisive deterrent to nuclear adventurism. The UAE's defence partnerships with the United States and Israel under the Abraham Accords, combined with access to cutting-edge military technology, obviate the perceived need for nuclear deterrence. Similarly, Egypt's enduring strategic partnership with the United States, coupled with expanding defence cooperation with Russia and the Gulf partners, makes any proliferation attempt strategically counter-productive. Both states recognise that nuclear weapons pursuit would jeopardise their security guarantees, economic aid, and political standing within the Western and regional security architectures.

Finally, the regional culture of preemption—exemplified by Israel's past strikes on nuclear facilities in Iraq and Syria—functions as a

powerful counter-proliferation deterrent. The physical vulnerability of Barakah and El-Dabaa to potential aerial or missile attacks underscores the risks inherent in any deviation from transparency. Both states are acutely aware that clandestine nuclear activities would not only invite international sanctions but could also trigger preventive military action, thereby destabilising their developmental and security priorities.

In sum, while both the UAE and Egypt possess latent nuclear potential, their strategic orientation, alliance dependencies, and international commitments collectively anchor them within the non-nuclear framework. The UAE's self-conception as a "responsible stakeholder" and Egypt's pragmatic regional diplomacy converge on a shared understanding: that nuclear restraint, not acquisition, yields greater political capital and strategic security. Unless there is a radical shift in the regional security environment, such as an overt nuclearisation of Iran or Saudi Arabia, the probability of either state embarking on a weapons programme remains exceedingly low. Thus, the UAE and Egypt, despite operating in a region marked by nuclear anxieties and historical volatility, continue to exemplify stability through restraint, emerging as pivotal actors in sustaining the non-proliferation equilibrium of West Asia.

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3. TURKIYE: A RISING STAR AMIDST INCUMBENT NUCLEAR GIANTS

Introduction

In 2019, Turkish President Recep Tayyip Erdoğan remarked that “several countries have missiles with nuclear warheads, not one or two. But we can’t have them. This I cannot accept. There is no developed nation in the world that doesn’t have them”.¹ This leaked statement attracted significant attention in Washington and beyond. Reports from 2021 suggested that Türkiye might be harbouring clandestine nuclear ambitions with the assistance of Pakistan.² Such signals may be interpreted as part of Ankara’s broader ambitions for leadership in the Islamic world. In 2021, a senior official of Türkiye’s top defence procurement agency proclaimed that Türkiye possesses capabilities “which will surprise the world when put into use”.³ These proclamations, along with the aforementioned remarks from senior political figures, raise concerns about Türkiye’s commitment to nuclear non-proliferation norms.

Declassified documents reveal that as early as 1966 Turkish senior officials entertained ambitions for a nuclear weapons capability.⁴ While Türkiye does not presently operate a nuclear weapons programme nor has been formally accused of one, some analysts like Zdravko Spacapan delineate diverging perceptions: US analysts generally remain unconcerned about Turkish proliferation efforts, whereas Israeli observers and Turkish environmentalists flag serious potential risks in the light of Ankara’s ties to a nuclear-armed Pakistan and its ambitious civilian nuclear programme.⁵ This chapter examines Türkiye’s proliferation

potential based on five parameters: material capability, rationale for acquiring nuclear weapons, commitments to non-proliferation regimes, domestic political consensus, Türkiye's alliance dynamics, and potential counter-proliferation efforts

Material Capability of Türkiye

As per the IAEA, Türkiye currently does not operate any commercial nuclear power plant, although the country has moved decisively towards building civilian nuclear capacity in recent years. The Turkish Institute of Nuclear Research (TINR) still lacks a sufficient pool of qualified scientific personnel to pursue advanced nuclear fuel-cycle capabilities.⁶ Presently, Türkiye operates two research reactors—the ITU TRIGA Mark-II Training and Research Reactor and the Çekmece Nuclear Research and Training Centre—both managed by the Turkish Atomic Energy Authority. For power generation, Türkiye continues to import nearly 75 per cent of its energy, with approximately one-third of its gas coming from Russia.

Following multiple failed attempts since the 1970s, Türkiye embarked on an ambitious civilian nuclear programme centred on three power-plant projects designed to host 12 nuclear reactor units. Under the 2010 and 2018 intergovernmental agreements with Russia, four VVER-1200 Pressurised Water Reactors (PWRs) are under construction at the Akkuyu site in Mersin Province. The first unit of the Akkuyu Nuclear Power Plant (NPP) achieved full fuel loading in late 2023, and according to official statements, is expected to be connected to the grid in late 2024, with all four reactors projected to be fully operational by 2028.⁷ As of early 2025, Türkiye announced that the Akkuyu project had reached 56 percent local content, signalling a maturing domestic nuclear industrial base and stronger technological involvement in key supply chains.⁸

In July 2024, the IAEA and the Turkish government signed a new Country Programme Framework (CPF) for 2024–29, identifying ten

priority areas for cooperation, including “nuclear energy,” “waste and spent-fuel management,” and “nuclear knowledge management”.⁹ This CPF underscores Türkiye’s continued adherence to global safety and non-proliferation standards while simultaneously advancing domestic nuclear knowhow. The government also announced plans to commission new nuclear projects beyond Akkuyu, including the Sinop and İğneada NPPs, with a combined capacity goal of 7.2 GW by 2035 and more than 20 GW by 2050.¹⁰ Despite this steady civilian progress, many analysts question the logic of entrusting Russia with a project ostensibly designed to reduce energy dependence on Moscow. As Spacapan notes, it “makes little sense to allow Russia to build a nuclear power plant to avoid imports of natural gas from unreliable partners like Iran and Russia.”¹¹ Given that Rosatom retains ownership and operational control of Akkuyu under the “build–own–operate” model, the dependency concern remains valid. Spacapan further advocates that alternative financing through regional development banks or the US Development Finance Corporation could help diversify Türkiye’s energy security and avert potential dual-use risks.

Parallel to its nuclear energy push, Ankara has invested heavily in missile and delivery systems, which constitute a critical enabler for potential nuclear weaponisation. Türkiye’s first mobile low-altitude, short-range air-defence system—the Sungur missile system, developed by Roketsan—is now deployed across several air bases. The system, designed to engage Unmanned Aerial Vehicles (UAVs), cruise missiles, helicopters, and aircraft at a range of up to 8 km, replaces the US-supplied Stinger POST and RMP missiles. Moreover, the BORA ballistic missile system, with a range exceeding 280 km, provides accurate and timely long-range strike capability to Turkish manoeuvre units.¹² In 2017, President Erdoğan finalised a \$2.5 billion agreement with Russia for the S-400 missile-defence system, asserting Türkiye’s strategic autonomy in defence procurement. “In the future, nobody will be able to interfere with what kind of defence systems we acquire,” Erdoğan declared.¹³ The acquisition

led to US sanctions under the Countering America's Adversaries Through Sanctions Act (CAATSA) and Türkiye's subsequent expulsion from the F-35 fighter-jet programme. Nevertheless, Ankara has since requested for 40 new F-16 fighter jets from the United States to modernise its air fleet, although congressional approval remains pending as of 2025.

Finally, the Türkiye–Pakistan strategic axis introduces an opaque yet potentially consequential dimension to Ankara's latent nuclear potential. As previously discussed, Türkiye's growing politico-military alignment with Pakistan, manifested in joint exercises, naval construction contracts, and training exchanges, sustains speculation about possible knowledge transfer or future cooperation in sensitive technologies.¹⁴ Although no evidence currently substantiates nuclear material exchange, Türkiye's engagement with a nuclear-armed Pakistan must be closely observed within the framework of proliferation-sensitive collaboration.

Taken together, these developments suggest that Türkiye's material capability remains, for now, dual-use and threshold-oriented rather than overtly weaponised. While the country continues to frame its nuclear activities within the civilian and non-proliferation paradigm, the technological base, industrial expansion, and strategic alliances being cultivated by Ankara could, under different political circumstances, facilitate a rapid pivot toward weaponisation.

Rationale for Acquiring Nuclear Weapons

Leon Fuerth, in his seminal chapter "Türkiye: Nuclear Choices among Dangerous Neighbours" (2004), delineated six primary conditions that could propel Türkiye down the nuclear path: a doubtful NATO guarantee of collective defence; collapse of global non-proliferation regimes accompanied by subsequent nuclear breakouts; an Islamic or nationalistic shift in domestic opinion; revival of Russian expansionism; a breakdown in Türkiye–US alliance; and the emergence of a power vacuum in West Asia.¹⁵ Two decades later, most of these scenarios have partially materialised. The ongoing uncertainty surrounding

NATO's security assurances, compounded by Iran's accelerated nuclear enrichment activities and the declining normative authority of the non-proliferation regime, have substantially increased Turkiye's strategic anxieties. The Turkiye–Iran relationship has long oscillated between pragmatic cooperation and structural rivalry. Since the revelation of Iran's clandestine nuclear programme in 2002, Ankara has maintained a calibrated stance: defending Iran's right to civilian nuclear energy while calling for compliance with international safeguards. Turkiye's self-assigned role as a mediator between Tehran and the West, particularly during the P5+1 negotiations, reflected its aspiration to emerge as a responsible regional interlocutor.¹⁶ Yet, the deepening strategic divergence between the two—especially following the Arab Spring and the Syrian civil war—has exposed enduring geopolitical fissures.

The 2024 IAEA quarterly report indicated that Iran's uranium enrichment levels now exceed 60 percent purity, a development that several Western intelligence assessments interpret as “latent weapon capability.” This has reignited debates within Ankara's strategic community regarding Turkiye's long-term deterrence options.¹⁷ The RAND Corporation's 2013 assessment had presciently warned that a nuclear-armed Iran would compel Ankara to “seriously consider the development of its own nuclear weapons capability”.¹⁸ Similarly, the US Senate Committee on Foreign Relations' report “Chain Reaction: Avoiding a Nuclear Arms Race in the Middle East” argued that the prevailing balance of power between Tehran and Ankara served as the key stabilising factor in their relations; once disrupted by Iran's nuclearisation, a Turkish nuclear pursuit could become a “logical consequence”.¹⁹

In this context, while Iran's primary antagonisms remain with the United States, Saudi Arabia, and Israel, its eventual nuclear acquisition would inevitably recalibrate the regional security architecture in which Turkiye operates. Turkish policymakers perceive that such an outcome would not only marginalise Ankara's influence in the Islamic world but

also weaken its deterrence posture in a region increasingly defined by power asymmetry. Both Tehran and Ankara harbour ambitions of regional leadership grounded in distinct ideological and historical narratives. Türkiye's aspiration to revive elements of its Ottoman legacy has often been couched in the rhetoric of "strategic autonomy" and "independent defence capability," while Iran's revolutionary identity continues to be anchored in anti-Western resistance. This latent competition for Islamic leadership creates an enduring structural tension. In the event of Iran's nuclearisation, President Erdoğan's nationalist and populist domestic base would likely demand a symmetrical response to restore strategic parity and preserve Türkiye's status as the preeminent regional power. In this sense, nuclear weapons could be construed as the ultimate currency of prestige and security legitimacy, satisfying both nationalist and religious constituencies.

Türkiye's military engagements across West Asia further reinforce its perception of a volatile strategic environment. Its interventions in northern Syria, Libya, and its assertive presence in the eastern Mediterranean demonstrate a pattern of risk acceptance and coercive diplomacy.²⁰ Ankara's concurrent balancing acts—between the Iran-backed axis on one side and the Saudi-UAE bloc on the other, while maintaining tactical coordination with both Russia and the United States—underscore its complex security calculus.²¹ The overlapping crises—ranging from the Libyan political settlement to the Gulf blockade of Qatar and the refugee corridors to Europe—have only intensified Ankara's sense of encirclement.

In recent years, Türkiye has also undertaken a cautious normalisation of relations with Israel, culminating in the mutual reinstatement of ambassadors in 2023 after a decade-long diplomatic freeze. This rapprochement has been justified by Ankara as a pragmatic measure to enhance its leverage on Palestinian issues while ensuring greater autonomy in addressing regional flashpoints.²² By defending the "red lines" concerning Al-Aqsa and Palestinian rights, Türkiye seeks to

demonstrate that engagement with Israel does not compromise its Islamic solidarity but rather amplifies its voice in regional diplomacy. By late 2024, however, two new dynamics further complicated this picture. First, Ankara's frustration with the US Congress' delay in approving the F-16 sales and NATO's reluctance to accommodate its security concerns have strengthened nationalist narratives advocating for greater self-reliance, including in the nuclear domain. Second, Russia's continued military assertiveness in the Black Sea and Iran's growing missile cooperation with proxy groups in Lebanon, Syria, and Yemen reinforce perceptions in Ankara that conventional deterrence alone may prove inadequate in safeguarding Turkiye's regional interests.

Thus, while Turkiye's official doctrine remains committed to the NPT framework, the convergence of domestic nationalism, alliance uncertainty, and regional nuclearisation could, under exceptional conditions, make a latent nuclear option appear both rational and inevitable. In sum, Turkiye's potential rationale for acquiring nuclear weapons is rooted less in the immediate threat perception and more in the quest for strategic symmetry, regional legitimacy, and autonomy—objectives that resonate deeply within the country's evolving security discourse under President Erdoğan.

Commitment to Non-Proliferation Regimes

Turkiye toyed with the idea of nuclear weapons as early as the 1960s. However, the complexity of uranium-enrichment and related technologies, coupled with resource constraints and domestic turbulence, prevented substantive progress. Contemplating the futility of remaining outside the global nuclear order, Turkiye signed the NPT in 1969, but ratification was delayed until 1980 amid internal political instability.²³ Until recently, Turkiye has maintained formal adherence to non-proliferation principles. During a 2019 United Nations General Assembly (UNGA) speech, President Recep Tayyip Erdoğan declared, “The world is bigger than five,” critiquing the NPT's structure as

favouring the five declared nuclear weapon states and stating that “nuclear power should be forbidden for all or should be permissible for all”.²⁴ This statement underscored Ankara’s long-standing concerns about treaty equity and strategic vulnerability.

Turkiye’s record with the CTBT similarly reflects both formal compliance and latent scepticism. Turkiye ratified the CTBT in February 2000 and contributed a seismic monitoring station at Belbashi to the International Monitoring System (IMS). Nonetheless, Turkish officials have repeatedly criticised the non-proliferation regime for inequitable treatment—particularly with respect to Israel, a non-NPT state whose presumed nuclear arsenal remains unaddressed. Such complaints reinforce Ankara’s perception of structural asymmetry in the global regime. In terms of other regimes, Turkiye has been a party to the Biological and Toxin Weapons Convention (BTWC) since 1974 and is a member of the Australian Group, the Missile Technology Control Regime (MTCR), the Hague Code of Conduct against Ballistic Missile Proliferation (HCoC), and the Chemical Weapons Convention (CWC).²⁵ Leon Fuerth suggests that Turkiye’s engagement with these regimes reflects a national role-conception grounded in the dictum of Mustafa Atatürk: “Peace at home, peace abroad.”²⁶

More recently, new developments reflect both continuity and scepticism. In April–May 2025, Turkiye submitted a statement to the preparatory committee for the 11th NPT Review Conference reaffirming its “firm commitment ... to the goal of a world free of nuclear weapons ... the NPT remains the cornerstone of the global non-proliferation regime.”²⁷ However, in June 2025, Foreign Minister Hakan Fidan publicly critiqued the NPT’s structural inequality, calling it “essentially a document where non-nuclear states accept in perpetuity the military superiority of nuclear-armed nations”.²⁸ In terms of the Treaty on the Prohibition of Nuclear Weapons (TPNW), Turkiye has not signed or ratified the instrument. According to International Campaign to Abolish Nuclear Weapons (ICAN) data, Turkiye has

consistently voted against annual United Nations General Assembly (UNGA) resolutions welcoming the TPNW and has taken no part in the 2017 negotiations.²⁹

Analysis of Türkiye's track record of engagement with non-proliferation regimes suggests that while Ankara is unlikely to flagrantly violate global norms in the immediate term, its policy posture remains conditional. The country's strategic identity, alliance uncertainties, and regional security perceptions create latent potential for deviation should the regional situation fundamentally change. If Iran or another regional adversary achieves a nuclear breakout, Türkiye's scepticism of the regimes and past statements of nuclear entitlement could pivot into more substantive policy shifts.

Domestic Political Consensus on Nuclear Proliferation

Unlike most other states in the Middle East, Türkiye's political system operates within a democratic framework where public opinion continues to influence the calculus of its leaders. The domestic discourse around nuclear acquisition, though limited in scope, remains an important indicator of whether a political consensus on proliferation might ever emerge. Historically, Türkiye has sought to enhance its prestige and demonstrate autonomy in foreign policy, at times by signalling neutrality or even defiance vis-à-vis the United States. Its procurement of the Russian S-400 missile system, despite being part of the US-led F-35 fighter jet consortium, is illustrative of Ankara's willingness to assert strategic independence.³⁰ While Turkish interests often align with those of the West through NATO, Ankara's positions in multilateral forums have occasionally converged with Russia and Iran, reflecting its pursuit of a diversified strategic posture.

Within Turkish society, divergent voices shape the discourse on nuclear weapons. A prominent religious scholar, Hayrettin Karaman, has openly argued that the possession of nuclear weapons constitutes a modern requirement for Muslim states' defence capabilities. Drawing a

historical parallel, Karaman stated, “In the time of our Prophet, the most effective means of war were horse and arrow... Today, the most effective weapon is the nuclear weapon. Countries that do not have nuclear weapons are suffering from lack of power and face great danger and threat.”³¹ Such rhetoric, resonating with ultranationalist and conservative constituencies, underscores how religious and nationalist narratives could serve as latent drivers of public legitimacy should Türkiye ever decide to reconsider its non-nuclear status.

However, despite occasional populist rhetoric, Türkiye’s historical experience of multiparty democracy since 1952 has been marked by instability, with multiple military interventions (1960, 1971, 1980, and 1997) shaping its civil–military relations. The failed coup attempt of July 2016 profoundly restructured Türkiye’s political and administrative order, consolidating power under President Recep Tayyip Erdoğan. Esen and Gümüüşcü classify Türkiye under the typology of a “competitive authoritarian regime”, wherein the ruling party maintains electoral legitimacy while curbing opposition and dissent.³² In such systems, strong executive dominance and populist nationalism often reinforce centralised decision-making, reducing institutional checks on strategic policy choices. The 2017 constitutional referendum, which transformed Türkiye from a parliamentary to a presidential system, further entrenched Erdoğan’s dominance.³³ His governance style, characterised by a blend of religious conservatism, assertive nationalism, and neo-Ottoman aspirations, has been instrumental in redefining Türkiye’s strategic ambitions. The strengthening of ties with Pakistan—another nuclear-armed Muslim-majority state—reflects Ankara’s efforts to cultivate symbolic and geopolitical capital as part of its aspiration for regional and religious leadership.

Nevertheless, the region’s persistent political volatility, marked by sectarian tensions, civil conflicts, and external interventions, makes any move toward nuclear proliferation particularly destabilising. As Rajagopalan argues, nuclear weapons are “system-shaping” capabilities

that inevitably alter regional power balances.³⁴ Therefore, while domestic ideological currents and regime consolidation under Erdoğan may provide some rhetorical space for nuclear ambition, Türkiye's embeddedness within Western defence structures and the volatility of its regional environment act as significant restraining factors against any potential breakout.

Nuclear Weapons and Türkiye's Alliance Dynamics

Türkiye has historically been one of the most valuable strategic assets for the United States in its confrontation with the Soviet Union and the broader communist bloc. Its geographic position—straddling Europe and the Middle East and commanding access to the Mediterranean and Black Seas—combined with its alignment with Western liberal ideals, made Türkiye an indispensable ally during the Cold War.³⁵

Since the late 1950s, Türkiye has hosted US nuclear weapons as part of the wider NATO deterrent posture in Europe. Approximately 50 B61 gravity bombs remain stationed at the Incirlik Air Base, symbolising Türkiye's enduring integration into the Western security architecture.³⁶ Historically, Türkiye also hosted a range of nuclear and missile systems, including the Jupiter Intermediate-Range Ballistic Missiles (IRBMs), Honest John rockets, 8-inch howitzers, and associated gravity bombs.³⁷ These deployments underscored Türkiye's centrality in NATO's forward deterrence strategy. However, this long-standing security partnership has periodically encountered friction due to diverging national interests. The 1974 Turkish invasion of Cyprus using US-supplied weapons, the 2016 coup attempt, and Ankara's domestic security operations against Kurdish groups have all strained the alliance. Such episodes have repeatedly triggered debates in Washington over the safety and security of US nuclear assets stationed in Türkiye.³⁸

More recently, tensions have deepened with Türkiye's decision to acquire the Russian S-400 missile defence system, despite its

participation in the US-led F-35 fighter jet programme.³⁹ This move not only underscored Ankara's strategic diversification but also raised concerns about the protection of NATO's classified defence technologies. In the realm of civil nuclear cooperation, the 2008 US-Turkiye 123 Agreement—which governs peaceful nuclear cooperation—reached its 15-year mark in 2023, requiring renewal by both parties. The agreement prohibits Türkiye from developing indigenous uranium enrichment and reprocessing facilities.⁴⁰ Whether Ankara will seek to renegotiate these restrictions in the future remains a critical indicator of its intentions and capability thresholds should it ever decide to cross the nuclear Rubicon. As an early member of NATO since 1952, Türkiye has been part of the Alliance's nuclear-sharing arrangements, alongside Belgium, Italy, the Netherlands, and Germany. Although Türkiye hosts US nuclear warheads, the command and control of these weapons remain under US and NATO authority. After the dissolution of the Soviet Union, the continued presence of US nuclear weapons in Europe was justified as part of NATO's deterrence commitment to its allies. However, Türkiye's increasingly assertive leadership role in the Islamic world has introduced ambivalence into its Western alignments. Ankara's objections to NATO's recent expansion—particularly its initial resistance to the inclusion of Sweden and Finland following the Russian invasion of Ukraine—reflect this evolving posture.

A RAND Corporation report (2013) emphasised that NATO's sensitivity to Ankara's security concerns remains vital for alliance cohesion. Nonetheless, the political distance that has emerged between Türkiye and Western capitals—due to the Kurdish issue, the S-400 purchase, and Türkiye's independent regional manoeuvres—has led some analysts to question the durability of Ankara's commitment to NATO's collective framework.⁴¹ Any Turkish decision to pursue an indigenous nuclear weapons capability would, therefore, entail immense strategic and diplomatic costs, potentially fracturing its seven-decade alliance with the United States and NATO. As a US Senate Foreign Relations

Committee report noted, Turkiye's ties with the West—particularly the United States and NATO—remain the primary determinant in shaping its nuclear decision-making calculus.⁴²

Currently, Turkiye does not face an existential security threat that would necessitate nuclear deterrence. Relations with Iran, despite occasional disagreements over Kurdish groups and the Assad regime, have largely remained cooperative over the past two decades. Yet, in a region marked by the contest for Islamic leadership and the potential destabilisation arising from an Iranian nuclear breakout, Turkiye may be compelled to reassess its strategic posture. In such a scenario, Turkiye's uneasy relations with NATO and the United States, combined with growing defence cooperation with nuclear-armed Pakistan, could significantly influence Ankara's future nuclear trajectory.

Potential Counter-Proliferation Efforts

Counter-proliferation experiences in West Asia often shape states' calculus regarding the acquisition and potential use of nuclear weapons. As defined by De Volpi, counter-proliferation entails the use of military force to prevent or reverse the acquisition or deployment of nuclear weapons.⁴³ In the socially fragmented and politically volatile context of West Asia, counter-proliferation has been a persistent strategy, primarily exercised by Israel, which faces acute security threats on multiple fronts. Nuclear non-proliferation is central to Israel's national survival, and the state has consistently relied on advanced missile and precision-strike capabilities to neutralise perceived nuclear threats in the region. Notably, Israel has previously targeted nuclear infrastructure in Iraq, Syria, and Iran, often through preemptive strikes. Israel's Jericho-2 medium-range ballistic missiles are reportedly capable of reaching all strategic locations in Turkiye, illustrating the scope of its regional reach. Similarly, Iran's medium-range missile capabilities, alongside Saudi Arabia's ballistic missile arsenal, place Turkiye within potential strike envelopes, highlighting Ankara's strategic vulnerability relative to

regional peers. In contrast, Türkiye's strategic missile capability remains limited to tactical systems, such as the domestically developed BORA ballistic missiles.

Türkiye's historical experience of hosting US nuclear weapons under NATO's nuclear-sharing arrangements further underscores the stakes involved. Iran has, on multiple occasions, threatened missile strikes against Israel and US installations in Türkiye in response to any Israeli attempts to target Iranian nuclear facilities.⁴⁴ These dynamics highlight the delicate balance Türkiye must maintain while navigating its regional alliances and nuclear ambitions. Israel's counter-proliferation strategy extends beyond conventional strikes. A prominent example is the 2010 cyber operation against Iran's Natanz uranium enrichment facility, where the Stuxnet worm reportedly destroyed 984 uranium-enriching centrifuges, reducing the facility's operational capacity by approximately 30 per cent.⁴⁵ While Ankara's relationship with Tel Aviv has seen gradual improvements in recent years, it remains unlikely that Israel would compromise its security prerogatives, particularly regarding the potential weaponisation of nuclear programmes in the region. Consequently, Türkiye must factor in the demonstrated willingness and capability of the regional powers to engage in counter-proliferation measures when assessing its strategic posture.

Türkiye is categorised as a Moderate Risk state characterised by autonomy-seeking ambitions, earning a Proliferation Risk Index (see Table 6) score of 14/25 due to a strategic mismatch between its latent material potential and its deep integration into Western defence structures. Its Material Capability (4/5) is driven by a maturing industrial base, exemplified by the Akkuyu NPP reaching 56 per cent local content by 2025, heavy investment in delivery systems like the BORA ballistic missile, and opaque military alignment with Pakistan. This is supported by a Strategic Rationale (3/5) rooted in a quest for regional legitimacy and "nuclear entitlement," with President Erdoğan publicly rejecting the idea that Türkiye cannot possess nuclear missiles while other developed

nations do. Despite its Non-Proliferation Commitment (3/5) involving formal NPT adherence, the government has recently critiqued the regime's "structural inequality", while a Domestic Political Consensus (3/5)—facilitated by executive dominance and religious narratives framing nuclear weapons as a "modern requirement" for defence—provides space for nuclear ambition. However, Turkiye faces its most significant barrier in Alliance Dynamics (1/5), where its role in NATO's nuclear-sharing arrangement at the Incirlik Air Base and the US–Turkiye 123 Agreement's prohibition on indigenous enrichment ensure that any pursuit of a bomb would result in a total fracture with the West and severe diplomatic costs.

Conclusion

Turkiye does not currently face an acute security threat from Iran or its potential nuclear capabilities. However, the dynamics of international politics, as reflected in various theoretical frameworks, underscore the inherent volatility and uncertainty of the strategic environment. The security dilemma suggests that states must continually assess an adversary's potential and capabilities and, when necessary, enhance their own power to safeguard national interests. Constructivist approaches, in contrast, emphasise that the nature and trajectory of interstate relations are shaped by identities constructed through interaction, perception, and historical narratives. Both perspectives converge on the notion that uncertainty in international politics drives states to project and protect identities when perceived as being threatened. In the context of Turkiye–Iran relations, uncertainty surrounding future developments could significantly influence Turkiye's strategic choices. Turkiye positions itself as a neutral mediator between Iran and the West, navigating a delicate balance between its national security imperatives and regional ambitions. This balancing act compels Ankara to occasionally diverge from the Western consensus—as seen in the Kurdish issue and the Cyprus conflict—while also critiquing Iranian regional adventurism,

exemplified by positions on the Assad regime in Syria. Türkiye's aspirations for regional leadership and its vision of reviving the legacy of the Ottoman Empire remain central drivers of its strategic behaviour.

The potential acquisition of nuclear weapons by Iran introduces an additional layer of uncertainty, directly impacting Türkiye's regional ambitions. Analyses from US reports and nuclear experts indicate that any Turkish decision to pursue nuclear weapons would be heavily influenced by its relations with NATO and the US-led Western alliance, which are presently experiencing strains. The credibility of security assurances under Article 5 of the North Atlantic Treaty, and the perceived commitment of NATO allies, will likely remain a determining factor in Türkiye's strategic calculus regarding nuclear proliferation. In sum, while Türkiye does not currently face immediate nuclear threats, the interplay of regional ambitions, alliance dynamics, and systemic uncertainties positions Ankara's nuclear posture as one that remains contingent and highly sensitive to evolving geopolitical developments.

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4. JAPAN: A THRESHOLD NUCLEAR POWER

Introduction

Over the past two decades, security dynamics in Northeast Asia have been dominated by North Korea's nuclear brinkmanship. Since its inaugural nuclear test in 2006, North Korea conducted its sixth nuclear test in 2017. In 2022, Pyongyang passed a law declaring itself a nuclear-armed state, asserting that its decision is "irreversible" and that talks on denuclearisation are non-material. In October of the same year, North Korea launched an intermediate-range ballistic missile over Japan, prompting Japanese authorities to issue a red alert for residents to take cover. Japanese Defence Minister Yasukazu Hamada stated, "North Korea's recent series of actions, including its persistent and escalating missile launches, jeopardize the peace and security of the region and the globe, and are a serious challenge to the entire international community, including our own country. Japan cannot tolerate such a move...".¹

Underlying this unprecedented provocation, North Korea launched more than 30 long-range missiles in 2022, prompting experts to speculate on a potential seventh nuclear test. Research Fellow at the Royal United Services Institute, Joseph Byrne, noted, "This is the longest-range missile it [North Korea] has ever fired over Japan. It could be a precursor to another nuclear test which has been predicted for some time".² Amidst these provocations, South Korea, the United States, and Japan convened a meeting of deputy foreign ministers. On the apprehension of North Korea's seventh nuclear test, the trio resolved to undertake "an

unprecedentedly strong response if North Korea proceeds”.³ Japan’s Vice Minister for Foreign Affairs, Takeo Mori, emphasised that “North Korea’s intensifying nuclear and missile activities are a clear and serious challenge to the international community. We agreed to ramp up deterrence in our region with a view towards the denuclearization of North Korea”.⁴

In the light of the prevailing situation in East Asia, particularly in 2020–21, Prime Minister Fumio Kishida described the regional security environment as “fragile” following the Russian invasion of Ukraine and the fourth Taiwan Strait crisis.⁵ To safeguard its security interests amidst a destabilising regional environment, the Kishida government has sought to enhance Japan’s military capability, including requesting the Diet to increase defence spending by 3.6 per cent to Yen 5.6 trillion (\$39.78 billion). In the latest National Security Strategy (NSS), the ruling coalition approved counter-strike capabilities in the context of missile defense.⁶ This chapter examines Japan’s nuclear proliferation potential based on five parameters: material capability, rationale for acquiring nuclear weapons, commitments to non-proliferation regimes, domestic political consensus, Japan’s alliance dynamics, and potential counter-proliferation efforts.

Table 1: Successful Missiles Tested by North Korea in 2022

Date	Missile Name	Missile Type
10-1-2022	Hwasong-8 MAR	Medium Range Ballistic Missile
14-1-2022	Rail-Mobile KN-23	Short Range Ballistic Missile
16-1-2022	KN-24	Short Range Ballistic Missile
26-1-2022	KN-23	Short Range Ballistic Missile
29-1-2022	Hwasong-12	Intermediate Range Ballistic Missile
27-2-2022	Unknown	Unknown
24-3-2022	Hwasong-17	Inter-Continental Ballistic Missile
16-4-2022	Unnamed Small Solid Propellant SRBM	Short Range Ballistic Missile
24-5-2022	Unknown	Short Range Ballistic Missile
25-9-2022	Navalised KN-23	Short Range Ballistic Missile

28-9-2022	Unnamed Large Solid Propellant SRBM (KN-23 Mod)	Short Range Ballistic Missile
29-9-2022	KN-25	Short Range Ballistic Missile
4-10-2022	New IRBM	Intermediate Range Ballistic Missile
6-10-2022	KN-23	Short Range Ballistic Missile
9-10-2022	KN-25	Short Range Ballistic Missile

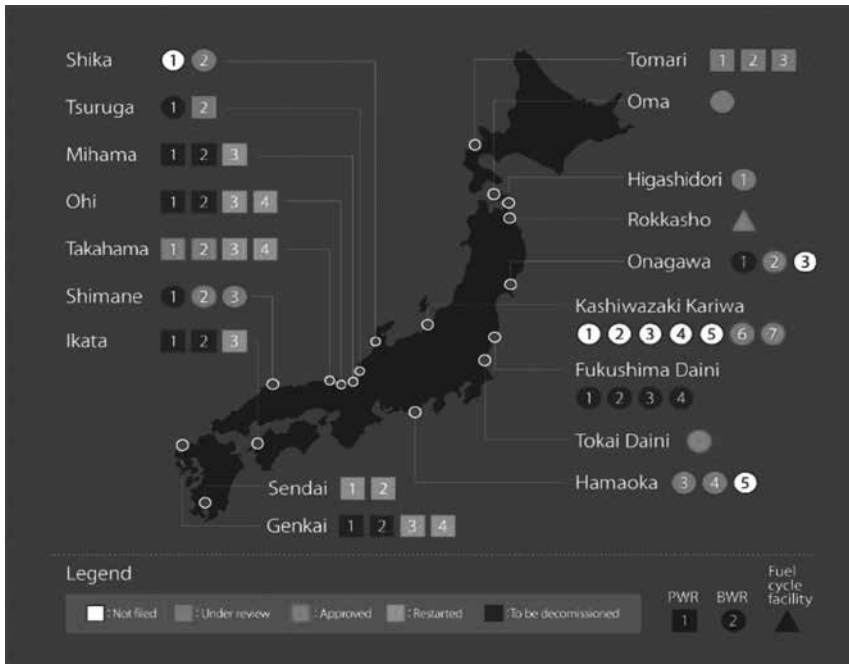
Source: NTI (The table does not include the missiles fired along the coast of Japan or South Korea but only includes the successful missile tests).

Material Capability of Japan

Nuclear Power Plants and Civilian Infrastructure: Japan is a resource-poor country whose energy security has long relied on imports of fossil fuels; nuclear power historically accounted for a substantial share of electricity generation and symbolised Japanese technological prowess. Prior to the Fukushima Daiichi accident (2011), Japan possessed 54 commercial reactors (39 operable at the time), which contributed roughly one-third of the national electricity production. The Fukushima disaster precipitated a wholesale regulatory, institutional, and social recalibration: the Nuclear Regulation Authority (NRA), established in 2013, imposed more stringent safety standards, and the normative and legal framework for reactor operation was substantially tightened. Under the revised rules, reactor operating licences are normally limited to 40 years with a possible 20-year extension subject to regulatory approval. In the immediate post-Fukushima period, only a minority of reactors secured restart clearance; by 2024–25, restarts accelerated under a government policy favouring decarbonisation and energy security, with Reuters reporting some 13 reactors in commercial operation after the recent restarts (e.g. Onagawa), and government planning documents and industry reports indicating a progressive increase in operable capacity. The Kishida Administration's Green Transformation Policy (December 2022) emphasises maximising the use of existing reactors, extending useful lives where safe, and developing “next-generation innovative reactors” as part of a decarbonisation and energy-diversification strategy (NSS, 2022).

These policy shifts have increased the emphasis on nuclear technology as a civilian energy solution and have concomitantly revitalised reactor operations and planning.

Fig 2: Licensing Status of the Japanese Nuclear Facilities



Source: https://www.fepc.or.jp/english/nuclear/power_generation/plants/index.html

Fissile Material: Following the catastrophic atomic bombings of Hiroshima and Nagasaki at the conclusion of World War II, Japan embarked upon its nuclear energy programme under the banner of “Atoms for Peace,” aiming to revitalise its energy sector and demonstrate technological prowess. Initial support from the United States included the provision of 6 kg of enriched uranium to facilitate the establishment of a civilian nuclear programme.⁷ Japan’s nuclear energy production trajectory accelerated significantly in 1988, when, under stringent international

safeguards, it was authorised to enrich uranium and reprocess spent nuclear fuel to produce plutonium. This authorisation, later renewed under the 30-year US–Japan nuclear cooperation agreement, enabled Japan to accumulate approximately 45.5 metric tonnes of separated, unirradiated plutonium—sufficient, in purely technical terms, to produce over 6,000 nuclear warheads. Of this total, 8.9 metric tonnes are retained within Japan, while the remaining 36.6 metric tonnes are stored in the United Kingdom and France, reflecting limitations in domestic reprocessing and Mixed Oxide (MOX) fuel fabrication capacity. The international transport of plutonium to European sites, conducted via heavily guarded maritime convoys, inherently carries proliferation and security risks, including potential diversion or terrorist targeting.⁸

Japan remains the only non-nuclear weapon state under the NPT to maintain a comprehensive nuclear fuel-cycle infrastructure. Leveraging imported uranium and domestic expertise, Japan has developed a fully integrated fuel-cycle industry. To demonstrate compliance with non-proliferation norms, the Japan Atomic Energy Commission (JAEC) has publicly committed to reducing its plutonium stockpile through utilisation in MOX fuel within domestic nuclear reactors. Furthermore, Japan intends to commence commercial operations at the Rokkasho reprocessing facility, which is projected to produce approximately 8 metric tonnes of plutonium annually.⁹

Japan's substantial plutonium reserves have periodically elicited concern from regional actors, including China, South Korea, and North Korea. These states have questioned the continued permissibility under US agreements for a non-nuclear weapon state to maintain enrichment and reprocessing capabilities, and to retain plutonium for civilian purposes. Despite Japan's position under the US nuclear umbrella, allegations persist that Tokyo possesses latent nuclear weapons potential, given its advanced capabilities in nuclear technology, reprocessing, and missile delivery systems.¹⁰

Delivery System: The security challenge that Japan faces from North Korean missile proliferation and China's numerically and technologically superior missile forces has prompted a major reorientation of Japanese defence policy toward layered denial and limited counter-strike capabilities. Japan's approach pairs an increasingly sophisticated missile-defence architecture ("shield") with explicitly authorised counter-strike capabilities ("spear"), reflecting a doctrinal shift in Tokyo's understanding of deterrence.¹¹ Japan's missile-defence posture is multilayered and networked. The Japanese Maritime Self-Defence Force (JMSDF) deploys Aegis-equipped destroyers with SM-3 and SM-6 interceptors to engage short- to intermediate-range ballistic missiles in exo- and endo-atmospheric regimes; the Japan Air Self-Defence Force (JASDF) fields Patriot PAC-3 batteries for terminal defence; and the Ground Self-Defence Force (JGSDF) contributes medium-range surface-to-air systems such as the Type-03.¹² These elements operate within an integrated sensor-shooter architecture—combining land, sea, air, airborne, and space-based sensors—to provide comprehensive early warning and layered interception.¹³ The JMSDF's current Aegis-equipped destroyer fleet comprises eight ships (four Kongo class, two Atago class, and two Maya class), and Tokyo is expanding naval capacity with plans for additional Aegis-equipped vessels capable of integrating long-range strike functions.¹⁴

In one of the latest developments, Japan is enhancing its long range cruise missile capability through mass production of submarine-launched guided missiles as well as the production of Type 12 surface-to-ship guided missile, with improved capabilities.¹⁵ Similarly, Japan's Defence of Japan 2025 White Paper highlights the country's evolving focus on advanced missile technology as a cornerstone of national defence in the face of growing regional threats, particularly from China and North Korea. The report underscores progress in developing and deploying longer-range, precision-guided standoff missile systems that

extend Japan's defensive reach and contribute to its emerging "counter-back" capabilities, while still framed within a self-defence context. This includes the enhancement of domestically designed platforms such as the upgraded Type-12 surface-to-ship and land-attack guided missiles with expanded ranges approaching 1,000 km, the pursuit of hypersonic-class weapon technologies, and integration of missile systems across the land, sea, and air domains. These efforts reflect Japan's strategic shift toward deeper technological integration, deterrence, and interoperability with allies, particularly through bolstering long-range strike options and counter-measures against sophisticated threats in the Indo-Pacific security environment.

The 2022 National Security Strategy (NSS) formalised a doctrinal acceptance of counter-strike capabilities when necessary for self-defence, explaining that missile defence alone may be insufficient against saturation attacks or advanced hypersonic threats; hence, Japan must be able to "mount effective counter-strikes against the opponent's territory" under narrowly defined conditions and legal restraints. The NSS, thus, paved the way for procurement and doctrine changes oriented toward standoff conventional strike and responsiveness. Operationally, Tokyo has sought to acquire a mix of foreign and domestic long-range strike assets rather than nuclear delivery vehicles. Key procurement steps include an approved foreign military sale to purchase up to 400 Tomahawk cruise missiles (Blocks IV/V) from the United States—an acquisition that substantially expands Tokyo's ability to conduct precision long-range strikes against critical nodes on an adversary's territory—and related ship and launcher modifications to integrate Tomahawk launch capability aboard select Aegis destroyers. In one of the latest development, Japan is enhancing its long range cruise missile capability.

Budgetary commitments reflect the seriousness of this shift. Since 2022, Japan has embarked on a multi-year defence build-up; the Ministry of Defence's budget requests for 2024–25 and the government's 2025 budget allocations represent record increases aimed at mass

producing ground-launched cruise missiles, investing in hypersonics and high-velocity glide vehicles, strengthening electromagnetic and cyber capabilities, and expanding space and sensor infrastructures.¹⁶ Japan's multi-domain approach—labelled the Multi-Domain Defence Force (MDDF)—seeks to integrate capabilities across the electromagnetic, cyber, space, maritime, air, and land domains to enhance cross-domain deterrence and resilience. The 2024 Defence of Japan White Paper emphasises this integration, including cyber defence enhancements such as the establishment and expansion of dedicated SDF cyber units. Japan nevertheless remains a state without an indigenous strategic ballistic missile force. It does, however, possess a robust space-launch infrastructure (e.g., the Epsilon solid-fuel launch vehicle), and analysts have long observed that solid-propellant space launchers and satellite-launch rockets are technically convertible—under political will and programmatic reorganisation—into long-range ballistic vehicles.¹⁷

Finally, while Japan now possesses the technical and industrial prerequisites to mount a nuclear test or produce a deliverable device—given its plutonium holdings, fuel-cycle infrastructure, and industrial base—the state has pursued substantial conventional alternatives (Tomahawk, hypersonic and long-range strike capabilities), legal constraints, and alliance-based deterrence (US extended deterrence), which collectively make deliberate nuclear weaponisation an unlikely policy choice despite the material feasibility.¹⁸

Technically, Japan retains the material prerequisites for a relatively short breakout timeline: large plutonium inventories (safeguarded), an advanced industrial base, relevant space-launch technology, and qualified personnel. However, multiple constraining factors significantly raise the political, legal and operational costs of any weapons decision: international safeguards and transparency; domestic legal and normative constraints; allied dependence and reputational costs; and alternative conventional options. Japan's nuclear materials and facilities are subject to rigorous IAEA safeguards and national transparency measures. Any diversion

of safeguarded material would be detected and generate an immediate international response. Post-war norms (including popular anti-nuclear sentiment) and domestic legal-constitutional considerations (Article 9 debates aside) present strong domestic political barriers. Japan's security dependence on the US' extended deterrent and its global diplomatic and economic integration create substantial costs for any decisive break with the NPT regime. The NSS procurement of long-range conventional strike capabilities (Tomahawk and future domestic systems) offers a lower-cost alternative to nuclearisation to address territorial-defence and deterrence needs.

Rationale for Acquiring Nuclear Weapons

The question of why Japan might contemplate acquiring nuclear weapons remains an underexplored topic within the academic discourse, particularly in the context of rising state capacity, economic strength, and increased stakes in regional stability. Professor Emeritus at the University of Tokyo, Fumiaki Kuba, highlights Japan as an exceptional case in the global trajectory of military expansion, noting that while many states enhance military strength with growing wealth, Japan represents a post-war exception:

Many countries expand their military strength as they acquire wealth. However, there are at least two important exceptions, the most important of which was the United States in the 19th and early 20th centuries. It was only after the start of the Cold War that the United States became a standing military superpower. The second case is post-war Japan.¹⁹

Despite being geographically surrounded by nuclear-armed states such as Russia, China, and North Korea, Japan has adhered to a pacifist security policy characterised by self-restraint, constitutionally enshrined in Article 9 of its post-war Constitution.

North Korea: The Japanese National Security Strategy (NSS, 2022) emphasises that North Korea’s military modernisation represents a “grave and imminent threat” to Japan’s national security (NSS, 2022, p. 9). North Korea’s rapid advances in missile technology and operational deployment—including launches from mobile Transporter-Erector-Launchers (TELs), submarines, and rail-mobile platforms—have strengthened its nuclear and conventional capabilities²⁰ (See Tables 1 & 2). North Korea is estimated to possess 40–50 nuclear warheads, along with short-, medium-, and intercontinental-range ballistic missiles, including the Hwasong-15 ICBM, which has a range of nearly 17,000 km.²¹ Such capabilities could significantly destabilise East Asian and Indo-Pacific security dynamics, thereby heightening Japan’s interest in enhanced deterrence measures, including potential reconsideration of nuclear options.²² Japan’s susceptibility to nuclear coercion is compounded by its alliance obligations under the Japan–US Security Treaty, which obliges Japan to provide logistical support and missile basing for US operations in the event of conflict on the Korean Peninsula.²³ The recent Russian invasion of Ukraine further underscores the risks associated with reliance on extended deterrence and nuclear abstention, illustrating the potential consequences of insufficient self-reliant security.²⁴

China: The NSS (2022) also identifies China as the “greatest strategic challenge” to Japan, citing Beijing’s military expansion, nuclear modernisation, and assertive posture in the East and South China Seas, as well as in the Taiwan Strait (NSS, 2022, p. 9).²⁵ China’s growing defence expenditure, civil–military fusion initiatives, and development of advanced missile capabilities, including hypersonic glide vehicles, amplify the potential threat to Japan.²⁶ While China maintains a declared “no-first-use” nuclear doctrine, Japan’s perception of threat is intensified by China’s regional assertiveness and rapid military modernisation, leading to an increased focus on enhanced conventional deterrence capabilities.²⁷

Russia: Russia’s resurgence as a nuclear-armed power, particularly in the context of its invasion of Ukraine, combined with its strategic partnership with China and deployment of systems such as the bastion coastal defence missile, presents a further layer of strategic uncertainty for Japan. The Japanese Defence White Paper (2022) underscores the volatility of the regional security environment and stresses that deterrence—both conventional and extended—is essential to prevent alterations to the status quo by force.²⁸

Although China presents a long-term strategic challenge, its no-first-use doctrine and lack of intention to provoke Japan suggest that immediate nuclear threats are limited. In contrast, North Korea represents a tangible, unpredictable nuclear threat, particularly given the US-North Korea security dynamics, which could draw Japan into potential conflict scenarios as part of its alliance obligations.²⁹ Consequently, the rationale for Japanese reconsideration of nuclear capabilities is primarily shaped by North Korean aggression, Russian assertiveness, and broader uncertainties in the Indo-Pacific security environment, despite strong domestic opposition to nuclear armament rooted in historical memory.³⁰

Table 2: Successful Missile Tests by North Korea from 2023-25

Date	Missile Name / Designation	Type of Missile
Feb 24, 2023	Hwasal-2 (4 missiles)	Strategic cruise missiles
Mar 19, 2023	Hwasong-11A (KN-23 variant)	Short-range ballistic missile
Jul 12, 2023	Hwasong-18	Intercontinental ballistic missile (ICBM)
Dec 18, 2023	Hwasong-18	Intercontinental ballistic missile (ICBM)
Apr 02, 2024	Hwasong-16B (likely)	Ballistic missile (IRBM/long-range)
Apr 2024	Hwasal-1 Ra-3 variant	Cruise missile
Jun 27, 2024	Multiple warhead-armed missile test	Likely ballistic MRBM/IRBM

Jul 01, 2024	Hwasong-11C-4.5	Tactical ballistic missile
Sep 18, 2024	Hwasong-11C-4.5 / SRBM	Tactical ballistic missile
Oct 31, 2024	Hwasong-19 variant	Intercontinental ballistic missile (ICBM)
Jan 06, 2025	Unnamed hypersonic IRBM / new HGV-equipped missile	Intermediate-range / hypersonic ballistic
Jan 25, 2025	Strategic cruise missile test (sea-to-surface)	Cruise missile
Mar 10, 2025	Multiple ballistic missiles	Short-/medium-range ballistic
May 07, 2025	Short-range ballistic missiles (e.g., KN-23/KN-25)	SRBM
May 22, 2025	“Hwasal” cruise missiles	Strategic cruise missiles
Oct 22, 2025	Hypersonic missiles (2 launches)	Hypersonic ballistic

Commitment to Non-Proliferation Regimes

With respect to the NPT, Japan's major concern during the negotiation in the 1960s was to prevent any kind of restrictions over its civilian nuclear programme and its commercial prospects. China's nuclear test in 1964 prompted Japan to review its nuclear policy with some politicians overtly advocating for acquisition of nuclear weapons. Before joining the treaty in 1976, Japan's indispensable condition, among others, was that the treaty shall not restrict Japan's right to permit nuclear weapons introduction on Japanese territory as a part of the US' extended nuclear deterrence. Declassified documents reveal that the domestic debate against nuclear acquisition broadly outlined three broad arguments:

- (a) Nuclear acquisition expresses distrust in the US nuclear umbrella, thereby weakening the US-Japan security alliance.
- (b) Japan principally adheres to non-proliferation norms. Hence, joining the NPT would not make any difference.
- (c) Japan's ability to develop nuclear weapons was already restricted by Partial Test Ban Treaty (PTBT), which Japan was a party to.

After considerable domestic debate and deliberation with the United States, Japan joined the NPT in 1976 and supported indefinite extension of the treaty in 1995. Since then, it has committed itself to the principles of nuclear disarmament and non-proliferation. Japan is a founding member of the IAEA and signed the Additional Protocol with the IAEA in 1998.

Japan has been an avowed advocate of ratification and early enforcement of Comprehensive Test Ban Treaty (CTBT). It signed the CTBT in 1997, and was the fourth state to ratify it, and among the first nuclear capable states under Annex II members. While lobbying for its early enforcement, Japan has contributed 10 monitoring facilities to the worldwide network of nuclear monitoring facilities. Meanwhile the Fissile Material Cut-off Treaty (FMCT) has also had the strong backing of successive Japanese governments. Japan is a member of the Missile Technology Control Regime (MTCR), and had actively participated in as well as subscribed to Hague Code of Conduct against ballistic missile proliferation. Japan once extensively used biological weapons during World War II on civilians and crops, but signed the Biological and Toxin Weapons Convention in 1972 and ratified it in 1982. With respect to the Chemical Weapons Convention, Japan signed and ratified it in 1995, and under its provisions, is currently working with China to destroy nearly 7,00,000 war era Japanese chemical weapons abandoned in Chinese territories. In addition to these, Japan is a member of the Australia Group and maintains comprehensive export controls.

However, despite being a staunch advocate of nuclear disarmament, Japan neither participated in negotiations over Treaty on the Prohibition of Nuclear Weapons (TPNW), nor signed the treaty which came into force in January 2021. Japanese Foreign Minister Yoshimasa Hayashi explained the government's position as: "The TPNW is an important treaty that can be described as an exit to a world without nuclear weapons. However, the cooperation of nuclear weapon states is necessary to change the reality, but not even one nuclear weapon state has signed the treaty".³¹

The treaty represents the voice of collective non-nuclear weapon states (under the NPT) against the continued reluctance of the nuclear weapon states towards the disarmament pillar of the treaty. The United States, with a large number of operative nuclear warheads, along with extended deterrence commitments, pressured Japan to neither participate in the negotiations nor join the treaty.³² Understandably, Japan is parroting the nuclear weapon state's narrative because joining the TPNW would mean surrendering the extended nuclear deterrence of the United States, a far more dangerous proposition amidst the security environment Japan is placed in. A national survey was conducted in Japan to assess public opinion on signing the TPNW in 2020 by Yale University scholars (Jonathon Baron, Rebecca Davis Gibbons and Stephen Herzog), with *N*, or the sample size, being 1333.³³ The survey indicated that almost 75 per cent of the Japanese public was in favour of the prime minister signing, and the Diet ratifying, the TPNW.³⁴

With genuine concerns for the deteriorating regional nuclear landscape, Japan initiated the Non-Proliferation and Disarmament Initiative (NPDI) with Australia and eight other cross-regional countries (including Germany, Nigeria, Mexico, UAE) with a mandate to take forward the consensus outcomes of the 2010 NPT Review Conference. The aim was to jointly advance the nuclear disarmament and non-proliferation agenda. In August, 2022, the NPDI held its 11th high ministerial-level meeting, reaffirming its commitment to the provisions of the NPT, and urged all the parties to exercise effective multilateralism.

The Japanese nuclear discourse has been highly influenced by the experience of being attacked by atomic weapons twice. Despite influential leaders' call for public debates on the introduction of nuclear weapons on the archipelago, use of a nuclear weapon or even a whisper about it remains a taboo in Japanese society. Political leaders have not been able to change the discourse despite achieving formidable economic and technological prowess. The nuclear survivors who faced the fallout of the nuclear strike

first hand, are still alive in Japan. They make any improvisation in public discourse on nuclear weapons a politically suicidal proposition for mass political leaders. In consonance with the popular discourse, Japan has joined almost all the non-proliferation and arms control regimes and groupings, except the TPNW, for the reasons discussed above.

Domestic Political Consensus on Nuclear Proliferation

The Japanese Constitution, commonly referred to as the MacArthur Constitution, was formulated during the Allied occupation of Japan following World War II under the supervision of General Douglas MacArthur, the supreme commander for the Allied powers. Drafted in the aftermath of unprecedented devastation caused by the atomic bombings of Hiroshima and Nagasaki, which resulted in approximately 200,000 fatalities and lasting socio-environmental consequences, the Constitution embodies strong pacifist principles while also reflecting concerns about Japan's militaristic past.³⁵ Article 9 of the Constitution explicitly prohibits the settlement of international disputes through war and forbids the maintenance of armed forces with war potential. Consequently, the imperial Japanese military was dismantled, and in 1954, the Self-Defence Forces (SDF) were established as a defensive military institution under the direct authority of democratically elected officials.

The constitutional principle of *Senshu Boei*—‘strictly defensive national defence’—retains interpretational ambiguities within Japan's political elite. Analogous to Article 51 of the UN Charter, *Senshu Boei* permits the use of force under three conditions: (1) when Japan's national survival is threatened by an armed attack against Japan or a foreign country; (2) if no other measures are feasible to remove the threat; and (3) if the use of force is strictly necessary and proportionate. Within contemporary politics, the ruling Liberal Democratic Party (LDP) interprets this principle to allow preemptive measures upon detection of signs of a systematic, planned, and coordinated attack, whereas its

coalition partner, Komeito, maintains that force should be employed only after an actual attack occurs. Despite these interpretational differences, there is a bipartisan understanding that the SDF must transition from a purely defensive posture to an “offensive-defensive” orientation in response to the evolving regional security dynamics.

The Atomic Energy Basic Law of 1955 restricts Japan’s nuclear energy use strictly to peaceful purposes, reinforcing Japan’s adherence to its three non-nuclear principles adopted in 1967: not possessing, not producing, and not permitting the introduction of nuclear weapons on Japanese territory.³⁶ These policies have persisted despite the presence of nuclear-armed neighbours, including China, North Korea, and Russia, reflecting Japan’s long-standing reliance on the United States’ extended nuclear deterrence. However, regional security dynamics, particularly North Korea’s nuclear weapons programme and Chinese military assertiveness, prompted Prime Minister Shinzo Abe to reinterpret constitutional provisions to permit collective self-defence, allowing the use of force on behalf of the allies if Japan’s own security is threatened.³⁷

Public opinion in Japan continues to strongly support non-nuclear policies. Following North Korea’s first nuclear test, surveys indicated that approximately 80 per cent of the population endorsed the three non-nuclear principles.³⁸ Subsequent studies over the last two decades have consistently demonstrated that despite Japan’s advanced nuclear energy capabilities and nuclear latency, the public overwhelmingly opposes the deployment or use of nuclear weapons even in response to a potential North Korean strike.³⁹

Among Japan’s political elites, the LDP has historically favoured a more assertive security posture. In its pre-2009 tenure, the LDP revised the National Defence Programme Guidelines (NDPG) to reflect this orientation. The 2010 NDPG redefined Japan’s strategic concept from a “basic defense force” to a “dynamic defense capability,” acknowledging the rapid transformation of the regional security environment, including North Korea’s nuclear and missile developments.⁴⁰ In subsequent years,

the escalating security challenges prompted Prime Minister Fumio Kishida to advocate for increased defence spending—up to 2 per cent of Japan's Gross Domestic Product (GDP)—and the development of counter-strike capabilities in response to regional adversaries' modernisation programmes. In a 2022 joint opinion poll conducted by Fuji News Network and *Sankei Shimbun*, approximately 62.5 per cent of respondents supported the government's decision to increase the defence budget.⁴¹

Prime Minister Shinzo Abe, during his tenure, prioritised strengthening Japan's security through proactive policies, including closer cooperation with the United States on extended deterrence, ballistic missile defence, and civilian protection frameworks. The first National Security Strategy (NSS) was formulated in 2013, establishing a ten-year security policy framework, followed by a revised NDPG in 2014 aimed at countering North Korea's nuclear programme. Abe's state visit to the United States in 2017 secured an explicit US commitment to Japan's defence, stating: "The US commitment to defend Japan through the full range of US military capabilities, both nuclear and conventional, is unwavering".⁴²

While Prime Minister Kishida has reiterated Japan's commitment to nuclear disarmament and rejected nuclear sharing⁴³, Abe's legacy has created an ongoing domestic debate over the potential role of nuclear deterrence in Japan's security strategy. The Russian invasion of Ukraine in 2022 and Chinese increasing assertiveness toward Taiwan have reinvigorated discussions among former policymakers, including Abe, regarding nuclear deterrence as a potential security measure. Kishida's government, however, has categorically rejected any consideration of nuclear weapon deployment, citing the enduring relevance of the three non-nuclear principles.⁴⁴

Public opinion remains strongly opposed to nuclear retaliation. A 2022 survey by the *Bulletin of the Atomic Scientists* examining perspectives on North Korea and extended deterrence found that the majority of

Japanese respondents preferred to avoid nuclear retaliation, with 58 per cent attributing their opposition to adherence to the nuclear taboo.⁴⁵ This underscores the profound moral and societal constraints on Japan's nuclear discourse, which continues to be shaped by the collective memory of atomic bomb devastation.

Nuclear Weapons and Japan's Alliance Dynamics

The US-Japan Mutual Security Treaty, initially signed in 1951 as a ten-year renewable agreement, established the foundational framework for Japan's post-war pacifist orientation while simultaneously allowing the continued presence of US forces on Japanese soil after the restoration of sovereignty. The treaty was revised in 1960, providing the United States with its first permanent military base in Asia in exchange for a formal commitment to defend Japan in the event of an armed attack. Since that time, Japan's security policy has evolved dynamically in response to changing regional contingencies. Concerns regarding the pacifist orientation of Japan's post-war Constitution have persisted both domestically and internationally. Richard McGregor of the Lowy Institute has observed: "Many Americans wish they hadn't bound Japan with the peace Constitution... There is a kind of seller's remorse and buyer's remorse on the peace Constitution on both sides of the Pacific".⁴⁶ Similarly, Tobias S. Harris, author of *The Abe Legacy*, has highlighted the Trump Administration's approach toward Japanese security, noting: "Mr. Trump said that you have to do your own security. He said it explicitly. But I think the overall trend of the US is basically the same as Mr. Trump. You can't totally rely on the US anymore".⁴⁷

The persistent missile threats from North Korea, including frequent launches over Japanese territory, have reinforced strategic cooperation between Tokyo and Washington, particularly in the domain of missile defence. The US Department of Defence's Missile Defence Review (MDR) of 2019 identified Japan as its "strongest missile defense partner," and the 2022 MDR reaffirmed this status alongside Australia and the

Republic of Korea.⁴⁸ In response to the 2022 US Nuclear Posture Review, Japanese Foreign Minister Hayashi Yoshimasa emphasised strong support for the US commitment to credible extended deterrence—including nuclear deterrence—to allied states such as Japan, in the light of the ongoing conflict in Ukraine, North Korea's nuclear expansion, and China's military modernisation, including in nuclear and missile capabilities.⁴⁹ Reflecting the strategic pivot toward the Indo-Pacific, Japan's National Security Strategy (2022) underscores the Japan-US alliance, including extended deterrence provisions, as the cornerstone of national security. The strategy explicitly states: "Japan will fundamentally reinforce its defense capabilities and deepen security cooperation with the United States. By undertaking such efforts, Japan will further strengthen the deterrence and response capabilities of the Japan-US alliance, including extended deterrence by the US that is backed by its full range of capabilities, including nuclear".⁵⁰

The NSS also highlights Japan's promotion of a Free and Open Indo-Pacific (FOIP) strategy through minilateral security engagements such as the Quadrilateral Security Dialogue (QUAD) partnership and trilateral frameworks, including Japan-US-ROK and Japan-US-Australia collaborations. In a significant recent development, the UK has engaged Japan in deepening its strategic footprint in the Indo-Pacific. In January 2023, Japan and the UK signed a defence pact permitting mutual deployment of troops, a treaty regarded as the most consequential since the 1902 Anglo-Japanese Alliance.⁵¹ This agreement signals a concerted effort to integrate major powers more prominently into the regional security architecture.

The ongoing Russian invasion of Ukraine has reignited debates regarding nuclear deterrence in global security hotspots, with the East Asian region receiving particular attention due to its material capability to produce nuclear weapons. Although the US-Ukraine relationship lacks a formal nuclear alliance comparable to the Japan-US extended deterrence arrangement, the perceived credibility of US deterrence

in Europe has been questioned. Scholars such as Cimbala and Korb have drawn parallels between European and East Asian security crises, emphasising that Ukraine's mid-1990s renunciation of nuclear weapons contributed to a diminution of its existential security.⁵² These developments underscore the continued relevance of nuclear deterrence and strategic stability in the Asia-Pacific, a region comprising three nuclear-armed states, two nuclear threshold states, and states with limited democratic oversight over strategic capabilities.

Overall, these strategic, historical, and geopolitical considerations illustrate the centrality of the Japan-US alliance and extended deterrence commitments in maintaining regional security. As regional crises increasingly approach existential thresholds, Japan's policy trajectory reflects a careful balancing of reliance on allied deterrence and autonomous defence modernisation in a complex and volatile Indo-Pacific security environment.

Potential Counter-Proliferation Efforts

The prospects of counter-proliferation efforts against Japanese military assets and infrastructure are least likely, primarily because of the treaty-based security alliance with the United States, apart from the obvious technological and military superiority in terms of advanced ballistic missile defence systems with sensor-based radar and satellite-based reconnaissance systems. The discourse around the Japanese state capacity is quite profound, which further gets accentuated with the US institutional support. As explained by Kyle Mizokami, China's greatest nightmare is perhaps a nuclear armed Japan.⁵³ Nuclear armed Japan would complicate China's security complex in the region and would induce substantive alteration in its nuclear doctrine and quantitative superiority in the nuclear arsenal. This may also induce countries like China and North Korea to solemnly consider strategic stability in the region to collectively bolster arms control negotiations. At present, North Korea, China and Russia are considered to be bloc partners dissipating any serious need for

arms control initiatives. With the advent of nuclear weapons in Japan, a member of an antagonistic Western bloc, arms control negotiations would be a strategic stabiliser. Hence, instead of counter-proliferation efforts, Japanese adversaries would rather prefer to bolster assurances for their own material capability in general and nuclear capability in particular. They are likely to take a defensive approach with a view to bolster regional security through arms control and confidence-building measures rather than going for a counter-proliferation strike which might prove counter-productive.

Japan is categorised as a Moderate–Low Risk state characterised by Latent but Constrained capabilities, receiving a Proliferation Risk Index (see Table 6) score of 12/25 due to the “latent power paradox” where its maximum technical potential is neutralised by the world’s strongest normative and alliance-based restraints. Its Material Capability (5/5) is the highest among the non-nuclear states, as it possesses the industrial expertise to build a weapon in a short duration, maintains a comprehensive indigenous fuel cycle, and holds a massive stockpile of 45.5 metric tonnes of separated plutonium. This capability serves as an “insurance hedge” driven by a Strategic Rationale (4/5) rooted in “grave and imminent” existential threats from North Korea’s nuclear brinkmanship and China’s military expansion, alongside growing concerns regarding the reliability of the US’ “nuclear umbrella”. However, Japan’s risk remains suppressed by its Non-Proliferation Commitment (1/5) to the Three Non-Nuclear Principles and its status as a founding IAEA member, a Domestic Political Consensus (1/5) defined by a powerful “nuclear taboo” and 80 per cent public opposition to armament, and Alliance Dynamics (1/5) where the US–Japan Security Treaty is viewed as the bedrock of national survival. Ultimately, while Japan possesses the “spear” of latent delivery systems and “shield” of advanced missile defence, it remains institutionally committed to a non-nuclear path unless faced with a total alliance rupture or an absolute security failure.

Conclusion

Japan's material and institutional capabilities position it as a state with unmistakable potential for nuclear weapons development. As the world's third-largest economy, Japan possesses both the technological expertise and industrial base necessary to produce nuclear weapons. Its space-launch capabilities provide an additional latent delivery mechanism, as rockets designed for satellite deployment can be repurposed for long-range missile strikes. Nonetheless, under the current regional security context and in order to maintain strategic stability and prevent an arms race, Japan's status as a non-nuclear weapon state remains feasible. However, when confronted with acute threats, strategic imperatives could compel Japan to rapidly mobilise resources and consolidate technical expertise.⁵⁴ The potential acquisition of nuclear weapons by Japan also represents a significant concern for its nuclear-armed neighbours—China, Russia, and North Korea—underscoring the destabilising implications such a development could have in East Asia.⁵⁵

This chapter has examined Japan's nuclear proliferation potential within a volatile East Asian security environment, characterised by China's ballistic missile activity in the Taiwan Strait, North Korea's repeated missile launches, including those crossing Japanese airspace, and broader regional military modernisation. The analysis initially assessed Japan's material and institutional capacity to sustain a nuclear weapons programme, concluding that the requisite capabilities could be assembled rapidly if necessary. The subsequent discussion considered the strategic rationale for potential nuclear acquisition, identifying North Korea as the most immediate threat due to its unpredictable leadership and persistent missile development, while China poses a protracted but less acute nuclear challenge, given its declared 'no first use' policy. The interplay of the Russia-China strategic alignment further complicates Japan's security calculus.

The chapter further explored Japan's long standing commitment to the nuclear non-proliferation regime. Despite its capabilities, Japan has

adhered to non-proliferation norms, motivated by historical experiences and domestic opposition to nuclear armament. While domestic public opinion strongly supports the three non-nuclear principles—non-possession, non-production, and non-introduction—Japan’s strategic reliance on the United States’ extended nuclear deterrence constrains its ability to fully commit to initiatives such as the TPNW. Surveys over the past two decades indicate enduring public apprehension rooted in the nuclear devastation experienced in Hiroshima and Nagasaki, reflecting a societal consensus in favour of non-proliferation.⁵⁶

Finally, the analysis identified the minimal likelihood of counter-proliferation threats to Japan due to two key factors: China’s declared ‘no first use’ nuclear doctrine and Japan’s treaty-based security guarantees from the United States. From a theoretical perspective, Japan’s nuclear posture aligns with Vipin Narang’s framework of proliferation strategy, specifically the concept of insurance hedging. Under this framework, Japan’s potential pursuit of nuclear weapons represents a measured hedging strategy, contingent upon the presence of an acute security threat and the mitigating assurance provided by a formal security alliance with the United States. Such a strategy enables Japan to balance non-proliferation commitments with pragmatic considerations of national security in an increasingly volatile regional environment

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5. SOUTH KOREA: A RELUCTANT NUCLEAR ASPIRANT

Introduction

The historically fraught relationship between North Korea (Democratic People's Republic of Korea – DPRK) and South Korea (Republic of Korea - ROK) has intensified in recent years, reflecting both longstanding animosities and emerging security challenges. On January 11, 2023, South Korean President Yoon Suk-yeol remarked: “It’s possible that the problem gets worse and our country will introduce tactical nuclear weapons or build them on our own. If that’s the case, we can have our own nuclear weapons pretty quickly, given our scientific and technological capabilities”.¹ This statement underscores two interrelated phenomena: the perceived erosion of credibility in the United States’ extended deterrence commitments and the acute security threats posed by North Korea’s ongoing series of missile tests. On November 2, 2022, North Korea conducted three short-range ballistic missile launches east of South Korean territory, prompting a red alert on South Korea’s eastern island.²

In response to concerns over a potential North Korean nuclear test, the United States and South Korea conducted their largest joint air exercise to date, designated Vigilant Storm, involving approximately 240 aircraft and 1,600 sorties. North Korea condemned the exercise as military rashness and provocation that cannot be tolerated. In a pointed reference to its nuclear capabilities, Pyongyang further warned that “if

armed force is used against the DPRK, the special means of the DPRK's armed forces will carry out their strategic mission without delay and the US and South Korea will have to face a terrible case and pay the most horrible price in history".³ The DPRK has consistently portrayed joint US-allied military drills as rehearsals for invasion, highlighting their provocative nature. In addition, Pyongyang has explicitly referenced the 2022 US National Defence Strategy, which asserts that any North Korean attack against the United States or its allies would result in the regime's termination. The Korean Peninsula has remained politically and militarily divided since the Korean War (1950–53), which culminated in an armistice in 1953 and formal cessation of hostilities in 1954. Since then, inter-Korean relations have been characterised by pervasive mistrust and intermittent skirmishes. In recent years, North Korea has escalated tensions through multiple measures, including declarations of forward-deployed tactical nuclear weapons, enactment of a nuclear policy law permitting preemptive strikes, and formal declaration of its status as a nuclear-armed state—effectively foreclosing prospects for denuclearisation of the peninsula.

Amid this heightened threat environment, South Korea has increasingly considered the possibility of developing its own nuclear capabilities. As Professor at Pusan National University Robert Kelly observes: "South Korean/Japanese interest in WMDs is defensive, in good faith, and follows decades of restraint; it is obviously not offensively intended. The United States should want its allies to take greater responsibility, develop deep national security doctrines, spend more, stop turning to America for foreign-policy direction, and so on".⁴ This chapter assesses South Korea's nuclear proliferation potential through five analytical dimensions: (i) material capability; (ii) strategic rationale for nuclear acquisition; (iii) adherence to international non-proliferation regimes; (iv) domestic political consensus; and (v) alliance dynamics, particularly with the United States.

Material Capability of South Korea

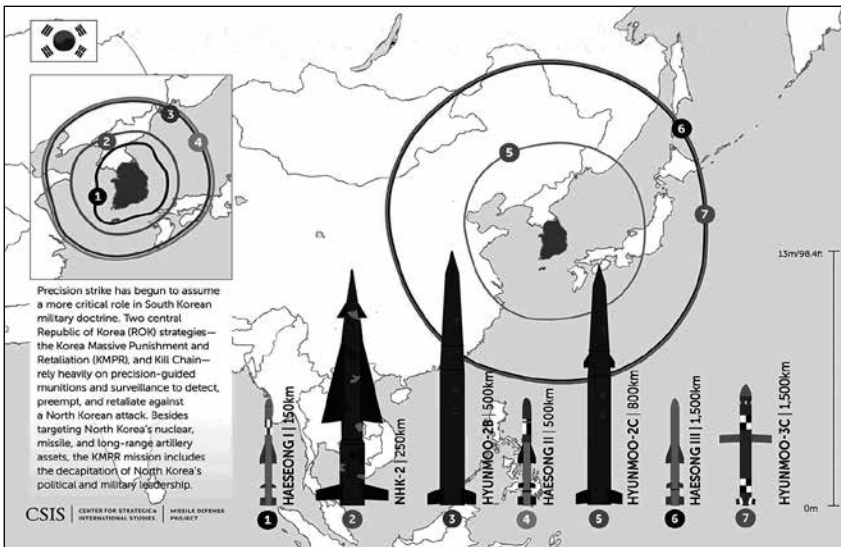
Nuclear Power Plant: South Korea has emerged as a leading innovator in peaceful nuclear technology, underpinned by a sophisticated industrial base and a commercially ambitious export strategy. As of October 2025, it operates 26 commercial nuclear reactors with an installed capacity of approximately 25.6 GW, generating around one-third of the country's electricity. Under President Yoon Suk-yeol's administration, Seoul has reversed earlier phase-out policies and set a target of raising the nuclear share of electricity generation to at least 30 per cent by 2030.⁵

On the export front, South Korea's nuclear-industry exports reached a record 32 Won trillion ($\approx$ US\$ 21.9 billion) in 2023, reflecting a 26 per cent increase over the previous year.⁶ The country has actively pursued reactor construction contracts abroad, ongoing cooperation in refurbishment projects (for example, in Romania) and strengthened industry-academia collaboration to support future export competitiveness.⁷ Despite these robust civilian capabilities, South Korea lacks a fully indigenous uranium enrichment and spent-fuel reprocessing capacity. Its limits on the fuel-cycle front stem from a 1974 US–South Korea nuclear cooperation agreement and the 1992 inter-Korean declaration, which restrict downstream parts of the nuclear fuel-cycle. Although Seoul has expressed renewed interest in pursuing enrichment and reprocessing for commercial purposes—in a meeting with the US in September 2025, the South Korean Foreign Ministry explicitly requested permission to pursue these technologies—its formal weapons-grade fuel-cycle capability remains unrealised.⁸

In the domain of fissile-material implications, the lack of indigenous enrichment and reprocessing constrains South Korea's ability to transition from civilian to military fuel-cycle pathways without major external support or treaty revision. The United States continues to view any indigenous enrichment or pyro-processing efforts as proliferation-sensitive, consistent with the US Nuclear Non-Proliferation Act of 1978

and its cooperative agreement framework.⁹ In sum, South Korea's material capabilities are substantial: a large reactor fleet, export leadership, a skilled industrial base, and robust institutional support. At the same time, constraints on the fuel-cycle (enrichment/reprocessing) and reliance on international cooperation, especially with the United States, temper the immediate prospect of a breakout weapons programme.

Fig 3: South Korea's Ballistic and Cruise Missiles



Source: <https://missilethreat.csis.org/country/south-korea/>

Delivery System: South Korea has developed a layered and progressively more capable missile and aerospace envelope that—while formally constrained by alliance understandings with the United States—has evolved substantially since the Cold War. The republic's indigenous programme began in the early 1970s with relatively modest, short-range systems and has, through incremental policy revisions and technological advances, acquired both short- and medium-range ballistic missiles, a family of land-attack cruise missiles, and an indigenous space-launch capability that contributes to latent long-range delivery capacity.

Historically, Seoul's missile programme was constrained by bilateral guidelines limiting the range and payload of its ballistic missiles (originally ~180 km). Following sustained consultations with Washington, those limits were extended first to 300 km and subsequently to 800 km with a 500 kg payload in the 2012 US-ROK agreement; Seoul framed the extension as necessary to present effective deterrence vis-à-vis the DPRK's advancing missile and nuclear capabilities.¹⁰ In practice, South Korean authorities and defence commentators have publicly stated that the aim of extending missile ranges is to be able to "incapacitate" North Korean nuclear and missile assets at an early stage of hostilities.¹¹

South Korea's indigenous Hyunmoo family (ballistic and cruise variants) exemplifies this evolution. The Hyunmoo series now comprises short- and medium-range ballistic missiles (Hyunmoo-2 variants) and long-range cruise-capable systems (Hyunmoo-3 cruise missiles), the latter possessing reported ranges in excess of 1,000 km depending on the variant and, thus, affording Seoul substantial standoff strike options (Hyunmoo project data; *Arms Control* analyses). The cruise-missile programme has been intentionally less encumbered by formal range limits than ballistic programmes, thereby providing Seoul with flexible conventional strike instruments suitable for targeting hardened or mobile DPRK systems (CSIS analysis; *National Interest* commentary).

Complementing indigenous strike systems, South Korea hosts an integrated air and missile defence architecture. The republic fields advanced point and area defences (PAC-3 Patriots), sea-based Aegis-equipped escorts, and hosts US Terminal High Altitude Area Defense (THAAD) assets (deployed to South Korea from 2017), producing a multilayered interception capability against short- and medium-range threats. Nevertheless, analysts caution that missile-defence layers do not negate offensive requirements—particularly under scenarios of saturation or of novel threats such as hypersonics—prompting Seoul to pursue complementary offensive strike measures. South Korea's space and rocketry progress has further

narrowed the technological gap between civilian satellite launchers and military long-range delivery systems. The Korea Aerospace Research Institute (KARI) led the development of the Naro and then the three-stage Nuri (KSLV-II) launch vehicle; the Nuri's successful orbital insertion in June 2022 established an indigenous medium-lift launch capability and thereby underscored the technical feasibility—given sufficient political will and reallocation of resources—of converting space-launch rocketry to long-range ballistic applications. South Korean authorities continue to assert the purely civilian purposes of these rockets, but their dual-use technical characteristics contribute to “latent” delivery capacity.

The operational doctrine has moved toward preemption and punishment in response to the DPRK escalation. The kill-chain concept, first articulated in the early 2010s and refined thereafter, is oriented toward rapid detection and early preemptive strikes against North Korean missile and WMD targets; it envisages real-time intelligence fusion, prompt targeting, and high-precision strike options. The retaliatory complement—Korea's Massive Punishment and Retaliation (KMPR) strategy—envisioned punitive strikes against leadership and regime control nodes in the event of a major aggression, and has been reinforced in recent policy statements and procurement plans under President Yoon's government, which has signalled the intent to expand missile inventories and lethality.

Taken together, South Korea today possesses: (a) a mature industrial base capable of producing high-precision short- and medium-range ballistic and cruise missiles (Hyunmoo series and related systems); (b) a growing export and Research and Development (R&D) capability in civil rocketry and missile-related technologies; (c) a multilayered air and missile-defence posture anchored by US systems including the THAAD and maritime Aegis; and (d) operational doctrines (kill-chain and KMPR) that explicitly rely on rapid strike options against the DPRK's WMD and missile infrastructures. These capabilities yield significant

conventional deterrent and latent nuclear delivery potential; however, the absence of an indigenous enrichment/reprocessing fuel cycle and the political-legal constraints of alliance politics continue to restrain an immediate transition to an overt nuclear weapons programme.¹²

Rationale for Acquiring Nuclear Weapons

The prospect of South Korean nuclear armament must be understood in the context of historical, strategic, and geopolitical imperatives. Towards the end of the Cold War, the 1992 Joint Declaration on the Denuclearisation of the Korean Peninsula established a formal commitment by both North and South Korea to abstain from testing, producing, possessing, or deploying nuclear weapons, and to forgo nuclear enrichment and reprocessing facilities. This agreement, however, has been systematically undermined by North Korea's nuclear tests beginning in 2006, presenting a strategic *fait accompli* that challenged both the international community and South Korea's security calculus.¹³

For Pyongyang, nuclear weapons serve as a strategic equaliser, offsetting the conventional military superiority of South Korea and its principal ally, the United States. As Robert Kelly notes, "complete, verifiable, irreversible denuclearization is a fantasy".¹⁴ This persistent security asymmetry has generated increasing academic and policy discussion regarding the rationality of South Korean nuclearisation. Director of the Centre for North Korean Studies at the Sejong Institute, Seong-Chang Cheong, argues that Western allies should actively consider Seoul's nuclear potential as a deterrent mechanism to coerce North Korea back to the negotiation table.¹⁵ Cheong further emphasises that South Korean nuclear capability would simultaneously relieve the United States of a dilemma regarding the potential use of nuclear weapons to defend East Asian allies and provide Seoul with a credible, independent deterrent against Pyongyang's nuclear brinkmanship.

Public opinion also reflects a growing awareness of nuclear threats. A Chicago Council–Carnegie Endowment survey highlights North

Korea as the primary driver of domestic support for nuclear acquisition, especially in the light of provocative missile tests and joint military exercises such as Vigilant Storm, during which North Korea launched dozens of missiles in November 2022.¹⁶ Moreover, the revised North Korean nuclear policy explicitly allows preemptive strikes in response to perceived imminent threats, thereby increasing the immediacy of the security challenge.¹⁷

Emerging assessments indicate that while North Korea remains the principal immediate threat, the perceptions of China as a medium- to long-term security risk are rising. Approximately 56 per cent of survey respondents foresee China as South Korea's dominant threat within the next decade, reflecting concerns over Beijing's nuclear modernisation and the expansion of its nuclear-powered submarine fleet under Indo-Pacific security frameworks like Australia, UK, US (AUKUS).¹⁸ Chinese opposition to South Korea's THAAD deployment in 2016—citing risks to its national security—illustrates the broader geopolitical constraints imposed by Seoul's security environment, including economic retaliation that reportedly cost over \$7 billion in lost trade.¹⁹

Analysts diverge on the potential consequences of South Korean nuclearisation. Proponents, including Kelly, argue that a nuclear South Korea would provide a supplemental, localised deterrent to complement the US' extended deterrence, encourage regional burden-sharing, and pressure North Korea, China, and Russia to engage seriously in denuclearization talks.²⁰ Conversely, Sukin and Dalton contend that nuclear acquisition may not materially enhance South Korea's security vis-à-vis China or North Korea, citing historical precedents of nuclear-armed states remaining undeterred by the presence of other nuclear actors.²¹

Additional proposals emphasise multilateral engagement to mitigate regional risk. Abhishek Kumar Singh advocates for a renewed "Agreed Framework 2.0," envisioning dialogue among North Korea, all nuclear-armed states, and Association of Southeast Asian Nations (ASEAN)

members, while incrementally lifting economic sanctions on Pyongyang.²² Finally, the concept of nuclear populism, as framed by Herzog and Sukin, situates President Yoon's advocacy within a domestic political context, reflecting both public support for nuclear acquisition (71 per cent in the relevant 2022 polls) and heightened regional insecurity arising from North Korean missile tests, Chinese military modernisation, and Russia's invasion of Ukraine.²³

In sum, South Korea's nuclear rationale is multifaceted, shaped by immediate threats from North Korea, long-term concerns regarding Chinese strategic expansion, the credibility of the US extended deterrence, domestic political pressures, and the broader regional balance of power. These factors collectively suggest that nuclear acquisition is increasingly framed not merely as an option, but as a strategic contingency for Seoul in the evolving East Asian security environment.

Commitment to Non-Proliferation Regimes

South Korea has historically been a committed adherent to global non-proliferation regimes. It initially signed the NPT in 1968 but delayed ratification due to the volatile security environment on the Korean Peninsula. In the early 1970s, under President Park Chung-hee, South Korea pursued a nuclear weapons programme. However, under sustained pressure from the United States and facing the security dilemma posed by North Korea, this programme was abandoned, and Seoul formally acceded to the NPT in 1975.²⁴ Since accession, South Korea has largely complied with NPT obligations, maintaining a strong record of observing nuclear norms.

Recent statements by President Yoon Suk-yeol regarding the potential development of nuclear weapons have raised concerns regarding Seoul's adherence to NPT commitments. A nuclear breakout would require withdrawal from the treaty, potentially triggering international sanctions and undermining the integrity of the global non-proliferation regime, particularly for other threshold states facing acute security threats.²⁵

In addition to the NPT, South Korea ratified the CTBT in 1999 and hosts a primary seismological monitoring station at Wonju as part of the CTBT's International Monitoring System. This station monitors seismic activity from nuclear detonations on land, at sea, and in the atmosphere, transmitting data via satellite networks to the International Data Centre in Vienna.²⁶ South Korea also ratified the IAEA Additional Protocol in 2004, placing all nuclear facilities and materials under IAEA safeguards. Post-Cold War, the 1992 Joint Declaration on the Denuclearisation of the Korean Peninsula required both Koreas to abstain from developing, testing, possessing, or deploying nuclear weapons. Despite North Korea's subsequent violations, South Korea has consistently maintained compliance with these commitments while calling on Pyongyang to observe its obligations.²⁷

South Korea has become a prominent supplier of civilian nuclear technology, exporting to countries including the UAE, Saudi Arabia, and Jordan, and is an active participant in the Nuclear Suppliers Group (NSG). However, Seoul has expressed interest in developing indigenous uranium enrichment and reprocessing capabilities to enhance economic efficiency and strategic autonomy. Current restrictions under US-South Korea bilateral agreements, combined with limitations imposed by the 1978 US Nuclear Non-Proliferation Act, have hindered this ambition, contributing to strategic apprehensions regarding nuclear breakout potential.²⁸

Regarding the Treaty on the Prohibition of Nuclear Weapons (TPNW), South Korea has neither signed nor ratified the treaty and has consistently voted against UN resolutions welcoming its adoption. This position reflects Seoul's reliance on the US nuclear umbrella and the broader strategic logic of retaining access to nuclear deterrence in the context of North Korean threats and regional security dynamics.²⁹

In summary, while South Korea has maintained a strong track record of adherence to non-proliferation treaties and international norms, domestic strategic considerations, technological capacity, and regional

security pressures continue to shape a delicate balance between treaty commitments and emerging nuclear ambitions.

Domestic Political Consensus on Nuclear Proliferation

Historically, debates among South Korean political elites regarding the acquisition of nuclear weapons appeared largely settled. For decades, rhetorical calls for nuclear armament did not gain traction in electoral campaigns or influence national security strategies.³⁰ However, in recent years, shifts in both the international security environment and domestic political discourse have prompted a reevaluation of South Korea's nuclear posture. The geopolitical shocks of the Russia–Ukraine conflict, alongside North Korea's accelerating nuclear and missile programmes, have catalysed explicit and public endorsements of nuclear armament by political elites. In January 2025, President Yoon Suk-yeol publicly suggested the potential introduction of either US nuclear weapons on South Korean soil or an indigenous nuclear weapons programme, linking this to the strengthening of the trans-Pacific security alliance with the United States.³¹ Similar proposals were raised earlier, including by Cho Kyoung-Tae of the far-right Liberty Korea Party in July 2019, advocating for a domestic nuclear deterrent.³²

South Korea's political landscape on nuclear weapons has traditionally been polarised. Right-leaning parties have generally relied on the trans-Pacific security alliance with the United States, trusting that US intervention would safeguard South Korea in the event of North Korean provocations. Consequently, these factions have been cautious about measures that might antagonise the United States. Conversely, left-leaning and pacifist-oriented factions have emphasised diplomatic engagement and non-military responses to North Korean threats, opposing both nuclear deterrence and militarisation.

In recent years, however, two factors have partially converged elite opinion across the political spectrum: (i) the perceived unreliability of US security guarantees under the Trump Administration; and (ii) North

Korea's accelerating nuclear and missile capabilities, including advances in ICBMs, SLBMs, and thermonuclear warheads. These developments have prompted even traditionally pro-American elites to question the credibility of the US' extended deterrence.

Public opinion in South Korea has consistently favoured domestic nuclear capabilities. Surveys conducted by the Chicago Council on Global Affairs and the Carnegie Endowment for International Peace indicate that over 70 per cent of South Koreans support the acquisition of nuclear weapons to deter North Korean aggression, with 67 per cent advocating for an indigenous programme rather than reliance on US nuclear deployment.³³ Motivations for supporting a domestic nuclear programme are largely driven by concerns over China (55 per cent), national prestige (26 per cent), and the North Korean threat (23 per cent). Additionally, 82 per cent of respondents expressed scepticism that North Korea would relinquish its nuclear arsenal even following negotiations with a nuclear-armed South Korea. Interestingly, among respondents who strongly support the US security commitment to South Korea (78 per cent), the majority also favour a domestic nuclear programme—a phenomenon scholars describe as the nuclear backfire effect, wherein states pursue their own deterrent to avoid entrapment under allied miscalculations.³⁴

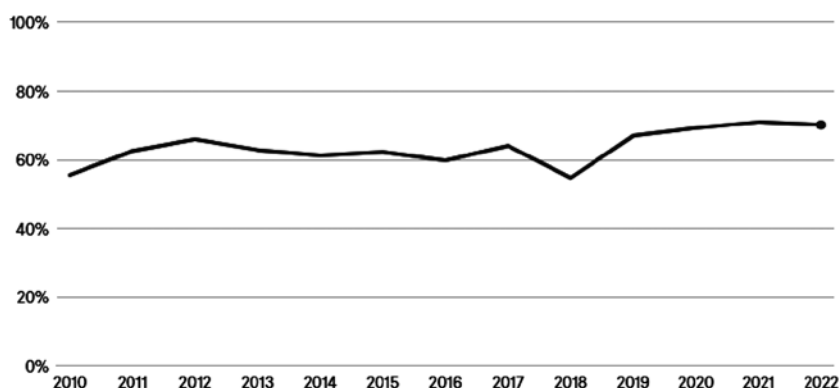
Senior analysts, including Cheong Seong-chang of the Sejong Institute, argue that a nuclear-capable South Korea would not only strengthen its own deterrence but also stabilise the US–ROK alliance by reducing the uncertainty over whether the United States would deploy nuclear weapons in defence of its ally.³⁵ The most salient determinants influencing elite support for nuclear deterrence are thus:

1. The perceived unreliability of US security commitments, particularly under the Trump Administration; and
2. North Korea's rapid advancement in nuclear weapons and missile capabilities, including ICBM and SLBM tests capable of reaching the US mainland.

These factors have generated a consensus among South Korean political elites, both conservative and progressive, that developing a domestic nuclear deterrent is increasingly aligned with national security imperatives in the current East Asian security environment.

Fig 4: South Korean Public Support of Nuclear Weapon Acquisition

Evolution of South Korean public support on the acquisition and development of nuclear weapons



Source: The Asan Institute for Policy Studies (2010-2020); Chicago Council on Global Affairs (2021).

Nuclear Weapons and South Korean Alliance Dynamics

South Korea's reliance on the US' extended nuclear deterrence has increasingly come under scrutiny, particularly in the light of North Korea's missile capabilities, which theoretically allow Pyongyang to strike major cities in the United States, including New York and Washington, D.C. Nuclear expert Daehan Lee contends that "Pyongyang, a nuclear-armed regime that is not internationally recognized as a nuclear power, will continue to ignore non-nuclear South Korea and that Seoul will suffer if it operates under the false hope that it will be protected by US extended deterrence".³⁶

Despite these concerns, the Yoon Suk-yeol Administration largely pursued a dual approach: strengthening conventional and nuclear

deterrence mechanisms in close cooperation with the United States while simultaneously keeping the option of indigenous nuclear capabilities or US-supplied nuclear assets on the table. This strategy is reflected in the expansion and institutionalisation of joint military exercises, the reinforcement of trilateral security cooperation with the United States and Japan, and the revival of the Extended Deterrence Strategy and Consultation Group (EDSCG). Moreover, the recent changes in the governments in both countries have brought forth significant development altering the preexisting dynamics. In October 2025, Trump Administration in the United States, not only approved South Korea (under President Lee Jae Myung) building a nuclear powered submarine, but also agreed to let South Korea enrich uranium and reprocess commercial nuclear spent fuel. In this regard, the Joint Fact Sheet released by the White House explicitly mentions, “Consistent with the bilateral 123 Agreement and subject to US legal requirements, the United States supports the process that will lead to the ROK’s civil uranium enrichment and spent fuel reprocessing for peaceful uses.”³⁷ Scholars and nuclear experts have criticised and questioned the relevance of such a drastic step in the light of the North Korean threat. Squassoni, a professor at George Washington University, maintains that the deal has secured South Korea a technology and secured platform to deliver nuclear weapons that it may develop in the future.³⁸ However, from the point of view of regional stability, she asserts that “instead of peace and security in the Indo-Pacific, Trump’s moves are likely to advance nuclear weapons proliferation and instability.” A school of thought also maintains that Seoul’s desire for uranium enrichment and reprocessing facilities is aimed at acquiring latent nuclear weapons capability, matching that of Japan and signalling a retaliatory build-up against Pyongyang’s threat.

Historically, the United States deployed nuclear missiles in South Korea as a counter-measure against North Korea’s nuclear ambitions. These weapons were withdrawn following the end of the Cold War,

coinciding with a period during which North Korea began advancing its nuclear programme, culminating in its first nuclear test in 2006. Today, approximately 28,500 US troops remain stationed in South Korea as part of the alliance, symbolising the continuing security commitment.³⁹ However, scholars such as Robert Kelly emphasise the potential limits of US counter-escalation in the event of a nuclear crisis, citing the Russia–Ukraine War, during which NATO declined Kyiv’s request for a no-fly zone due to concerns that such an intervention could escalate to a conflict with nuclear-armed Russia. Similar strategic constraints may emerge in East Asian contingencies involving North Korea.⁴⁰

The Yoon Administration also undertook steps to institutionalise nuclear security cooperation with the United States. These efforts include regularisation of joint military exercises, reviving the bilateral EDSCG, and reaffirming trilateral US–South Korea–Japan security cooperation in response to North Korea’s nuclear and missile developments.⁴¹ Yet, the ongoing barrage of North Korean ballistic missiles continues to influence South Korea’s strategic calculus. In January 2023, President Yoon stated: “It’s possible that the problem will get worse and our country will introduce tactical nuclear weapons or build them on our own. If that’s the case, we can have our own nuclear weapons pretty quickly, given our scientific and technological capabilities”.⁴²

The US Nuclear Posture Review (2022) acknowledges a “deterrence dilemma” in relation to North Korea, noting “The Democratic People’s Republic of North Korea, while not a rival on the same scale as the PRC and Russia, nonetheless presents a deterrence dilemma for the United States and its allies and partners. It poses a persistent threat and growing danger to the US homeland and the Indo-Pacific region as it expands, diversifies, and improves nuclear, ballistic missile, and non-nuclear capabilities, including its chemical weapons stockpile.”⁴³ Although the US–South Korea alliance continues to strengthen through consultative mechanisms, joint exercises, and hardware interoperability, North Korea’s nuclear brinkmanship and long-range missile capabilities are prompting

both Washington and Seoul to reassess the credibility and sufficiency of extended nuclear deterrence.

Jennifer Ahn, a South Korean security analyst, has examined the options available to Seoul in response to North Korea's nuclear coercion, including the potential redeployment of tactical nuclear weapons. Ahn notes that while the debate over redeployment has largely subsided in the United States, South Korean voices advocating for it remain. However, she cautions that redeployment could undermine the prospects for the denuclearisation of the Korean Peninsula and violate the 1992 Joint Declaration.⁴⁴ Scholars Sukin and Dalton recommend that the US Administration emphasise alliance reassurance through improved crisis communications, interoperable military exercises, and peace-time consultation mechanisms, thereby strengthening deterrence without triggering nuclear proliferation.⁴⁵

South Korea is categorised as a High–Moderate Risk state driven by security-driven imperatives, earning a Proliferation Risk Index (see Table 6) score of 17/25 due to an extreme existential threat environment and significant latent capabilities. Its Strategic Rationale (5/5) is the highest risk factor, fuelled by North Korea's accelerating nuclear arsenal and “first-use” doctrine, rising perceptions of China as a long-term threat among 56 per cent of respondents, and erosion of the US “nuclear umbrella” credibility following the Russia–Ukraine conflict. This security pressure has created a Domestic Political Consensus (4/5) where over 70 per cent of the public and a converging group of political elites favour indigenous acquisition to avoid “nuclear backfire” from allied miscalculations. Supporting this is a robust Material Capability (4/5) consisting of 26 commercial reactors, high-precision Hyunmoo missiles and Nuri space-launch vehicles, and a critical 2025 shift wherein the US Trump Administration has approved civil uranium enrichment and reprocessing. While Alliance Dynamics (2/5) and the risk of a total rupture with Washington remain the most effective constraints, the country's Non-Proliferation Commitment (2/5) is viewed as increasingly fragile as

the “nuclear taboo” weakens and leaders openly discuss building tactical weapons. South Korea ranks below Saudi Arabia because its high-risk existential threats are offset by a stronger, institutionalised commitment to non-proliferation, including the ratification of the IAEA Additional Protocol. Furthermore, Seoul remains more tightly constrained by its alliance with the United States, whereas Riyadh’s declining faith in US guarantees and insistence on domestic enrichment rights signal a more volatile “reactive hedging” posture.

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6. CONCLUSION

South Korea's security calculus remains intricately tied to the dynamics between North Korea and the United States. While the Trump Administration's high-level engagement with Pyongyang initially raised hopes for denuclearisation, the collapse of these negotiations highlighted the limited leverage Seoul possesses vis-à-vis its nuclear-armed neighbour. In response to persistent North Korean provocations—including the 2022 and subsequent ballistic missile tests targeting the United States—South Korea has sought to develop a comprehensive defensive and retaliatory infrastructure, encompassing advanced missile systems, intelligence and reconnaissance capabilities, and the potential for a local nuclear deterrent. These measures reflect Seoul's recognition of its strategic vulnerability within a volatile East Asian security environment.

Despite robust technological and industrial capacity to pursue indigenous nuclear weapons, there exists a broad consensus among scholars that unilateral nuclearisation may have limited effectiveness as a tool to enhance regional security. Instead, it risks triggering a stability–instability paradox, whereby the possession of nuclear weapons at a regional level may embolden conventional aggression by adversaries while simultaneously complicating crisis management. North Korea's ongoing nuclear and missile developments, coupled with China's rapid nuclear modernisation, underscore the continued relevance of the US–South Korea security alliance and the importance of credible extended deterrence mechanisms.

Strengthening institutionalised frameworks, such as the Extended Deterrence Strategy and Consultation Group (EDSCG), trilateral cooperation with Japan, and regularised joint military exercises, remain the more prudent path toward mitigating existential threats while preserving regional stability.

Finally, domestic factors present a persistent challenge. Popular and elite support for indigenous nuclear acquisition in South Korea—driven by acute North Korean threats, perceived unreliability of the US’ extended deterrence, and broader geopolitical uncertainties—constitutes a “nuclear populism” that policymakers cannot ignore. Managing this extraordinary domestic demand, while maintaining international non-proliferation commitments under the NPT, CTBT, and related treaties, will be a critical test for Seoul’s strategic leadership. In sum, South Korea’s security future hinges on balancing credible deterrence, alliance dynamics, and domestic political pressures, all within the context of an increasingly complex and nuclearised East Asian strategic environment.

Table 3: Comparative Assessment of Nuclear Proliferation Potential by States and Determinant Parameter

Parameter	Saudi Arabia	Turkiye	United Arab Emirates (UAE)	Egypt	Japan	South Korea
Material Capability	Possesses significant latent potential. Insists on retaining the right to enrich uranium. Has indigenous and externally sourced (China) ballistic missiles.	High latent capacity but constrained. Building Akkuyu NPP with Russia. Possesses the necessary technological base and expertise. Extensive indigenous ballistic missile programme.	Low proliferation threat. Voluntarily pledged to forgo domestic uranium enrichment and reprocessing. Operates Barakah Nuclear Energy Plant under robust safeguards.	Low proliferation threat. Developing El-Dabaa NPP with Russia. Lacks indigenous enrichment/ reprocessing capacity. Indigenous missile programme but relies on external sources.	Highest latent potential (“Nuclear Threshold Power”). Can build a weapon in six months or less. Holds the largest stockpile of separated plutonium of any non-nuclear weapon state.	High latent capacity. Has an extensive civilian nuclear energy programme. Prohibited from enrichment and reprocessing by the 2015 US-ROK 123 Agreement.

Rationale for Acquiring Nuclear Weapons	Primarily driven by security considerations. Main threat is Iran's nuclear/missile programme. Conditional stance: will "follow suit" if Iran nuclearizes. Declining confidence in US security guarantees.	Quest for strategic autonomy and great power status. Need to reduce dependency on US/NATO extended deterrence. Threat from regional instability and Iran's advancing nuclear programme.	Secondary driver is the threat from Iran. Policy is one of "nuclear restraint through transparency". Driven by status-seeking as a key regional player.	Driven by status-seeking and regional competition with Israel. Upholding the commitment to a Nuclear Weapon Free Zone (NWFZ). Economic development is a primary driver.	Primary driver is the existential threat from North Korea's nuclear/missile programme. Uncertainty over the credibility of US extended deterrence. Defensive/hedging strategy against North Korea and China.	Primarily driven by the existential threat from North Korea's growing nuclear arsenal. Rising public and elite scepticism about US extended deterrence. Strong domestic political pressure for an independent option.
Commitment to Non-Proliferation Regimes	Conditional commitment. Signatory to NPT. Has not ratified the IAEA Additional Protocol. Recently moved from endorsing to abstaining from the TPNW.	Policy of Strategic Ambiguity. Signatory to the NPT and the IAEA Additional Protocol. Has a mixed record on international arms control (e.g., S-400 purchase).	Maintains an exemplary record of compliance ("gold standard"). Signatory to NPT and the IAEA Additional Protocol. Voluntarily commits to non-enrichment/non-reprocessing.	Policy of conditional compliance. Committed adherent to non-proliferation. Has not ratified the Additional Protocol. Compliance is mediated by regional security asymmetries.	Strongest normative adherence. Adheres to the Three Non-Nuclear Principles. Commitment is rooted in a strong domestic "nuclear taboo". NPT and Additional Protocol signatory.	Adheres to the 2015 US-ROK 123 Agreement (prohibits enrichment/reprocessing). History of past, clandestine proliferation efforts. Committed to non-proliferation and an NPT signatory.
Domestic Political Consensus	Emerging consensus for reciprocal deterrence. Political environment provides a permissive consensus for nuclear rhetoric under royal leadership. Antagonism toward Iran reinforces the consensus.	Elite consensus is fragmented. President Erdoğan is the main proponent of a nuclear option. Opposition parties and the military are generally resistant due to NATO obligations.	Nuclear acquisition is antithetical to its domestic identity. Ruling elite is committed to economic diversification and regional stability.	Consensus is against the political and economic costs of nuclear breakout. Ruling elite prioritizes economic recovery and regime stability.	Strong domestic "nuclear taboo" and high public opposition (80% or more against acquisition). Elite debate has emerged, but consensus is currently against acquisition.	Strong public support for nuclearization (up to 70% in some polls). Elite consensus is divided but under pressure to adopt a hedging strategy. Public opinion is a major driver.

Alliance Dynamics & Constraints	Declining confidence in US umbrella. Pursuing diversification of security partnerships (China, Russia, and Pakistan). Strategic ambiguity and calibrated balancing are likely.	NATO membership and the deployment of US nuclear weapons on its soil are central. Nuclear pursuit would risk expulsion from NATO. Alliance dynamics serve as a powerful non-proliferation constraint.	Strong defense partnerships with the US and Israel. Alliances and access to advanced technology obviate the perceived need for nuclear deterrence. Restraint yields greater political capital.	Restraint is anchored by the benefits of the Camp David Accords and substantial US assistance. Nuclear pursuit would be strategically counter productive. Deterred by the regional culture of pre-emption.	The US-Japan Security Treaty and extended deterrence are the bedrock of its security. The alliance is the single most effective constraint on proliferation. Acquisition would severely strain/break the alliance.	Alliance with the US is the primary security guarantee. Washington Declaration (2023) reinforced US extended deterrence. Nuclearization would risk alliance rupture and significant penalties. The alliance acts as a strong constraint.
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Table 4: Comparative Assessment of Material Capability of the States

Country	Nuclear Power Infrastructure	Fissile Material & Nuclear Technology Experience	Delivery Systems & Missile Capability
Saudi Arabia	• No operational nuclear power plants • Plans for up to 16 reactors over two decades • Target of ~3.6 GW nuclear capacity by 2030 • First research reactor nearing completion (KACST) • Exploring uranium mining at Al Ula, Hail, Asir	• No declared enrichment or reprocessing facilities • Intention to pursue the full nuclear fuel cycle (yellowcake to low-enrichment) • Suspected uranium processing at Al Ula • Not a signatory to the IAEA Additional Protocol • Relies on external technical partners (China, Russia, South Korea)	• Operates Chinese DF-3 and DF-21 ballistic missiles • Indigenous solid-fuel missile production at al-Dawadmi • Intermediate-range delivery capability (1,700–3,000 km) • Missile force viewed as latent nuclear hedge
United Arab Emirates (UAE)	• Barakah NPP: 4 APR-1400 reactors • Three reactors operational by 2024; full completion by 2025 • Generates over 4,200 MW electricity • First Arab state with operational nuclear power	• Voluntarily renounced enrichment and reprocessing (“gold standard” 123 Agreement) • No fissile-material production capability • Strong IAEA safeguards and transparency • Latent fuel-cycle knowledge only	• Limited ballistic missile capability (Scud-B) • Highly advanced missile-defence architecture (THAAD, Patriot PAC-3, Pantsir-S1) • Procured Cheongung II (KM-SAM) and pursuing Barak-8 • Emphasis on defensive deterrence
Egypt	• El-Dabaa NPP under construction (4 × VVER-1200) • Russian-financed and supervised project • First reactor expected online by 2027 • Earlier research reactor at Inshas	• No indigenous enrichment or reprocessing • Past undeclared nuclear experiments (2000s) • Heavy reliance on Russian nuclear fuel and expertise • Full-scope IAEA safeguards	• Indigenous missile legacy (al-Zafir, al-Qahir) • Current inventory includes Scud-B and derivatives • Advanced air defence (S-300VM, Patriot-3) • Delivery capability exists but constrained

Turkiye	• Akkuyu NPP (4 × VVER-1200) under construction • First unit fuelled in 2023; grid connection expected 2024–25 • Additional planned NPPs at Sinop and İğneada • Build-own-operate model under Rosatom	• No declared enrichment or reprocessing • Operates two research reactors• Expanding domestic nuclear industrial base (56% local content) • Growing nuclear expertise under IAEA CPF (2024–29)	• Indigenous ballistic missiles (BORA, Tayfun) • Advanced air defence (S-400, Sungur) • Strong missile R&D and production capacity • Dual-use delivery potential
Japan	• Historically large reactor fleet (54 pre-2011) • ~13 reactors operational by 2024–25 • Policy shift toward reactor restarts and next-generation reactors • Extensive civilian nuclear infrastructure	• Largest plutonium stockpile among NNWS (~45.5 t) • Full fuel-cycle capability (enrichment and reprocessing) • Rokkasho reprocessing plant nearing operation • Only NNWS with comprehensive fuel-cycle autonomy	• No ballistic missile force • Advanced missile-defence (Aegis, PAC-3) • Long-range strike (Tomahawk, upgraded Type-12 ~1,000 km) • Space-launch systems with latent conversion potential
South Korea	• 26 operational nuclear reactors (~25.6 GW) • Nuclear supplies ~30% of electricity • Leading global nuclear exporter • Strong civilian nuclear industrial base	• No enrichment or reprocessing capability • Constraints under US–ROK nuclear agreements • Advanced nuclear R&D but fuel-cycle restrictions remain • Seeking renegotiation for commercial fuel-cycle rights	• Extensive missile arsenal (Hyunmoo-2, Hyunmoo-3) • Cruise missile ranges >1,000 km • THAAD, Aegis, Patriot missile defence • Space-launch vehicle (Nuri) provides latent long-range capability

Table 5: Comparative Commitment to Non-Proliferation, Arms Control, and Disarmament Regimes

Country	NPT	CTBT	TPNW	IAEA Safeguards	Export Control Regimes	Disarmament & Other WMD Regimes
Saudi Arabia	Signatory (1968), ratified 1988; commitment explicitly conditional on Iran’s nuclear status	Not ratified	Supported early UNGA resolutions; abstains since 2021; neither signed nor ratified	CSA in force; SQP rescinded (2024); Additional Protocol not adopted	Not a member of NSG, MTCR, HCOC, or Australia Group	Supported Humanitarian Pledge; rhetorical support for disarmament but increasing strategic hedging Party to CWC and BTWC
United Arab Emirates (UAE)	Acceded 1996; strong normative adherence	Signed and ratified	Supported negotiations; not signed or ratified	CSA (2003) and Additional Protocol in force (2010); “gold standard” safeguards	Member of NSG, MTCR, HCOC, Australia Group; UNSCR 1540 compliant	Party to CWC, BTWC, CPPNM, Nuclear Terrorism Convention; strong disarmament credentials

Egypt	Signed 1968; ratified 1981; conditional compliance linked to Israel	Signed but not ratified (Annex II hold-out)	Supported negotiations; not signed or ratified	CSA in force; Additional Protocol not adopted; IAEA CPF (2022–27)	Not a member of MTCR or HCoC; outside major export-control regimes	Signed BTWC (not ratified); outside CWC; leading advocate of MENWFZ and universal disarmament
Türkiye	Signed 1969; ratified 1980; formal adherence with regime scepticism	Ratified 2000; hosts IMS seismic station	Not signed or ratified; voted against UNGA resolutions	CSA and Additional Protocol in force	Member of MTCR, HCoC, Australia Group; party to CWC	Party to BTWC; rhetorical support for disarmament but conditional and security-driven
Japan	Acceded 1976; supported indefinite extension (1995)	Signed 1997; early ratifier; strong advocate of entry into force	Did not participate in negotiations; not signed or ratified	CSA and Additional Protocol in force (1998); founding IAEA member	Member of NSG, MTCR, HCoC, Australia Group; comprehensive export controls	Party to CWC and BTWC; strong disarmament advocacy constrained by US extended deterrence
South Korea	Acceded 1975 after abandoning weapons programme; strong compliance record	Ratified 1999; hosts IMS station	Not signed or ratified; consistently votes against	CSA and Additional Protocol in force (2004)	Member of NSG, MTCR, HCoC; major nuclear exporter	Party to CWC and BTWC; bound by 1992 Joint Denuclearization Declaration (unilaterally upheld)

Table 6: Comparative Proliferation Risk Index

Country	Material Capability	Strategic Rationale	Non-Proliferation Commitment	Domestic Consensus	Alliance Constraints	Total PRI (/25)
Saudi Arabia	4	4	4	4	3	19
South Korea	4	5	2	4	2	17
Türkiye	4	3	3	3	1	14
Japan	5	4	1	1	1	12
Egypt	2	2	3	2	2	11
United Arab Emirates	1	2	1	1	1	6

Each country is scored across five parameters, each on a 1–5 scale:

- 1 = Very low proliferation risk
- 5 = Very high proliferation risk

Parameters

- 1. Material Capability
- 2. Rationale for Acquiring Nuclear Weapons
- 3. Commitment to Non-Proliferation Regimes
- 4. Domestic Political Consensus
- 5. Alliance Dynamics and Constraints

Rank	Country	Risk Category
1	Saudi Arabia	High Risk (Reactive Hedging)
2	South Korea	High-Moderate Risk (Security-Driven)
3	Turkiye	Moderate Risk (Autonomy-Seeking)
4	Japan	Moderate-Low Risk (Latent but Constrained)
5	Egypt	Low-Moderate Risk (Status-Constrained)
6	UAE	Very Low Risk (Institutionalised Restraint)

Assessment: Saudi Arabia ranks highest due to a convergence of latent capability, explicit conditional rhetoric, weak institutional commitments, and declining faith in US guarantees. South Korea’s score is driven almost entirely by acute existential threat perceptions and strong public support, despite formidable alliance constraints. Turkiye reflects a rhetorical–material mismatch: significant capability and ambition, but strong NATO-based constraints suppress actual proliferation. Japan demonstrates the latent power paradox—maximum material capability offset by the strongest normative, domestic, and alliance-based restraints. Egypt remains a symbolic hedger, using nuclear ambiguity primarily for diplomatic leverage rather than weaponisation. The UAE represents a model case of negative proliferation, where restraint is institutionalised and strategically rewarded.