Covenant University Journal of Politics & International Affairs, Vol. 13 No. 2, December, 2025
ISSN: p. 2354-3558 e. 2354-3493 DOI: xxxxxxxxxxxxxx

Open Access Journal Available Online

The Strategic use of Submarines in Asymmetric Modern Naval Warfare: Insight from Iran, North Korea, and Pakistan

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Date Received: 14/07/2025
Date Accepted: 15/09/2025

Abstract: *In an era of evolving maritime threats and contested littoral zones, submarines have emerged as critical tools for state naval forces seeking strategic leverage against superior adversaries. This study explores the strategic use of submarines in asymmetric naval warfare, focusing on how select state actors employ undersea capabilities to offset conventional military imbalances. Using a qualitative research design, the study draws military doctrine analysis, and declassified strategic documents from countries such as Iran, North Korea, and Pakistan.* ***Asymmetric Warfare Theory*** *was adopted as the most suitable for this study, as it most directly addresses the structural power imbalances and unconventional strategies employed by smaller actors. The research reveals that submarines serve not only as instruments of deterrence and disruption but also as platforms for intelligence gathering, special operations delivery, and anti-access/area denial (A2/AD) strategies. Key narratives indicate a deliberate embrace of stealth, surprise, and survivability as core principles in state submarine doctrine. The study further finds that the asymmetric value of submarines is enhanced by indigenous innovation, geographic advantage, and strategic ambiguity. By foregrounding the perspectives of naval officers, defense analysts, and maritime strategists within these states, the research contributes to a deeper understanding of how non-dominant maritime actors shape contemporary naval competition. The findings offer valuable insights for global defense policy, naval architecture, and the dynamics of regional maritime deterrence.*

Keywords: Asymmetric Warfare, Submarines, State Navies, Maritime Strategy, Undersea Deterrence

Introduction

In the evolving theater of global maritime conflict, submarines have increasingly become strategic assets in asymmetric naval warfare, particularly for state naval forces facing technologically superior adversaries. Asymmetric warfare, broadly defined as conflict between belligerents of unequal strength, has moved from traditional land-based guerrilla strategies to the maritime domain, where undersea capabilities allow less powerful states to mount credible deterrence and resistance operations (Holmes, Winner & Yoshihara, 2009). Submarines particularly diesel-electric and midget variants provide stealth, mobility, and lethal precision, enabling small navies to threaten larger fleets, protect coastlines, and assert maritime claims with minimal surface visibility.

The relevance of submarines in asymmetric strategies stems from their core attributes: concealment, survivability, and surprise. These characteristics allow state actors to mitigate the overwhelming firepower and advanced sensor capabilities of major powers by operating in ways that complicate enemy surveillance, planning, and response (Friedman, 2015). Submarines offer these states an affordable and versatile tool to exert pressure in contested zones such as the Persian Gulf, the Yellow Sea, and the Arabian Sea. For instance, Iran's development of a fleet of Ghadir-class midget submarines enables it to threaten the strategic Strait of Hormuz, a maritime chokepoint vital to global oil shipments (Cordesman & Toukan, 2014). Likewise, North Korea's fleet, though aged and technically inferior, presents a persistent threat to South Korean and U.S. naval operations in the Korean Peninsula by leveraging shallow water tactics and geographic familiarity (Fisher, 2020).

This shift toward undersea strategies in asymmetric warfare also aligns with the broader evolution of naval doctrine among state actors. Unlike major powers that prioritize blue-water capabilities and power projection, smaller navies focus on

coastal defense, area denial, and tactical disruption. The use of submarines enables them to implement Anti-Access/Area Denial (A2/AD) strategies without engaging in open-sea confrontations where they would be outmatched (Tangredi, 2013).

The increasing availability of submarine technology through domestic production, foreign procurement, and reverse engineering has further facilitated this trend. Pakistan, for example, has developed and acquired submarines as part of its deterrent posture vis-à-vis India, with plans to integrate submarine-launched cruise missiles (SLCMs) into its nuclear triad (Kerr & Nikitin, 2021). Moreover, the symbolic and psychological impact of submarines should not be underestimated. In strategic communication, the deployment or visibility of submarine assets often serves as a signal of readiness, resolve, or defiance. This is particularly true in regions where naval posturing plays a central role in diplomatic signaling and power dynamics. Submarines especially when operating undetected exert strategic influence far beyond their immediate kinetic capabilities (Polmar & Moore, 2004). As such, they represent both a military asset and a political tool, helping stateactors project an image of sovereignty and resilience against regional hegemons.

Countries such as Iran, North Korea, and Pakistan serve as focal cases due to their active development of submarine programs within highly asymmetric security environments. These case studies also reflect different geopolitical theaters and strategic cultures, offering a comparative perspective on undersea warfare as a tool of asymmetric resistance. In understanding the strategic logic behind submarine use in these contexts, this study contributes to ongoing discussions in security studies, naval strategy, and international relations. It challenges the traditional assumption that undersea warfare is the exclusive domain of major naval powers and

sheds light on how weaker actors are reshaping maritime security dynamics. The growing role of submarines in the defense strategies of small states underscores the need to rethink conventional naval deterrence and the diffusion of military technology in a multipolar maritime world. It is against this background that this study explores the strategic use of submarines in asymmetric naval warfare, focusing on how select state actors employ undersea capabilities to offset conventional military imbalances.

Conceptual Review

Asymmetric warfare refers to conflict where one side leverages unconventional methods to exploit the vulnerabilities of a stronger adversary (Metz & Johnson, 2001). In the maritime domain, asymmetry manifests in the use of irregular naval tactics, cyber operations, mines, fast attack craft, and especially submarines. Unlike symmetric warfare, where opponents engage with relatively equal capabilities and doctrine, asymmetric naval strategies aim to neutralize technological and numerical superiority through surprise, mobility, and selective engagement (Cronin, 2014). For state navies, this allows a cost-effective method to deter aggression or slow down an invading force.

Asymmetric warfare is broadly defined as a conflict between adversaries with unequal military power, in which the weaker actor employs unconventional tactics to exploit the vulnerabilities of the stronger opponent (Metz & Johnson, 2001). In the maritime domain, this often translates into strategies aimed at disrupting, delaying, or denying freedom of movement to more capable naval forces. According to Tangredi (2013), asymmetric maritime strategies typically involve anti-ship missiles, mines, fast attack craft, and submarines tools that enable coastal states to impose disproportionate risks on larger navies.

Moreover, Submarines offer strategic advantages that align with the

principles of asymmetry. Their stealth and ability to operate undetected allow them to deliver torpedoes or missiles with minimal warning, disrupting enemy operations. They are particularly effective in Anti-Access/Area Denial (A2/AD) strategies, where the objective is to prevent adversaries from entering or maneuvering freely within a specific maritime zone (Tangredi, 2013). Diesel-electric and midget submarines, often used by small navies, can navigate coastal and shallow waters more efficiently than nuclear submarines, enhancing their tactical utility in home waters.

Furthermore, submarines play a role in psychological warfare by fostering uncertainty and fear among naval planners. The mere possibility of a submarine's presence can force larger navies to divert significant resources to anti-submarine warfare (ASW) efforts, thereby altering the operational calculus of a maritime campaign (Friedman, 2015).

The strategic behavior of small states is shaped by their need to preserve sovereignty, deter aggression, and assert territorial claims in hostile or uncertain environments. Due to limited resources, small states often adopt defensive, denial-based naval strategies, rather than offensive projection (Holmes et al., 2009). Submarines, particularly when deployed covertly, allow these states to enforce maritime sovereignty without open confrontation. Examples include Iran's use of submarines to threaten the Strait of Hormuz and North Korea's deployment of midget submarines in the Sea of Japan. These capabilities allow for strategic ambiguity a condition where adversaries are uncertain about the submarines' location or mission, complicating their military planning and increasing the political cost of escalation (Cordesman & Toukan, 2014).

In conclusion, deterrence is central to the asymmetric application of submarines. While conventional deterrence relies on visible power projection, undersea deterrence thrives on opacity and

unpredictability. The risk of retaliatory submarine strikes, especially in narrow or congested maritime zones, creates a powerful disincentive for hostile actions. Moreover, the deployment of submarines serves as a strategic message a form of non-verbal communication that signals intent, capability, and readiness to resist (Polmar & Moore, 2004).

Literature Review

Holmes, Yoshihara, and Winner (2009) argue that small navies leverage local geography, shallow coastal environments, and political ambiguity to enhance the operational utility of asymmetric platforms like submarines. As a result, naval asymmetry is not merely a defensive posture, but also a means of preserving sovereignty and influencing regional maritime balances. State actors adapt asymmetry not just for deterrence but also for strategic bargaining and defense against coercion.

Polmar and Moore (2004) emphasize that submarines force adversaries to operate with uncertainty and caution, imposing strategic and psychological costs even in the absence of combat engagement. Submarines, by virtue of their stealth, flexibility, and capacity for offensive action, have become central to asymmetric naval strategies. Similarly, Friedman (2015) noted that, smaller diesel-electric submarines are particularly well-suited for littoral operations, offering strategic advantages in chokepoints, archipelagic waters, and shallow seas where detection is difficult.

Tangredi (2013) describes the submarine as an “equalizer” in naval warfare, allowing even technologically limited navies to threaten more advanced forces through ambush tactics and area denial. Submarine deployment complicates maritime operations for blue-water navies, which must invest heavily in anti-submarine warfare (ASW) capabilities. Thus, submarines become not only weapons but also instruments of strategic manipulation and cost imposition. Cordesman and

Toukan (2014) highlight Iran's development of Ghadir-class midget submarines designed for operations in the shallow and narrow waters of the Persian Gulf and Strait of Hormuz. These platforms are intended for coastal defense, anti-shipping missions, and special forces insertion. Iran's strategy emphasizes unpredictability and persistent presence, which aligns with its broader regional deterrence and denial objectives. Besides, Iran's use of submarines reflects a clear embrace of asymmetric doctrine in response to perceived U.S. and Gulf Cooperation Council (GCC) superiority.

According to Fisher (2020), the fleet serves both strategic and tactical purposes. North Korea's submarines are used for covert operations, intelligence gathering, and infiltration missions. The suspected role of a Yono-class submarine in the sinking of the South Korean warship *Cheonan* in 2010 demonstrates Pyongyang's capacity to use submarines in limited but high-impact operations. Strategic ambiguity remains central to its doctrine. North Korea maintains a large but aging submarine fleet composed mostly of Romeo-class, Sang-O-class, and Yono-class vessels.

As Kerr and Nikitin (2021) observe, Pakistan sees submarines as an essential part of its second-strike nuclear capability. The development of Babur-3 submarine-launched cruise missiles (SLCMs) and the modernization of the Agosta-class submarines signal Pakistan's intent to maintain credible deterrence in both conventional and nuclear domains. Indigenous production efforts and cooperation with China further indicate the long-term importance of undersea warfare in Pakistan's strategic planning. However, Pakistan's submarine strategy is deeply embedded in its broader security competition with India.

While the literature acknowledges the rising role of submarines in asymmetric warfare, there is limited qualitative exploration of how state military leaders and strategists **conceptualize, narrate,** and **justify**

these strategies in their own voices. Most studies are derived from Western intelligence assessments, technical reports, or external strategic perspectives. As a result, there is a gap in understanding the **internal strategic narratives**, cultural framing, and localized doctrine development within state navies such as Iran, North Korea and Pakistan. This study seeks to fill that gap by incorporating the strategic deployment of submarine in Iran, North Korea and Pakistan by offering insights into the perceptions of maritime threats and opportunities.

The literature provides a strong theoretical and empirical foundation for understanding the strategic utility of submarines in asymmetric naval warfare. From doctrinal innovations to operational tactics, state navies in have demonstrated adaptive capacity in leveraging submarines as tools of both deterrence and disruption. However, the absence of clear narratives and grounded qualitative analysis from Iran, North Korea and Pakistan leaves room for deeper inquiry. This research builds upon these existing literatures by foregrounding state perspectives on undersea warfare in asymmetric contexts.

Theoretical Framework

This study employs a theoretical framework to interpret and explain the strategic behavior of state naval forces, particularly their use of submarines in asymmetric maritime contexts in Iran, North Korea and Pakistan. Three key theories are relevant to this analysis: **Asymmetric Warfare Theory, Offensive Realism,** and **Deterrence Theory.** Each provides a distinct lens for understanding the motivations, actions, and strategic calculations of state navies.

Offensive Realism, a strand of neorealism developed by John Mearsheimer (2001), holds that states are inherently power-seeking and that the anarchic structure of the international system compels them to maximize their relative power to ensure survival. From this

perspective, state naval strategies, including submarine acquisition by Iran, North Korea and Pakistan, could be interpreted as efforts to enhance relative power within a regional security complex. While Offensive Realism helps explain why even smaller states invest in military capabilities, it is less effective in accounting for how they use these capabilities in asymmetric ways. The theory assumes that all states strive to become great powers if given the opportunity, an assumption that does not always hold in the context of state actors who focus on denial, deterrence, and resistance rather than domination.

Deterrence Theory posits that actors can prevent adversary aggression by threatening credible retaliation or unacceptable consequences (Schelling, 1966). In naval warfare, submarines provide a credible second-strike or denial capability, especially when integrated into broader anti-access/area-denial (A2/AD) strategies. Iran, North Korea and Pakistan's development of submarine-launched cruise missiles (SLCMs), for instance, is grounded in a nuclear deterrence rationale (Kerr & Nikitin, 2021).

However, Deterrence Theory primarily addresses intentional signaling and rational actor assumptions, often overlooking non-state or irregular elements of strategy and non-linear conflicts, which are crucial in the asymmetric use of submarines by states such as Iran, North Korea and Pakistan. While useful in understanding nuclear and conventional deterrence dynamics, Deterrence Theory is limited in explaining unpredictable and decentralized undersea strategies that lack overt deterrent messaging. Nevertheless, **Asymmetric Warfare Theory** is adopted as the most suitable for this study, as it most directly addresses the structural power imbalances and unconventional strategies employed by Iran, North Korea and Pakistan. Asymmetric Warfare Theory focuses on conflicts where two actors have unequal military capabilities and one

seeks to exploit the weaknesses of the stronger opponent using unconventional means (Metz & Johnson, 2001). In naval contexts, this theory explains how Iran, North Korea and Pakistan can challenge dominant naval powers such as the US, China and Russia through denial-based strategies rather than direct confrontation. Submarines play a central role in this dynamic by offering stealth, mobility, and unpredictability key elements of asymmetry (Tangredi, 2013).

This theory is grounded in the idea that weaker actors aim to avoid the strengths of stronger adversaries and instead exploit gaps in intelligence, logistics, or geography. For example, the use of midget submarines in coastal zones by Iran and North Korea reflects a denial-oriented strategy intended to raise operational costs for a superior naval force. Asymmetric Warfare Theory accounts for strategic behavior that appears irrational from a conventional military standpoint but is logical when understood as risk-driven and context-specific resistance.

The **Asymmetric Warfare Theory explains** how and why small states use unconventional means such as submarines to challenge superior naval forces. It highlights the **tactical creativity** and **strategic rationality** of weaker actors who aim to impose costs and complicate enemy operations. It aligns with the **empirical focus** of this research on state naval strategies that prioritize denial, disruption, and stealth over conventional maritime dominance.

The Strategic Use of Submarines in Asymmetric Naval Warfare: Narratives from Iran, North Korea and Pakistan

In the evolving dynamics of maritime security, state navies such as Iran, North Korea and Pakistan are increasingly turning to submarines as instruments of asymmetric warfare. Unlike conventional maritime powers such as US, China, UK and Russia that rely on aircraft carriers and surface fleets to project power, Iran, North Korea and Pakistan often lack

the economic and industrial base to compete on such terms. Instead, they adopt strategies designed to neutralize the advantage of stronger adversaries through denial, deception, and disruption. Submarines particularly diesel-electric and midget variants offer a stealthy, cost-effective, and potent tool for such strategies (Friedman, 2015).

Asymmetric warfare involves the use of unconventional tactics to counter a conventionally superior force (Metz & Johnson, 2001). In the maritime domain, submarines play a critical role in this regard. They provide state navies such as North Korea and Pakistan with an invisible strike and surveillance capability, enabling them to impose disproportionate costs on adversaries. Polmar and Moore (2004) observe that even the mere presence of submarines alters enemy fleet behavior by introducing uncertainty and caution into operational planning.

Submarines are particularly advantageous in anti-access/area-denial (A2/AD) strategies. Tangredi (2013) noted that the ability of submarines to disrupt sea lines of communication (SLOCs) or threaten high-value targets forces adversaries to deploy extensive anti-submarine warfare (ASW) resources. For North Korea and Pakistan, this imposes a strategic tax on larger navies, draining their attention and resources across vast maritime spaces.

Iran's approach to undersea warfare is centered on using midget submarines for operations in the Persian Gulf and the Strait of Hormuz. Ghadir-class submarines, with their limited size and shallow draft, are optimized for the narrow, shallow waters of the Gulf, where detection by Western navies is difficult (Cordesman & Toukan, 2014). Iran's narrative frames submarines as defenders of sovereignty and enforcers of regional deterrence. Iranian military rhetoric often emphasizes "unpredictability" and "deterrence by uncertainty," promoting an image of submarines that are always lurking, ready to strike shipping or naval assets in case of provocation. This posture is

reinforced by periodic media releases showing submarine-launched torpedoes or Special Forces insertion, designed not just for deterrence but also domestic legitimacy.

North Korea maintains one of the largest submarine fleets in the world, although most of its vessels are outdated. The strategy here is not quality but quantity and ambiguity. The sinking of South Korea's Cheonan in 2010, attributed to a North Korean Yono-class midget submarine, demonstrated the capacity for strategic surprise and deniability (Fisher, 2020). Pyongyang has since framed its submarine programme as a symbol of technological resilience and sovereign defiance. North Korea also uses submarines as tools for clandestine infiltration and psychological operations. Frequent reports of North Korean submarines disappearing from radar during heightened tensions serve to unsettle regional adversaries. The regime's narrative positions submarines as an extension of ideological warfare tools of an embattled, self-reliant state resisting imperial aggression.

Unlike Iran or North Korea, Pakistan's submarine strategy is closely tied to its nuclear doctrine. With the induction of Babur-3 submarine-launched cruise missiles (SLCMs), Pakistan has sought to develop a credible sea-based second-strike capability against India (Kerr & Nikitin, 2021). Its submarine fleet, comprising Agosta-class submarines and the forthcoming Hangor-class from China, is central to this posture. However, Pakistan's naval leadership frames submarines as "strategic stabilizers." This framing fits within Pakistan's broader deterrence narrative, where submarines serve to offset India's superior naval force projection by threatening key Indian naval and economic assets with retaliation in kind. The rhetoric here emphasizes responsibility, control, and strategic equilibrium, distinguishing it from the more radical posturing of Iran and North Korea. Each state submarine narrative is shaped not only by strategic calculations but also by national

identity, historical experience, and domestic politics. For Iran, submarines are tied to the Islamic Republic's revolutionary narrative of resistance against the West and Israel. In North Korea, they are woven into the mythos of Juche and perpetual siege. In Pakistan, submarines are tools of balance in a long-standing geopolitical rivalry, underscoring a narrative of disciplined deterrence. These narratives are essential to understanding the motivations behind submarine procurement and deployment. While Western International relations scholars often views these platforms through the lens of tactical advantage, the domestic narratives tell a more nuanced story of one of sovereignty, self-reliance, and resistance.

Despite their advantages, submarines are not without limitations. They require significant technical maintenance, trained crews, and robust intelligence networks to function effectively. Furthermore, the escalation risks associated with submarine warfare particularly accidental engagements or misattribution are high. States are aware of these risks and often use submarine capability as a signaling tool rather than an operational weapon. The deployment of submarines during exercises, diplomatic standoffs, or crises is often calculated to provoke caution rather than conflict. In this way, submarines become tools of strategic communication, reinforcing the state's credibility without necessarily inviting escalation.

Therefore, the use of submarines in asymmetric contexts has profound implications for regional security. First, it complicates naval planning for major powers such as US, UK, France, China and Russia, who must invest in costly ASW capabilities. Second, it encourages an arms race in undersea warfare technologies, as neighbouring states seek parity or dominance. Third, it increases the fog of war in maritime flashpoints, where miscommunication and miscalculation can lead to unintended escalation. Nonetheless, North Korea

and Pakistan are unlikely to abandon submarine strategies, as they remain among the few platforms that can offer a measure of parity in an otherwise unbalanced strategic environment. The challenge lies in managing their use responsibly, avoiding accidents or deliberate provocations that could destabilize entire regions.

In addition, the increasing accessibility of submarine technology through foreign procurement, reverse engineering, and indigenous development has made it possible for North Korea and Pakistan to enter the undersea domain. They have developed domestic submarine capabilities to reduce dependence on foreign suppliers and to customize platforms to regional maritime conditions (Kerr & Nikitin, 2021). This democratization of technology enhances the feasibility of asymmetric submarine warfare, allowing North Korea and Pakistan to mount credible undersea threats even in resource-constrained environments.

The strategic use of submarines by North Korea and Pakistan is best understood through the lens of asymmetric warfare theory. Submarines empower these states to engage in high-leverage maritime operations that would otherwise be impossible against superior adversaries. Through stealth, deterrence, and technological adaptation, submarines have redefined the strategic options available to North Korea and Pakistan navies in contested maritime environments.

In conclusion, submarines offer North Korea and Pakistan naval forces a rare combination of stealth, survivability, and strategic leverage. Through qualitative narratives and state-centered rhetoric, North Korea and Pakistan use submarines to project resolve, create deterrent ambiguity, and pursue sovereign defense goals in a world of naval asymmetry. While rooted in asymmetric warfare logic, these strategies are also deeply embedded in domestic identities and political calculations. As regional

tensions persist, the role of submarines in asymmetric naval warfare will likely become more pronounced, warranting sustained scholarly and policy attention.

Conclusion

The strategic deployment of submarines by North Korea and Pakistan naval forces represents a deliberate and calculated response to the realities of asymmetric naval warfare. Lacking the resources and conventional firepower of major naval powers such as US, UK, France, China and Russia, these states have turned to submarines particularly diesel-electric and midget variants as cost-effective force multipliers that can disrupt, deter, and deny access to their maritime spaces. The cases of Iran, North Korea, and Pakistan underscore how submarines are not merely weapons systems, but central to national narratives of resistance, deterrence, and strategic autonomy. Through the lens of Asymmetric Warfare Theory, it becomes clear that North Korea and Pakistan use submarines not to achieve maritime dominance, but to level the strategic playing field. Submarines enhance unpredictability, complicate enemy operational planning, and enable a form of sea denial that would otherwise be impossible. These capabilities are amplified by how states frame them whether as tools of deterrence, ideological resistance, or nuclear stability. However, these strategies are not without risk. Submarines require high levels of technical maintenance, training, and intelligence to be effective. Miscalculations or unintentional escalations could easily arise in tense maritime environments. Therefore, the responsible use of submarine capabilities must be grounded in clear strategic objectives, disciplined command structures, and coherent national doctrines. On the whole, submarines will continue to play a pivotal role in the maritime strategies of North Korea and Pakistan facing asymmetric threats. The relevance of submarine lies not only in their operational effectiveness but also in

their symbolic and psychological impact. As global naval dynamics evolve and competition intensifies in key maritime regions, the strategic use of submarines by North Korea and Pakistan will remain a critical focus for policymakers, military planners, and security scholars alike.

Recommendations

a. Iran, North Korea and Pakistan naval forces should prioritize the development of local shipbuilding and maintenance infrastructure. Relying heavily on foreign suppliers can limit operational readiness and strategic autonomy. Investing in domestic technical expertise and modular submarine designs like Iran's Ghadir class or Pakistan's new Hangor class can enhance sustainability and reduce vulnerability to international sanctions or embargoes.

b. Submarines should not operate in isolation but as part of a broader **Anti-Access/Area-Denial (A2/AD)** strategy that includes coastal missile batteries, electronic warfare, and unmanned underwater systems. This integration will maximize the disruptive potential of submarines and allow small states to impose layered costs on stronger adversaries, as seen in Iran's Persian Gulf posture.

c. To avoid unintended escalation and accidents, Iran, North Korea and Pakistan navies should participate in regional information-sharing mechanisms regarding submarine movements when feasible. While operational secrecy is vital, selective transparency (e.g., during exercises or port visits) can reduce the risk of conflict with neighbouring states or major powers operating in contested waters like the South China Sea.

d. A technically advanced platform like a submarine is only as effective as its crew. Iran, North Korea and Pakistan should invest in long-term training pipelines, simulations, and joint exercises with technologically advanced partners (where diplomatic ties allow) to ensure their submariners can operate safely and effectively under high-risk conditions.

Strategic messaging surrounding submarine capabilities should be carefully crafted to reinforce deterrence without triggering provocation. Iran, North Korea and Pakistan can use controlled media releases, diplomatic signaling, and exercises to demonstrate readiness while maintaining ambiguity. This enhances credibility and deters aggression without escalating tensions unnecessarily.

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