EFFICACY OF CONVENTIONAL DETERRENCE: A COMPARATIVE ANALYSIS OF INDIA AND PAKISTAN

RESEARCHER:

Saeed Mushtaq
Reg. No. 232-FSS/MSIR/F22

SUPERVISOR:

Dr. Masood-Ur-Rehman Khattak

DEPARTMENT OF POLITICS AND INTERNATIONAL RELATIONS
FACULTY OF SOCIAL SCIENCES
INTERNATIONAL ISLAMIC UNIVERSITY, ISLAMABAD

2024

Final Approval Certificate

FINAL APPROVAL

This is to certify that we gone through and evaluated the thesis titled "Efficacy of Conventional Deterrence: A Comparative Analysis of India and Pakistan", submitted by Mr. Saeed Mushtaq, a student of MS International Relations under University Registration No. 232-FSS/MSIR/F22, for award of the degree of MS International Relations. This research work is satisfactory.

1. **Supervisor**
   Dr. Masood ur Rehman Khattak
   Assistant Professor
   Department of Politics & International Relations
   Faculty of Social Sciences
   International Islamic University, Islamabad

2. **Internal Examiner**
   Dr. Manzoor Ahmad Naazer
   Assistant Professor
   Department of Politics & International Relations
   Faculty of Social Sciences
   International Islamic University, Islamabad

3. **External Examiner**
   Dr. Muhammad Shehryar khan
   Assistant Professor
   Faculty of Social Sciences
   Iqra University, Islamabad

4. **Chairperson/HOD**
   Department of Politics & International Relations
   Faculty of Social Sciences
   International Islamic University, Islamabad

5. **Dean, Faculty of Social Sciences**
   International Islamic University, Islamabad

DECLARATION

I, Saeed Mushtaq, Son of Muhammad Mushtaq Awan, Registration No. 232-FSS/MSIR/F22, a student of M.S International Relations at International Islamic University Islamabad do hereby declare that the thesis entitled as Efficacy of Conventional Deterrence: A Comparative Analysis of India And Pakistan submitted by me in partial fulfillment of M.S Degree in International Relations, is my original work, except where otherwise acknowledge in the text, in future, be submitted by me for obtaining any degree from this of any other university or institution.

Signature----------

Saeed Mushtaq

Date-------/------/--------

DEDICATION

I dedicate this master thesis to my beloved Parents, whose kindness, unwavering inspiration, and constant support have guided me throughout my studies.

ACKNOWLEDGEMENT

All praise is due to Allah Almighty, the ultimate Sovereign. Research is never the work of a single individual; it draws upon the support and hopes of those around us, especially family and friends. While words cannot fully capture the invaluable role of my parents and family, I offer my deepest gratitude for their unwavering prayers and constant encouragement.

To my dear friends, thank you for your companionship and support; your presence means the world to me. Mentioning you here is my tribute to your valued friendship.

I am also profoundly grateful to my supervisor, Dr. Masood Ur Rehman Khattak, whose guidance has extended beyond academics into numerous aspects of life. Additionally, I would like to acknowledge the insightful support of my friend, Muhammad Zeeshan Qamar without whom the pursuit of my MS would have been a distant dream.

My heartfelt prayers go out to all of you. Thank you for making my journey through this master's program a success

Table of Contents

ABSTRACT

In recent years, Indian enhance their military budget to get new and more advance technologies, which poses a threat to Pakistan. Both Archrivals spend millions of dollars on their military to get themselves upper hand. This conventional escalation started when India got the nuclear weapons in 1974. Later, Pakistan took it as a threat and work on their nuclear weapon and after all the hard work Pakistan also got the nuclear weapons in 1998 which balance the nuclear parity between the two nuclear states. But till today neither country has used nuclear weapons in conflict and wars. But still, this is a threat for the whole region. Both countries have fought three wars and there are many conflicts between them. The major issue between these two states is the "Kashmir" issue. Which needs a peaceful solution. Because both States fought wars on this issue. So, keeping in mind all these past incidents India enhances its military budget because they always want to fight with Pakistan. Both States share long borders. Which makes it easy to fight and enter others territory.

Keywords: conventional deterrence, Military Budget, nuclear weapons

Chapter. 1

INRODUCTION

1.1 Introduction

Deterrence theory has long been a central component of international relations, shaping the strategic postures of nations across the globe. While nuclear deterrence often takes center stage in discussions of state security, conventional deterrence remains an essential and underexplored dimension of statecraft. This study embarks on an examination of the efficacy of conventional deterrence within the context of South Asia, specifically focusing on the cases of Pakistan and India. The region, home to two nuclear-armed neighbors, is emblematic of the complexities and sensitivities surrounding deterrence in a volatile geopolitical landscape.

Historically, South Asia has been marked by tensions and conflicts, and both Pakistan and India have developed extensive conventional military capabilities to maintain security and exert influence. The two nations have engaged in a series of armed conflicts, leading to an enduring security dilemma that continues to shape their military strategies. The conventional deterrence strategies adopted by these nations not only have significant implications for regional stability but also reverberate globally, given their nuclear capabilities (Arten, 2021).

This study seeks to comprehensively assess the dynamics of conventional deterrence between Pakistan and India. It will examine the strategic thinking and military postures of both nations, the evolving nature of their armed forces, and the historical context that has driven the development of these conventional deterrence capabilities. Furthermore, it will consider the potential challenges and vulnerabilities inherent in their deterrence postures and the consequences of deterrence failures in this region of paramount importance (Narang 2013). By investigating the cases of Pakistan and India, this study aims to shed light on the broader discourse regarding conventional deterrence in contemporary international relations. The experiences of these nations provide valuable insights into the intricacies and effectiveness of conventional deterrence, offering lessons and implications that extend beyond their borders. In doing so, we hope to contribute to a more nuanced understanding of deterrence theory and its real-world applications in an era marked by evolving security challenges and geopolitical uncertainties.

1.2 Statement Problem

The South Asian region has long been a crucible of complex geopolitical rivalries, marked by enduring hostilities and conflicts, where two nuclear-armed neighbors, Pakistan and India, coexist. Amidst the backdrop of this nuclear standoff, the question of the efficacy of conventional deterrence becomes paramount. This study is poised to address the following central problem: "How effective are the conventionally deterrence strategies employed by Pakistan and India in preventing the outbreak of large-scale armed conflicts and in shaping their security dynamics in a region fraught with historical tensions and nuclear implications?"

This problem statement encompasses several critical sub-questions and dimensions. To what extent do Pakistan and India rely on conventional deterrence as a key component of their respective national security strategies? What are the overarching strategic objectives they seek to achieve through these deterrent postures?

What are the specific military capabilities, doctrines, and postures that underpin the conventional deterrence efforts of both nations? How have these evolved over time in response to changing regional dynamics and global influences? How has the historical context, including past conflicts and confrontations, influenced the development and deployment of conventional deterrence capabilities in the region? What role has this context played in shaping the security dilemma between the two nations?

What are the key challenges and vulnerabilities inherent in the conventional deterrence strategies of Pakistan and India? How do they address issues such as limited war scenarios, sub-conventional conflicts, and the risk of escalation to nuclear conflict?

What have been the outcomes of these deterrence strategies in terms of regional stability and conflict prevention? How have they affected the broader international community, including global powers and regional actors? By addressing these questions, this study aims to provide a comprehensive assessment of the efficacy of conventional deterrence between Pakistan and India and to offer valuable insights into the broader discourse on deterrence theory and its practical applications in the context of two nations with a history of hostility, nuclear capabilities, and global implications.

1.3 Objectives of Study

- To examine the conventional deterrence strategies of India and Pakistan with focus on their military doctrines.
- To trace historical evolution of conventional military capabilities of Pakistan and India and response dynamics under the nuclear deterrence.
- To identify the key vulnerabilities and challenges inherent in the conventional deterrence postures of Pakistan and India.

1.4 Research Questions

- What are the key elements of Pakistan and India's conventional deterrence strategies, and how do these strategies align with broader national security level?
- How have Pakistan's and India's conventional military capabilities evolved over time in the context of their nuclear deterrence?
- What are the primary challenges and vulnerabilities in the conventional deterrence strategies of Pakistan and India, and how these strategies addressed limited war and sub-conventional conflicts?

1.5 Limitation of the Study

The thesis faces limitations in certain manner, as such, access to the Indian official from arms forces and political representative. Furthermore, no diplomatic ties between India and Pakistan have limited the access of the researcher to meet the query. Thus, this thesis would be highly dependent on the books, research papers, news, articles, online reports, academicians, and strategic experts. Moreover, it would also be difficult to interview and reach the Indian authorities to meet the list of questions. But this limitation would be partially managed by engaging Indian officials through emails and online interviews for the fulfillment of the ethics of the research.

1.6 LITERATURE REVIEW

Review of Related Literature

In this Article "The Efficacy of Nuclear Deterrence in South Asia": A Case Study of Pakistan and India. Author talks about the military modernization of India. In 2004, India's military modernization drive and its proactive operations strategy put Pakistan under pressure taking countervailing measures. It conducted extensive military exercises to hold the enemy back

and incorporated the tactical nuclear weapons (TNWs) in its nuclear arsenal to negate any India military superiority. The Offensive Stand of Realism depicts that with an increase in the power the aggressive behavior of the power-wielding state also increases resulting in that state becoming 'primed for offensive'. The current trends in South Asia could also be seen from this angle. The history of the past conflicts between these countries could provide a good starting point for analyzing what is in store for them in the strategic realm. During the 2001 crisis between the two states, the Indian army's lack of mobilization frustrated its military objectives forcing them to see for other venues which could surprise Pakistan and reduce the escalation dangers as well. As a result, India came up with the Cold Start Doctrine (CSD) based on a fast- paced incision into Pakistani territory. The main punch of the CSD lay in its agility and promptness without disturbing the red lines of the enemy (Wadood, 2020).

In her paper, Farzana Siddique explores the role of signaling in the evolution of military doctrines, emphasizing that deterrence stability in South Asia is heavily influenced by the strategic relationship between India and Pakistan. The military strategies and postures of these neighboring adversaries underscore their efforts to maintain the credibility and effectiveness of their respective deterrents. This is achieved through the strategic signaling of their choices and the divergent postures shaped by asymmetric threat perceptions on both sides. The complexity of ensuring credible deterrence at conventional, strategic, and tactical levels further exacerbates the situation.

A key factor influencing threat perception for both India and Pakistan are the intentions conveyed through their military doctrines. These intentions are communicated through various means at different times and are often interpreted differently by the opposing side. This differential perception impacts each state's assessment of the credibility of the other's deterrent capabilities, which in turn affects their own strategic decisions to ensure the survivability of their deterrent forces. Consequently, these dynamic shapes the overall stability of the strategic relationship between the two countries (Farzana Siddique, 2020).

In this article the author Amber Afreen Abid talks about the efficacy of Pakistan spectrum deterrence, as a hedge against India's proactive war strategies, Pakistan's National Command Authority fine-tuned its nuclear doctrine and has formulated a more comprehensive response,

known as full spectrum deterrence. This paper examines the contours of Pakistan's nuclear doctrine to assess its effectiveness in maintaining strategic stability. A comprehensive analysis of primary and secondary sources, including official statements, policy documents, and scholarly works, evaluates how Pakistan's nuclear doctrine has effectively deterred potential threats and preserved regional stability. The ambit of the paper also includes the comparison of "full spectrum deterrence" with "integrated deterrence" to exhibit the dynamic nature and importance of a nuclear doctrine in the evolving threat environment. The findings of this research contribute to the understanding of Pakistan's nuclear doctrine and provide insights into its effectiveness in building strategic stability in South Asia (Amber Afreen Abid. 2023).

Scholars in strategic studies have extensively analyzed nuclear deterrence between India and Pakistan, but they have largely overlooked India's corpulence strategy within a nuclearized strategic environment. This study contends that despite India's considerable military strength, it failed to compel Pakistan during the military standoff following the Pulwama attack. The Modi administration's nuclear corpulence strategy proves to be an imperfect tool of corpulence, as Pakistan remains confident in the effectiveness of its nuclear deterrent. Nuclear weapons serve as powerful tools for deterrence but are not suitable for corpulence. Furthermore, the Pakistan Air Force's (PAF) response on February 27 and Pakistan's decision to refrain from a tit-for-tat nuclear deployment to counter India's nuclear assets at sea demonstrate Islamabad's confidence in its conventional military capabilities and its Full Spectrum Deterrence approach. The post-Pulwama standoff, along with the ongoing stability of nuclear deterrence between India and Pakistan, underscores the need for scholars to reassess the role of nuclear weapons in the discourse on deterrence and corpulence in South Asia (Jaspal, 2020).

In recent years, significant increases in India's defense budget have raised concerns that its ongoing military modernization could disrupt the delicate conventional military balance with Pakistan. This possibility is often cited as justification for Islamabad's pursuit of tactical nuclear weapons and other measures that pose serious risks to strategic stability in the region. This article explores the outlook for Pakistan's conventional deterrence in the near to medium term, ultimately concluding that it is more robust than some critics suggest. Several factors, including the terrain, the advantageous deployment of Pakistani forces, and the absence of strategic surprise in the most likely conflict scenarios, are likely to offset any advantages India may be gaining through its

military modernization. Even with technological advancements in certain areas, Indian policymakers cannot be assured that a limited use of military force would lead to a swift outcome, which is crucial for the failure of deterrence (Ladwig Iii, 2015).

The overt nuclearization of South Asia has significantly altered the region's strategic dynamics, effectively deterring India and Pakistan from engaging in major wars. However, the potential for limited conflict under the nuclear umbrella remains, driven by unresolved issues such as the Kashmir dispute, shifts in India's military strategy, extensive military modernization, and ongoing war rhetoric from India's military and political leaders. This article argues that tactical or strategic nuclear weapons alone may not prevent India from pursuing limited wars, surgical strikes, or other military operations below the nuclear threshold. However, the study suggests that Pakistan's strengthening of "Conventional Deterrence" would increase the costs for India in the event of any military misadventure under its limited war doctrines, sub-conventional operations, or surgical strikes. Currently, Pakistan maintains a sufficient balance in certain conventional capabilities, such as modern main battle tanks (MBTs), third-generation anti-tank guided missiles (ATGMs), gunship helicopters, advanced artillery, armed UAVs, and a credible second-strike capability. Nonetheless, there are critical areas where Pakistan's military requires enhancement, including long-range air defense systems, nuclear submarines with submarine-launched ballistic missiles (SLBMs), fifth-generation aircraft, and spy satellites. Strengthening these areas would help Pakistan establish a credible conventional deterrence, supported by strategic weapons, to discourage any undesirable actions by the Indian military under its Cold Start Doctrine (CSD), proactive military operations, sub-conventional warfare, or surgical strikes. (Khattak et al. 2019).

Scholars attribute conventional violence in a nuclear South Asia to a phenomenon known as the “stability/instability paradox.” According to this paradox, the risk of nuclear war makes it unlikely that conventional conflict will escalate to the nuclear level, thereby making conventional conflict more likely.

Recent incidents of violence have involved Pakistan or its proxies launching limited attacks on Indian territory, with India choosing not to retaliate in kind. This behavior contradicts the stability/instability paradox, which suggests that a low likelihood of conventional war escalating to the nuclear level would diminish the deterrent effect of Pakistan's nuclear weapons against an Indian

conventional response. Given Pakistan's conventional military inferiority compared to India, this scenario would typically discourage Pakistani aggression and encourage a strong conventional retaliation by India in response to provocations. However, the reality has been the opposite: Pakistan's boldness and India's restraint have resulted from the instability in the strategic environment. A full-scale conventional conflict between India and Pakistan would carry a substantial risk of nuclear escalation. This threat allows Pakistan to conduct limited attacks on India while deterring a full-scale Indian conventional response and drawing international attention to the Kashmir dispute. Unlike in Cold War Europe, where nuclear danger hindered conventional conflict, in modern South Asia, the nuclear threat facilitates it (Kapur, 2005).

The nuclear tests conducted by India and Pakistan in May 1998 signify the explicit nuclearization of a conflict that has persisted since 1947. The nuclear deterrence strategy involves specific military deployments and threats designed to prevent potential attacks. This strategy is closely aligned with the realist paradigm in International Relations theory, particularly structural or neorealism. Both deterrence theory and realism assume an anarchic international system where states, viewed as unitary and rational actors, must rely on self-help for survival. Regarding crisis stability, India posed a significant threat at the highest levels to launch a limited conventional military operation in May-June 2002 and implicitly threatened to cross the Line of Control (LoC) during the Kargil conflict in 1999. However, neorealism's emphasis on structure and outcomes, coupled with its lack of prescriptive guidance, renders it ineffective for foreign policy analysis and conflict resolution (E. Sridharan, 2020).

In the strategic studies community, it is widely believed that nuclear weapons are likely to prevent armed conflict due to the deterrent effects and the unacceptable risks posed to the involved parties in the event of war. However, in the context of Indo-Pak relations, nuclearization appears to have had the opposite effect, as the frequency of crises has increased since both countries became declared nuclear powers. This paper examines the impact of nuclear weapons on the security crisis in South Asia.

The literature on the Indo-Pak conflict largely agrees that the stability of the strategic nuclear relationship is a key factor in explaining the increased frequency of crises since both nations were recognized as nuclear powers. Most scholars assert that the strategic relationship is stable,

which creates a strategic space for Pakistan to initiate conventional-level conflicts. Alternatively, some scholars argue that the strategic nuclear relationship between Pakistan and India is unstable, suggesting that the real risk of nuclear escalation gives Pakistan confidence that India will be deterred from leveraging its conventional military superiority. This paper contends that attempts to explain the Indo-Pak conflict solely based on strategic stability or instability are inadequate. Strategic studies literature posits that strategic stability exists when two adversaries have a secure second-strike capability, large enough to inflict unacceptable damage on the other, thereby deterring aggression.

The paper argues that the strategic nuclear relationship between Pakistan and India is not stable, and neither is the deterrence of conflict between them. The actions of the two countries cannot be fully understood through the balance of their nuclear and conventional capabilities alone but are instead influenced by strategic cognitive dissonance. This situation creates a serious risk of conflict escalating to the nuclear level (Bluth, 2010).

India and Pakistan are currently locked in a competition for escalation dominance. New Delhi is preparing for a limited conventional campaign against Pakistan, while Islamabad is developing limited nuclear options to deter India. These developments together could heighten the risk of nuclear conflict. For instance, India might mistakenly believe that it can carry out an invasion without provoking a nuclear response, while Pakistan might assume it can use nuclear weapons without triggering a full-scale nuclear exchange. Even if outright war is avoided, these trends could eventually push India to develop its own limited nuclear options to strengthen its deterrence and gain coercive leverage over Pakistan (Montgomery & Edelman, 2015).

India's announcement of conducting surgical strikes across the de facto border with Pakistan in Jammu and Kashmir has significant implications for deterrence stability in South Asia. New Delhi has aimed to develop a military strategy that allows it to respond to Pakistan's sub-conventional warfare without escalating the conflict to a nuclear level, thereby maintaining nuclear deterrence. This paper examines India’s surgical strikes of September 2016, focusing on their nature and the objectives behind them. The analysis suggests that the strikes largely achieved India's goals and that their controlled execution minimized the risk of conflict escalation. Therefore, this paper concludes that surgical strikes enhance deterrence stability in South Asia and could potentially

become New Delhi's standard approach to addressing Pakistan's sub-conventional warfare (Biswas, 2017).

Conceptual Underpinnings

Definitions Of Key Concepts and Terms:

Conventional Deterrence: Conventional deterrence refers to the use of conventional military capabilities, such as troops, weapons, and technology, to dissuade an adversary from taking aggressive actions. It relies on the threat of retaliation with conventional forces to prevent conflict or aggression (Smith, 2010).

Strategic Stability: Strategic stability is a state in which the risk of nuclear or conventional conflict between two or more states is minimized. It implies a balance of power that prevents any party from feeling compelled to initiate military action, thereby reducing the likelihood of escalation to war (Miller, 2017).

Military Balance: Military balance refers to the relative capabilities and strengths of opposing military forces. It involves an assessment of factors such as manpower, equipment, technology, logistics, and training to determine the capacity of each side to achieve its objectives in a potential conflict (Liang & Yang, 2014).

1.7 Theoretical Framework

This case study on the efficacy of conventional deterrence in the context of Pakistan and India draws upon a combination of theoretical frameworks to provide a comprehensive analysis of the research questions. The following theoretical perspectives are employed:

1.7.1 Deterrence Theory:

The study is rooted in classical deterrence theory, which posits that the threat of punishment can dissuade potential adversaries from taking hostile actions. It examines how conventional deterrence strategies align with the core principles of deterrence theory, such as credibility, capability, and communication. The security dilemma concept is essential to understanding how states' efforts to enhance their own security can inadvertently lead to increased tensions and conflicts. This framework is applied to investigate the reciprocal actions and reactions of Pakistan and India in the realm of conventional deterrence.

1.7.2 Realism:

Realist theory informs the study's understanding of the broader geopolitical context and the power dynamics that influence state behavior. Realism helps elucidate the strategic calculations and competition between Pakistan and India in South Asia. Given the nuclear capabilities of both Pakistan and India, nuclear deterrence theory is integrated into the analysis. It explores how conventional deterrence interacts with the nuclear threshold and escalation dynamics.

By integrating these theoretical frameworks, the study aims to offer a well-rounded analysis of the efficacy of conventional deterrence in South Asia. It recognizes that state behavior and security strategies are shaped by a multitude of factors, including rational calculations, historical legacies, normative considerations, and power politics. This multidimensional approach allows for a nuanced understanding of the research questions and their implications for regional stability and international relations.

Conceptually, conventional deterrence comprises several key components. First, it necessitates a capability to inflict significant harm on the adversary through conventional military means. This includes possessing well-trained and equipped armed forces, with capabilities such as firepower, mobility, and logistical support. Second, conventional deterrence requires credible signaling of the willingness to employ these capabilities in response to aggression. This involves clear communication of red lines, demonstrating resolve, and maintaining a posture that conveys readiness to defend vital interests. Third, conventional deterrence involves perceptions, wherein the adversary must believe that the costs of aggression outweigh the potential benefits, thus deterring them from hostile actions.

Operationalizing conventional deterrence involves translating these conceptual components into measurable variables for empirical analysis (Jervis, 1979). This often entails constructing indices or variables to assess the military capabilities of states, including metrics such as defense spending, force size, technological sophistication, and deployment patterns. Additionally, indicators of signaling behavior, such as military exercises, deployments, and public statements, can be utilized to gauge the credibility of deterrence threats. Moreover, surveys or assessments of perceptions among policymakers, military officials, and the public can provide insights into the effectiveness of deterrence strategies in shaping adversary behavior.

1.7.3 Efficacy of Conventional Deterrence in South Asia

The efficacy of conventional deterrence in South Asia, particularly between India and Pakistan, is a critical component of the region's strategic stability. Conventional deterrence refers to the ability of a state to prevent aggression through the threat of conventional military retaliation. In the context of South Asia, where both India and Pakistan possess nuclear weapons, the role of conventional deterrence becomes even more significant as it serves as the first line of defense, potentially preventing conflicts from escalating to the nuclear level. India, with its larger and more technologically advanced military, seeks to maintain a credible conventional deterrent to counter Pakistan's sub-conventional strategies, such as support for insurgency and proxy warfare. The 2016 surgical strikes by India across the Line of Control (LoC) are an example of how India attempts to use its conventional forces to deter further aggression by demonstrating its capability and willingness to respond. These strikes were designed to stay below the nuclear threshold, thereby avoiding escalation while still achieving strategic objectives. On the other hand, Pakistan, aware of its conventional military disadvantages, has developed a strategy that integrates both conventional and nuclear deterrence.

Pakistan's concept of Full Spectrum Deterrence includes the development of tactical nuclear weapons intended to counteract India's conventional superiority. This approach reflects Pakistan's belief that its conventional forces, while capable, may not be sufficient on their own to deter Indian aggression, thus requiring a nuclear backstop. The interplay between conventional and nuclear deterrence in South Asia creates a complex strategic environment. While conventional deterrence has so far helped prevent large-scale conflicts, its efficacy is challenged by the risk of escalation. Any miscalculation could rapidly turn a conventional confrontation into a nuclear crisis, making the stability of conventional deterrence in South Asia fragile and heavily dependent on effective communication and restraint from both sides (Hagerty, 2020).

1.8 RESEARCH METHODOLOGY

1.81 Research Design

This study employs a comprehensive research methodology that combines qualitative research technique to address the complexities of the research questions. The research design task selected would be a 'case study' design. The data shall be designed as per the requirement of qualitative methods such as exploration, comparative and predictive data analysis approach.

1.9 Population

The population of the study includes experts, academicians, researchers and retired government officials.

1.10 Sampling

Non-random sampling technique is used to collect the data particularly. Snowball type will be applied.

1.11 Content Analysis:

In garnering the essence of this study, the content analysis toward validation of specific terms like conventional deterrence, WMD (weapons of mass Destruction) will be followed analytically. Comprehensive analysis with respect to themes and qualitative data will be incorporated in the study.

1.12 Operational Definitions of Major Terms:

Conventional Deterrence: This usually refers to the deterrence that revolves around the conventional weapons – threats to use unconventional weapons of mass destruction (WMD) are specifically excluded.

1.13 Instruments

Depending on the primary nature of the study both Questionnaires and Interview guide will be used. The questionnaire, such as open-ended and closed ended will be used, whereas flexible interview methods will be used.

1.14 Data Collection

Documentary Analysis: Extensive review and analysis of official documents, military publications, government statements, defense policy documents, and historical records related to the military capabilities, strategies, and doctrines of Pakistan and India. Conducting structured interviews with experts, policymakers, military personnel, and scholars knowledgeable about the security dynamics in South Asia to gain insights and perspectives on conventional deterrence.

1.15 Data Analysis

Comparative analysis of the conventional military capabilities, doctrines, and postures of Pakistan and India to identify similarities, differences, and trends and their possible responses. Analyzing qualitative data from documents and interviews to identify key themes, trends and challenges in conventional deterrence. This comparative research methodology aims to provide a holistic understanding of the efficacy of conventional deterrence strategies in South Asia, offering insights based on historical analysis, expert perspectives, and quantitative data. It will enable a nuanced evaluation of the research questions and contribute to the broader discourse on deterrence theory and its practical applications.

1.16 Ethical Consideration

This thesis entitled as Efficacy of Conventional Deterrence: A Comparative Analysis of India and Pakistan. This thesis will be based on researcher's research and does not consider other's work as his own research. References and bibliography will be attached to the end of the thesis which will certainly prove that the thesis has been done by the researcher.

1.17 ORGANIZATION OF THE STUDY

This chapter is divided into four chapters inclusive of Introduction and Conclusion

i. ***Chapter One****: Introduction:* this chapter includes thematic understanding and conceptual underpinnings of the subject matters along the theoretical framework.

ii. ***Chapter Two****: Comparative Analysis of Conventional Capabilities Of India And Pakistan:* This chapter shall analyze the conventional capabilities of India and Pakistan in all domains. i.e. Land, Air and Sea.

iii. ***Chapter Three****: Implications For Pakistan Over Asymmetrical Conventional Capabilities:* This chapter will analyze the implications towards Pakistan over the asymmetrical conventional capabilities.

iv. ***Chapter Four****: Conclusion:* This chapter shall provide the conclusive findings of the topic under investigation and direct the subject matter towards objective understanding.

Chapter 2

AN OVERVIEW OF DOCTRINAL SHIFT IN INDIA AND PAKISTAN'S RESPONSE

The nuclearization of South Asia fundamentally shifted the strategic doctrines of both India and Pakistan, forcing both countries to reassess their military postures and strategies. These doctrinal shifts reflect how both nations have adapted to the nuclear environment while managing their conventional military capabilities. India's military strategy, influenced by the Sunderji Doctrine in the 1980s, focused on the rapid mobilization of strike corps to deliver deep, decisive blows inside Pakistan in the event of conflict. This doctrine aimed to exploit India's conventional military superiority to potentially incapacitate Pakistan before international pressure could intervene. However, with Pakistan achieving nuclear capability in 1998, this strategic calculus fundamentally changed. After the failure of Sunderji Doctrine due to the attainment of nuclear weapons by Pakistan Indian policymakers came up with the idea of Cold Start Doctrine (CSD) in 2004. This doctrine requires synergy, reconnaissance, superior air force, long-range missile system and surveillance capabilities. However, CSD was also exposed after the Mumbai Terror Attacks 26/11. India tried to blame Pakistan, but the proofs downplayed them.

Pakistan, as a responsible nuclear weapons state, successfully deterred India from operationalizing its Cold Start Doctrine (CSD) by establishing both conventional and nuclear deterrence. The Azm-i-Nau military exercises emphasized traditional responses to Indian aggression, while Pakistan's tactical nuclear weapons (TNWs) neutralized Cold Start's threat. These strategies collectively prevented India from escalating at any level. In 2012, India's Air Force (IAF) introduced its IAF Doctrine, focusing on deeper air raids and "sub-conventional warfare" like surgical strikes. However, the IAF needed more time to fully develop its offensive capabilities.

In 2017, the Joint Armed Forces Doctrine highlighted the possibility of surgical strikes below the nuclear threshold. In 2018, India introduced the Land Warfare Doctrine (LWD), aiming to enhance warfighting capabilities by restructuring corps and adding offensive strength, maintaining a strategic edge over Pakistan (Army, 2018).

Pakistan's doctrinal shift, especially post-nuclearization, has centered around establishing a credible deterrent against India's conventional and nuclear threats. Initially focused on minimum credible deterrence, Pakistan later expanded its nuclear doctrine to Full Spectrum Deterrence by

incorporating tactical nuclear weapons (TNWs). These TNWs were developed to counter India's Cold Start Doctrine, ensuring deterrence at all levels of conflict.

In response to India's evolving military strategies, Pakistan focused on maintaining a robust conventional force through exercises like Azm-i-Nau, emphasizing rapid mobilization and defense readiness. These exercises tested Pakistan's ability to counter conventional military threats from India, combining traditional military responses with nuclear deterrence to maintain strategic stability. By introducing short-range missiles like Nasr, Pakistan ensured that its deterrence was effective across both the conventional and tactical nuclear spectrum.

This shift allowed Pakistan to simultaneously deter large-scale conventional attacks and nuclear escalation, thus reinforcing its defense posture in the region (Noor, 2023).

2.1 IAF Doctrine of Surgical Strike

The Indian Air Force (IAF) Doctrine on surgical strikes, introduced in 2012, emphasizes the use of precise, limited military actions targeting enemy positions below the nuclear threshold. These operations aim to deter adversaries by demonstrating India's ability to strike swiftly and effectively, particularly in response to cross-border terrorism. The doctrine allows for sub-conventional warfare, where air power plays a key role in conducting strikes without escalating to full-scale conflict. It aligns with India's broader military strategy of preventive action against threats without provoking nuclear escalation (Sultan, 2019).

India is surrounded by nuclear-capable adversaries, and while maintaining a No First Use nuclear policy, it is crucial for India to develop strong second-strike capabilities. This involves land-based ICBMs and sea-based platforms, with the Indian Air Force (IAF) playing a key role in nuclear deterrence. While India currently lacks strategic bombers, aircraft like the Jaguar, Mirage 2000, and Su-30 MKI can perform nuclear bombing roles when needed. Supported by IL-78 mid-air refueling tankers, these aircraft contribute to a credible deterrent force. But these aircraft have operational limitations. For deep strike missions IAF requires strategic bombers.

Bipin Rawat Indian Chief of Army said that at night if what would mention the 2nd anniversary to New Dahli asserts of going through with a target surgical strike anti-suspicious militants and terrorists beyond the Line of Control (LoC) in Azad Kashmir. Since, 2016, Indian leaded 12 to 14 hours long operations and initially forces took actions against the multiple.

Therefore, when disputed by Islamabad, India did not successful to propose credible weapons instead a huge asserts and comprehensive exposure. The expect of one nuclear weapons nation inaugurating unprovoked and preplanned accuracy attacks by regular forces inside another state territory, instigating and deter response is main threats and heedless actions in nuclear background. Pakistan wary desist from a Kneejerk reaction finding reliable reason and issuing a dissent instead undercutting its cautiously preserved deterrence stability stopped expansion.

As the Indian Prime Minister Modi administration joined the last months of its days it entered extremely focused on the idea of successfully carrying out as well as a strike anti Pakistan. The idea though ambitious became an urgent priority for the government. Statements like the one made by Indian Army Chief General Rawat became common and often exposure by Indian Prime Minister Modi and his group of politicians and influencers as a campaign tactic. However, they did not fully understand the seriousness of such actions. In response to the possibility of a surprise attack from New Delhi, Islamabad's military took defensive measures to deter any attack. In February 40 Indian Central Police Reserve Force (CPRF) officers, were killed in a targeted invade when a suicide bomber strikes their vehicle in the Pulwama district near Lethpora. Seen as a false flag operation by many even within India this attack gave the Modi government the justification it needed to launch its highly promoted Surgical Strike 2.0 against Islamabad. Blaming the attack on Jaish-e-Muhammad (JeM) early in the morning on February 26, the Indian Air Force (IAF) opposed the sovereignty and entered Pakistan airspace. They targeted what they claimed to be the JeM headquarters in the hilly areas of Balakot located in KPK Pakistan province. According to Indian reports approximately 200 Individuals were killed because of the air strike.

Additionally, strategically news articles claimed JeM Maulana Masood Azhar was critically injured and receiving treatment at a military hospital. However, there was no evidence of any JeM presence in the region and India was unable despite the development of its expensive and highly regarded Israeli Rafel Spice 2000 smarty bombs to inflict any human causalities beyond the ecological damage incurred.

The euphoria and day-long celebrations across India were abruptly countered the next day, as Pakistan launched retaliatory strikes on strategically chosen targets, delivering a calculated and measured response. In retaliation, the Indian Air Force (IAF) suffered a significant setback. Two of

India's fighter jets, a MiG-21 Bison and its advanced introduced by Russia SU-30, were shot down by the Pakistan forces, and one Indian pilot was captured for 48 hours. India's aggressive action, which it called a pre-emptive non-military strike, brought both countries dangerously close to a nuclear conflict, with serious international outcomes. India, adopting a newly assertive hyper-nationalist stance, had previously executed a similar operation across the Myanmar border in June 2015. Although initially disavowed by Myanmar, the operation was eventually jointly acknowledged by both nations to identify a united front anti- cross-border militancy. The concept of a surgical strike is neither novel nor an original innovation of India. Historically employed in various instances against weaker state actors and within the context of Grey Zone Conflicts, the United States (US) has long utilized this sub-conventional strategy. Furthermore, since the Mumbai terrorist attacks, America appeared receptive to the notion of precision strikes within Pakistan, a proposition put forth by Indian leadership and formally communicated to Islamabad through a high-profile US diplomatic delegation (Malik, 2020).

India’s new strategy suggests it is prepared for limited military action without triggering a nuclear response, as reflected in its Cold-Start Doctrine. Pakistan has countered this by strengthening its military defenses with a "credible minimum deterrence" approach, making its forces more agile and ready. India’s strategy also considers a potential two-front threat from both Pakistan and China. The 2020 Ladakh clash heightened India’s concerns about China, leading it to ease tensions for now. However, India continues to take a provocative stance toward Pakistan, conducting strikes across borders and working diplomatically to isolate it.

Pakistan, in turn, remains firm in its stance to respond to any such actions. Given its economic constraints, Pakistan relies on nuclear capabilities rather than matching India’s conventional forces. It must also prepare for limited conflicts with India and respond to hybrid warfare tactics in India’s strategy. India's new military assets, like Rafale jets and nuclear submarines, enhance its ability to implement limited war strategies against Pakistan. However, Pakistan may not see such conflicts as limited. Pakistan’s tactical nuclear strategy limits India’s Cold Start Doctrine, reducing India’s options for lower-level conflicts and risking regional stability. For lasting peace, India should pursue peaceful negotiations with Pakistan. Pakistan's Full Spectrum Doctrine, though seeming provocative, is a practical deterrent to prevent conflict. India’s military buildup, aimed at China, could harm Pakistan's

security due to the Kashmir issue, increasing the risk of conflict in a tense, distrustful environment (Babar, 2020).

2.2. India's Maritime Strategy of 2015: *Sea Dominance*

India had been introduced Maritime strategy in 2015 to protect the maritime trade routes and Sea Lanes of communications, *"Ensuring Secure Seas: Indian Maritime Security Strategy."* These documentary files operate as an altered and increased iteration of the earlier plan, *"Freedom to Use the Seas: India's Maritime Military Strategy,"* in 2007 this strategy was introduced first time. The earlier strategy did not account for the shifting geopolitical landscape and its implications for Indian economic, political, and social interests. In 2015 the strengthen of Indian naval capabilities then covers these deficiencies by aligning with the changing security situation on the Indian maritime territory and showcasing a more confident Indian Maritime forces with a fresh approach to Indian naval capabilities necessities.

The Asian continent region security threats have been increased because China is becoming rising power in this region, but India is also called regional power, so expansion of the Chinese influence is pushing India to clarify its strategic interests and again formulate its naval strategy. The protection of the sea routes strategy does just that. It takes a broader plan view than earlier versions and aims to reflect the Indian maritime program for the landscape. The document highlights main factors behind the change in India's naval strategy. First, it is the first time an official Indian government paper recognizes the impact of the growing and widely accepted "Indo-Pacific" concept on India growing influence on sea routes. The international shift from a Euro-Atlantic focus to an Indo-Pacific one, along with the expansion of economic interests and growing military influence on Asian region, has led to major changings like economic, political, and social interests have been increased towards Indian Ocean, like we can Indian Ocean is hub of resources and powers are growing their influence in these areas to protection of the economies. Countries for example the United States, Japan, and Australia considered the important role India could have in the transferring security situation, but in this region uncertainty about Indian significance. Recently introduced new formulation of the Maritime Security Strategy help address those concerns, at least to some degree. Secondly, the Maritime interests are increasing, signifying Indian inclination to take on a more prominent role in the Indian Ocean.

The Red Sea, once classified as a 2nd area of focus and 2009 repeated era of the Maritime Doctrine., has now been elevated to a primary land of concern for the Indian naval capabilities. Furthermore, “the Gulf of Oman, the Gulf of Aden, their coastal areas, the Southwest Indian Ocean, including the island nations in the Indian Ocean Region, and the eastern coastal areas of Africa” are now all focused primary concerns for Indian trade routes and sea lanes of communications. During Africa and its coastal areas used to be seen as only secondary in significance, additionally the Gulf of Oman, Gulf of Aden, and the Southwest Indian Ocean were not particularly mentioned as regions of interest in the Maritime Doctrine (Baruah, 2015).

Across various periods of strategic competition, maritime trade routes have consistently been crucial points of conflict. The Indian Ocean links Africa and Asia to a wide network of Pacific waterways and ports, currently accommodating about 100,000 commercial vessels each year, including one-third of all bulk cargo ships. The substantial volume 80% of oil cross the Persian Gulf increases the plan significance of the Indian Ocean region. Reports indicate that 80% of the world's oil transport uses these maritime routes. Overall, the total value of trade conducted via the Indian Ocean reaches nearly one trillion dollars annually. India is one of the largest coastal states in the Indian Ocean region (IOR). China and India facing challenges due to the escalation of competition between both sides because economies are heavily depended on Indian Ocean, India's defense priorities have increasingly shifted towards the Indian Ocean. India deployed naval forces in 2004 in this region, has since evolved, as evidenced by later strategic documents. This shift highlights India’s ambition to position itself as a regional leader and to counteract Chinese influence, prompting considerable modifications in its maritime strategy. India divided maritime capabilities into three categories. From 2004 to 2007 first step expands period, is characterized by the introduction of India’s first maritime military strategy in 2004. Throughout this period, India embraced a free rider model, as articulated in Holmes and Yoshihara’s analysis of naval power. According to this framework, nations with limited national interests require minimal naval capabilities to successfully harness the sea and manage low-level threats that may emerge from maritime environments.

In 2004, the Indian Navy released its inaugural maritime doctrine titled “Freedom of Use of Seas—Indian Maritime Military Strategy,” which was subsequently revised in 2007. This doctrine

underscored the importance of the Indian maritime forces in facilitating India's ability to "utilize" the waters of the Indian Ocean to further its domestic goals (Saravanan, 2022).

At the beginning of the 21st century, India acknowledged the Indian Ocean Region (IOR) as a vital part for international maritime trade, though it did not perceive it as the fiercely contested geopolitical arena it has since become. At that time, India still saw itself as an emerging power with a constrained naval presence, primarily focused on coastal operations. Nevertheless, Indian strategists recognized the shifting dynamics in the Indian Ocean Region (IOR), especially China's enhanced military capabilities and the rising tensions with the Washington. Countries aiming to develop defense capabilities with the explicit goal of preventing foreign powers from interfering in their waters belonging to this category. India embraced "the constable model" after implementing another change in 2009 with the publication of a new high-level strategic document. The third model, referred to as the strongman, requires significant naval capabilities to ensure control over essential areas of interest by blocking other powerful states from accessing their waters. Although early Indian naval doctrines concentrated on a force aimed at presence, surveillance, and constructive maritime interaction, India's strategic role in the Indian Ocean Region (IOR) has expanded considering changing regional security dynamics, with its main interest evolving from utilizing the seas to securing them. China's persistent ascent and its increasing involvement in India's perceived sphere of influence have driven India to alter its prior doctrine to effectively manage the challenges arising from China's expanding military strength. In 2015, India updated its most recent maritime doctrine, placing a clear emphasis on its goal of establishing itself as a regional "strongman" while addressing the rising influence of China in the Indian Ocean Region (IOR) (Nawaz, 2023).

India's Maritime Strategy of 2015, formally titled *Ensuring Secure Seas: Indian Maritime Security Strategy*, represents a comprehensive document outlining India's approach to safeguarding its maritime interests. Issued by the Indian Navy, it reflects a crucial evolution in the Indian's strategic thinking and its growing emphasis on maritime power. The strategy primarily focuses on the Indian Ocean Region (IOR) while recognizing the required to enhance India's role on the international maritime points. The core vision of the program is to *ensure secure seas* for India's national interests. It emphasizes the significance of sea power in protecting Indian maritime trade routes, maritime boundaries, and offshore resources. India sees itself as a "net security provider" in

the Indian Ocean, aiming to safeguard the areas stability and security. The strategy identifies several key objectives, including Safeguarding maritime borders and securing Exclusive Economic Zones (EEZs). Ensuring freedom of navigation in sea lanes that are crucial for India's economy, particularly the oil and gas travel from the Middle East. Building a navy capable of deterring adversaries and maintaining maritime trade route to control in this region, especially in areas like the Arabian Sea and the Bay of Bengal. India's growing influence to protect power and maintain order in the Indian Ocean region, extending to the Strait of Hormuz, the Malacca Strait of Malacca further this is called Malacca dilemma, and even the South China Sea.

Enhancing maritime diplomacy with other regional powers to ensure a stable maritime order, focusing on relationships with countries like Sri Lanka, Maldives, and Mauritius. The strategy identifies several evolving threats: It emphasizes the need to counter threats from other naval powers, particularly in the Indian Ocean region, without directly naming specific nations, but implicitly referring to China and Pakistan. It highlights the importance of addressing piracy, smuggling, terrorism, and trafficking, particularly in the western Indian Ocean. The strategy also incorporates a focus on human needs and disaster relief (HADR), reflecting India's proactive role in assisting its neighbors during natural calamities.

In 2015 Indian Maritime Strategy reflects a major shift toward recognizing the critical importance of the naval routes for its national security, financial prosperity, and geopolitical influence. It finds to assert India's leadership in the IOR while preparing for a more aggressive role on the international maritime stage, balancing regional responsibilities with rising global ambitions (Baruah D. M., 2015).

2.3. Land Warfare Doctrine of India- 2018

The *Land Warfare Doctrine of India 2018* is a comprehensive strategic document developed by the Indian Army to guide its future operational preparedness, warfighting capabilities, and modernization plans. This doctrine reflects India's evolving security environment, emerging challenges, and the need to adapt to changing dynamics in modern warfare. India's strategic focus has always included China and Pakistan. It identifies China as a key threat but focuses its military development on Pakistan. Therefore, India competes with China globally, but Pakistan presents a regional challenge, acting as a barrier to India's regional dominance. India and Pakistan's

relationship has long been marked by mistrust, suspicion, and continuous disputes over unresolved matters such as Kashmir, water distribution, Siachen, Sir Creek, and proxy conflicts. Both countries fought three wars and had a smaller conflict at Kargil in 1999, reshaping the dynamics of warfare in South Asia. Following its defeat in 1962, India avoided taking an aggressive approach towards China, except for a brief confrontation at Doklam.

After the 1965 and 1971 conflicts with Pakistan, India solidified its stance against its militarily inferior counterpart. This involved a shift to a more aggressive force posture, reorganizing its military deployment and focusing on deep penetrative strikes within Pakistan. India has persistently pursued military strategies to counter Pakistan's alleged acts of aggression and terrorism in Indian-held Jammu and Kashmir (IOJ&K) or on Indian soil. Given that India cannot achieve a military victory over Pakistan without the risk of nuclear confrontation, it has implemented a variety of military doctrines. These range from the Sunderji Doctrine, which emerged during the mechanization phase of the 1980s, to the post-1999 concept of Limited War under the nuclear shadow. Additionally, India has developed strategies such as the Cold Start Doctrine (CSD) or Proactive Doctrine, surgical strikes, and hybrid warfare. The evolution of military doctrine within the Indian Army is an ongoing process.

A significant transformation in the Army's offensive doctrinal development occurred in 1975 under the leadership of Prime Minister Indira Gandhi. She assigned three Generals the responsibility of crafting the Indian Army's Land Warfare Strategy specifically aimed at Pakistan. Afterward, the Army shifted its focus to the formation of three Strike Corps, mechanized infantry, and armored divisions designed to carry out deeper assaults within Pakistan. India attempted to put the Sunderji Doctrine into action during the Brasstacks wargames in 1986-87. However, following Pakistan's conventional and unconventional defensive measures, the Indian Army was hindered from crossing the border.

Launched in December 2018, the updated Land Warfare Doctrine 2018 (LWD-18) centers on the Indian Army's perception of threats and its prospective reactions in limited warfare situations. In recent years, the Army has targeted certain domains for improvement that warrant careful evaluation and appropriate responses. he LWD-18 outlines a vision for rapid mobilization and the integration of force multipliers to support operations in high-altitude zones (such as the

Himalayas), as well as in plains and desert landscapes against Pakistan. This signifies that the forces engaged against both Pakistan and China will possess the autonomy to manage various contingencies independently. China, Nepal, and Bhutan share a northern border with India, while Pakistan lies to the west. Although Nepal and Bhutan maintain relatively peaceful relations with India, the border with China remains contentious, characterized by intermittent skirmishes between the two nations. On the ground, a large-scale conventional war between India and China is unlikely for key reasons: There exists a significant conventional disparity between India and China. The issues at hand between the two nations are not sufficiently severe to escalate into a major conflict, and the geographical constraints do not favor the feasibility of a large-scale conventional war between them.

In response to the Land Warfare Doctrine 2018 (LWD-18), Pakistan needs to augment its fleet of indigenous JF-17 Thunder aircraft to diminish the existing asymmetry in air power. Furthermore, Pakistan must enhance the maneuverability, firepower, and operational range of its Al-Khalid main battle tanks (MBTs) to effectively counter any offensive actions initiated by the Indian Army. It is essential for Pakistan to incorporate advanced Anti-Tank Guided Missiles (ATGMs) to counter India's procurement of T-90S main battle tanks (MBTs). The Indian military's acquisition of Apache gunships has compelled Pakistan to procure modern attack helicopters from Turkey, China, the United States, and Russia (Khattak, 2020).

The Indian Army (IA) released its first declassified official doctrine in 1998, followed by a revised version in 2004. In 2006, IA introduced a separate doctrine focused on sub-conventional warfare. The most recent update to the IA's doctrine is called the Land Warfare Doctrine (LWD)-2018. This new version builds on the Joint Doctrine of the Indian Armed Forces (JDIAF), which was launched in 2017. For the first time, the doctrine addresses the role of new technologies in future warfare. It also focuses on establishing deterrence through tactical-level punitive strikes, though this is seen more as a temporary solution. Although the LWD has some internal inconsistencies and sends mixed messages to adversaries about limited conventional warfare, its strength lies in how clearly it outlines the range of potential threats**.**

The LWD's official recognition of the joint threat posed by Beijing and Islamabad signals that the Indian Army will likely plan its future force structure with a worst-case scenario in mind.

This represents a major change from the previous strategy, which focused primarily on single-front threats, to now considering a dual-front threat approach in military planning. This doctrine builds upon the earlier versions of Indian Army doctrines that emerged after the nuclearization of the subcontinent in 1998. The 2004 doctrine emphasized adopting a proactive approach aimed at engaging in a limited conventional conflict. In this regard, the doctrine points out that Integrated Battle Groups (IBGs) will be central to executing the limited-objective strategy. Indian Army Chief General Bipin Rawat, in a recent interview, explained that the structure of IBGs will be customized reliability on the specific situation, with their composition changing based on terrain and other factors. The doctrine does not provide clear guidance on whether, once the nuclear threshold is crossed, these operations will remain within the limits of limited conventional objectives or escalate into large-scale conventional warfare. It fails to specify if these actions would continue to be restricted or develop into a more extensive conflict. To summarize, the doctrine provides significant value by clearly defining the range of threats that India confronts. This doctrine lays the groundwork for acquiring new capabilities that respond to the evolving nature of warfare. As a result, this doctrine formulates, for the first time, the pursuit of technologies in artificial intelligence and energy-directed weapons, which provide standoff capabilities. Indian Land Warfare Doctrine represents a positive development. While it aims for the best results in operations conducted at tactical and limited conventional levels, it effectively encourages preparations for the worst-case scenario of a combined threat from two fronts.

Chapter 3

COMPARATIVE ANALYSIS OF CONVENTIONAL CAPABILITIES OF INDIA AND PAKISTAN

3.1 Introduction

3.1.1 Overview of the Chapter's Objectives

The primary objective of this chapter is to conduct a meticulous comparative analysis of the conventional military capabilities of India and Pakistan across the land, air, and sea domains. This analysis aims to elucidate the quantitative and qualitative dimensions of their military forces, providing a comprehensive understanding of their respective strengths and weaknesses. Through this detailed examination, the chapter seeks to highlight the strategic implications of the conventional military balance in South Asia, thereby contributing to a nuanced discourse on regional security dynamics.

India and Pakistan are neighboring countries in South Asia with a history of disputes, particularly over Kashmir. Both nations have developed significant military forces to protect their national security. Their military power is influenced by past conflicts and the overall security challenges in the region. Below is a brief overview of their conventional military capabilities in recent years. India has one of the biggest armies globally and has strengthened its military to meet its regional goals and address security threats, particularly from neighboring nations like Pakistan and China. India has about 1.4 million active soldiers and an additional 1.2 million in reserves. It operates around 4,500 tanks, including the Russian-made T-90S Bhishma, T-72 Ajeya, and its own Arjun MBT. India also uses BMP-2 Sarath infantry vehicles and has a variety of artillery, such as the Pinaka MBRL and K9 Vajra. For air defense, India relies on both local and foreign systems, including Akash, SPYDER, and Russia's S-400. India’s air force is a massive fleet, with over 1,700 aircraft in total. Of these, more than 600 are fighter jets like the Sukhoi Su-30MKI, Dassault Rafale, Mirage-2000, MiG-29, and India’s very own Tejas. Along with these fighters, the air force has heavy transport aircraft such as the C-17 Globemaster III, plus Apache and Chinook helicopters. These helicopters play key roles in transporting troops and performing other critical tasks. India also boasts an advanced radar and missile defense system to protect its skies. India's navy includes the aircraft carrier INS Vikramaditya and will soon add the home-built INS Vikrant. It operates nuclear-powered submarines, such as the Arihant-class, and diesel-electric submarines like the Scorpene-

class. The navy also has various warships, including destroyers and frigates, like the Kolkata class and Shivalik-class. Naval aviation includes MiG-29K fighters and maritime patrol aircraft.

Although Pakistan's military is smaller than India's, it aims to maintain a power balance in South Asia due to its ongoing rivalry with India. Pakistan relies on its nuclear weapons to counter India's geater conventional military strength. Pakistan has around 560,000 active troops and 500,000 reserves. Its military includes over 2,400 tanks, like the Al-Khalid, T-80UD, and Al-Zarrar. The army also operates various armored vehicles, artillery like the M109 and Type 85, and Chinese A-100 rocket systems. For air defense, Pakistan uses the HQ-9/P from China and other domestic and foreign missile systems. Pakistan operates over 400 fighter jets, including F-16s, JF-17s (built with China), and older Mirage models. Its helicopters include the AH-1 Cobra for attacks and Mi-17 for transport. Pakistan's air defense system is heavily based on Chinese technology, with the LY-80 (HQ-16) SAM system as a key element. Pakistan operates diesel-electric submarines like the Agosta 90B and older Agosta-70 models. Its navy includes surface ships such as F-22P Zulfiquar-class and Tariq-class frigates. Although its maritime patrol capability is limited, Pakistan is expanding its naval helicopters and surveillance aircraft. India's defense budget is over $70 billion, which is much larger than Pakistan's budget of around $11-12 billion. This difference highlights the economic capacities and priorities of both countries. India maintains solid defense partnerships with Russia, France, Israel, and the U.S. Meanwhile, Pakistan has historically relied on the U.S. but is now increasingly seeking military support and strategic cooperation from China (Noreen Naseer, 2022).

Peace in South Asia is hindered by India's actions that disrupt the power balance. Given India’s larger military, Pakistan may rely on its nuclear arsenal but should focus on strengthening conventional defenses to protect its territory, rather than engaging in an arms race. Pakistan should improve its defense industry, conduct regular military exercises, and strengthen defense ties with China to enhance its air defense and missile capabilities, preparing for potential Indian actions. India aims to be a regional power alongside China and keep Pakistan in check through military modernization. However, it should focus on improving ties with Pakistan. The military imbalance forces Pakistan to rely on nuclear weapons, raising the risk of conflict. Pakistan should strengthen its defense industry and collaborate with allies to maintain a balanced military force (Babar, 2020).

3.1.2 Importance of Comparing Conventional Capabilities

Comparing the conventional military powers of India and Pakistan is essential for several reasons. A military comparison allows us to evaluate the balance of power in South Asia, which is crucial for regional stability and security. Understanding the strengths and weaknesses of each country's military can also shed light on their perceptions of threats and strategic approaches. Comparing India and Pakistan's military capabilities helps both countries improve their defense strategies and weapon purchases. This understanding also shapes their deterrent strategies and affects their military planning and diplomatic relations. India and Pakistan's military strengths can influence their ties with other countries and affect alliances and foreign military support. Understanding each other's capabilities can also lead to better discussions on security and encourage cooperation between nations.

3.2 Land Domain

The most evident indication of the superiority of India's armed forces over Pakistan is the significant disparity in the size of their ground forces, which has consistently remained at a ratio of approximately 2:1 over the course of several decades.

According to the 2018 Military Balance, India has a military force consisting of 1,200,000 soldiers, whereas Pakistan has 560,000 soldiers. However, to evaluate the military equilibrium, it is crucial to consider factors such as the quantity and quality of equipment, the level of training of the armed forces, and other considerations including force readiness, the strategic deployment of forces.

Historically, India deployed a significantly higher quantity of main battle tanks, giving them an almost twofold advantage over Pakistan. Surprisingly, this disparity has significantly decreased in recent years to the extent that India now only has a slight numerical edge of approximately 1.1:1. Nevertheless, these figures alone do not hold significant weight, given most tanks.

India has deployed the T-90 (122 vehicles) and the Arjun (approximately 1,100 vehicles) as their most advanced main battle tanks. In contrast, Pakistan has fielded 320 T-80UDs and 300 Al-Khalids. As of 2017, India has a distinct advantage in this area with a ratio of 1.92:1. Pakistan has made a substantial endeavor to augment its artillery forces by increasing the number of artillery pieces in its arsenal. The number has risen from 2,600 in 1998, the year of the nuclear testing, to 4,472 in 2017. In 1998, India possessed 5785 artillery pieces, and this number reached its highest

point in 2006 with 12,675 pieces. In comparison, Pakistan had 4,291 artillery pieces in the same year. In contrast to Pakistan, India has decreased the quantity of artillery pieces to 9,684 in 2017. India has a competitive edge of 2.17:1 in this equipment area.

It is noteworthy that India and Pakistan have taken contrasting decisions at the lower echelons of combat. Pakistan possesses a total of 1,605 armored personnel carriers, while India has a significantly lower number of only 336 of these vehicles at its disposal. In contrast, India possesses 2,500 infantry fighting vehicles (IFV), while Pakistan does not possess any. While Infantry Fighting Vehicles (IFVs) may not be on par with main battle tanks, they possess adequate armor and can be effectively utilized in combat situations. India gains another advantage over Pakistan in terms of ground force equipment.

3.2.1 India's Land Capabilities

India's military prowess in the land domain is underscored by its robust army size and structure. With a force comprising approximately 1.2 million troops (Military Balance, 2018), India maintains a formidable ground presence. This strength is further exemplified by its mechanized forces, characterized by a diverse array of tanks and armored vehicles. Notably, India's modernization efforts have led to the incorporation of advanced main battle tanks such as the T-90 and the domestically developed Arjun, positioning India with a quantitative advantage over its regional counterpart (Bluth & Lee, 2019). Additionally, India's artillery capability, while experiencing a reduction in numbers in recent years, remains formidable, with an emphasis on quality, particularly evident in the deployment of self-propelled artillery (Bluth & Lee, 2019). The Indian military also boasts a sophisticated array of missile systems, further augmenting its land-based military capabilities.

Integral to India's land-based strategic calculus is its robust artillery capability, albeit witnessing a recent reduction in numbers. Despite this, India's emphasis on quality remains palpable, particularly evidenced by the deployment of advanced self-propelled artillery systems. This commitment to technological advancement underscores India's pursuit of qualitative superiority in the field of land-based warfare (Bluth & Lee, 2019). Furthermore, India's arsenal is bolstered by a sophisticated array of missile systems, augmenting its land-based military capabilities and enhancing its strategic reach across diverse operational theaters.

3.2.2 Mechanized Forces (Tanks, Armored Vehicles)

India's pursuit of aggressive military operations against Pakistan necessitates a comprehensive strategy encompassing modernized training, weaponry, and equipment for its ground forces. To this end, the Indian Army initiated the Future Infantry Soldier as a System (F-INSAS) program in 2005, aiming to enhance infantry capabilities.

Procurement of T-90 Tanks: Rapid Maneuver's:

The T-90 Main Battle Tank (MBT) holds a critical position in the Indian Army's arsenal, serving as the cornerstone of its offensive capabilities. With approximately 124 domestically produced Arjun tanks, 1,950 T-72 tanks, and 900 T-90 tanks, the Indian Army possesses a varied fleet, with the T-90 representing a significant portion (Kapur, 2009). Notably, the T-90 tanks have undergone upgrades to enhance their night vision capabilities, bolstering their effectiveness in combat situations (Narang & Ladwig, 2017).

In a bid to further reinforce its offensive prowess, the Indian Army has initiated the acquisition of 464 T-90 MBTs from Russia, a procurement valued at US$2 billion (Chauhan, 2015). These tanks are poised to significantly augment the Army's offensive capabilities, providing a potent combination of firepower and versatility. Currently, the Indian Army deploys 18 regiments of T-90 MBTs, strategically positioning them in the Punjab and Rajasthan sectors for operations specific to Pakistan (Saksena, 2017).

Looking ahead, India aims to modernize its tank fleet by replacing aging assets with 35 T-90S tank regiments by the year 2020 (Programmers immediately, 2015). Equipped with a formidable 125 mm gun capable of firing various types of ammunition, including Armor Piercing Discarding Sabot (APDS) and High-Explosive Anti-Tank (HEAT) rounds, the T-90 boasts a lethal arsenal (Saksena, 2017). Moreover, its integration of anti-tank guided missiles further enhances its combat capabilities, enabling precise targeting with rapid response times (Saksena, 2017).

3.2.3 Artillery Systems

The first component involved the induction of 65,000 7.62 mm rifles for special operations and close combat scenarios (Saksena, 2017). The second component aimed at equipping infantry

soldiers with Network-Centric Warfare (NCW) capabilities to enhance coordination between soldiers and commanders, crucial for effective limited warfare in South Asia.

M777A2/LW155 Ultralight Howitzer

The Indian Army has initiated rapid efforts to develop artillery guns characterized by long-range capabilities, enhanced mobility, and formidable firepower. In pursuit of this objective, India has entered a significant deal worth US$737 million with the United States for the procurement of advanced M777A2/LW155 ultralight howitzers, aimed at bolstering firepower along the Line of Control (LoC) (Chabba, 2016). These ultralight howitzers are engineered to deliver five rounds within two minutes, with a firing range of 30 km, thereby offering a potent offensive capability (Chabba, 2016). Over the next three years, India is scheduled to receive deliveries of these cutting-edge artillery systems, marking a crucial step forward in its military modernization efforts (Chabba, 2016). This collaboration holds the promise of revitalizing India's indigenous defense industry while significantly enhancing its defensive capabilities along the border.

Dhanush 155 mm Artillery

India has effectively created a domestic 155 mm/45 caliber artillery gun called 'Dhanush,' which possesses improved precision and the ability to target great distances (Singh, 2016). The Dhanush artillery gun, which is equipped with advanced electrical and computational technologies, has successfully met rigorous technical standards, as confirmed by former Indian Defense Minister Manohar Parrikar (Singh, 2016). The induction of Dhanush, with a shooting range of around 38 km, surpasses the range of the existing Bofors cannons, which is 27 km. This indicates a substantial enhancement to India's outdated artillery capabilities (Singh, 2016). The deployment of this sophisticated weaponry presents a significant obstacle for Pakistani soldiers stationed along the Line of Control (LoC) or the international border.

Advanced Towed Artillery Gun System (ATAGS)

The Indian defense Research and Development Organization (DRDO) is currently developing an upgraded version of the Dhanush artillery, known as the Advanced Towed Artillery Gun System (ATAGS). This new version would have a caliber of 155 mm/52 (Singh, 2016). The ATAGS is anticipated to be fully operational by 2019. It offers an extended range, lightweight design, and sophisticated electrical systems. These features are specifically designed for use in

challenging mountainous and rugged terrains, which are commonly found along the Line of Control (Singh, 2016). The Indian Army will greatly enhance its firepower and offensive capabilities with the addition of these state-of-the-art artillery systems, which can be transported by heavy-lift helicopters and were obtained from the United States.

K9-Vajra 155 mm/52 Artillery Guns

The Indian Army is acquiring K9 Vajra 155 mm/52 caliber artillery guns from South Korea through a contract of US$720 million (Singh, 2016). The K9 Vajra artillery systems have a shooting range of about 40 kilometers. These weapons are strategically positioned to offer vital assistance to Indian mechanized forces and provide close fire support during offensive operations against Pakistan (Singh, 2016). To effectively respond to these developments, Pakistan should procure long-range artillery cannons with enhanced firepower and maneuverability, in addition to acquiring Weapon Locating Radars for the purpose of detecting and engaging Indian artillery positions along the Line of Control (LoC) or the international border.

3.2.4 Missile Systems (Procurement of Long-Range Air Defense Systems)

Acquisition of s-400

The S-400, classified as a Long-Range Air Defense System (LR-ADS), poses a significant threat to enemy aircraft, Unmanned Aerial Vehicles (UAVs), and missiles. In 2016, India and Russia entered a deal for the procurement of the S-400, a move that is anticipated to create a strategic imbalance in South Asia (Hindu, 2016). This air defense system can engage up to 36 targets simultaneously, providing the Indian military with the capability to detect and neutralize Pakistani aircraft, missiles, or drones at distances of approximately 600 km and 400 km, respectively (Economic Times, 2016).

According to retired Lieutenant General Zahid Latif Mirza, the S-400 represents a game-changing development, necessitating Pakistani policymakers to devise an appropriate response strategy (Interview, 2018). With attributes akin to High to Medium Air Defense (HIMAD) systems, the S-400 possesses the capability to intercept and neutralize threats within Pakistani airspace, encompassing aircraft, missiles, and UAVs (Samanta, 2016). Deployed to safeguard critical civil and military installations, major urban centers, missile sites, nuclear facilities, and command and control centers, the S-400 presents an imposing challenge to airborne threats, with its missiles

capable of reaching speeds of 17,000 km/h (Interview, 2018).

The induction of the S-400 signals India's enhanced control over Pakistani airspace, ensuring comprehensive surveillance and timely countermeasures against any airborne threats (Economic Times, 2016).

Barak-8:

Since 2003, the Indian military has relied on the Barak-1 air defense system to safeguard against short-range aircraft and missiles (Inbar & Ningthoujam, 2011). In 2017, a significant step was taken with the signing of a US$2 billion contract between the Defense Research and Development Organization (DRDO) and Israeli Aerospace Industries, aimed at equipping the Indian military with the Barak-8 air defense system (Times Now, 2017). Under this agreement, the Indian Army is set to receive one regiment comprising sixteen launchers and 560 missiles, with plans to integrate Barak-8 missiles onto the domestically manufactured aircraft carrier INS Vikrant. Efforts are also underway to outfit nine squadrons of the Indian Air Force (IAF) with the Barak-8 system (Times Now, 2017). Offering a warhead capacity of approximately 60 kg and reaching speeds of Mach-2 at ranges between 70 and 100 km, the Barak-8 is a sophisticated air defense system designed to establish a protective barrier around vital assets, effectively neutralizing aerial threats with heightened speed, precision, and accuracy (Ramsey, 2016).

Modernization of the Indian Air Force:

Ranked as the fourth largest air force globally after the US, Russia, and China, the Indian Air Force (IAF) boasts a manpower of over 170,000 personnel and operates from 60 airbases across India (Global Security, 2017). Presently comprising 33 squadrons, the IAF aims to bolster its air superiority capabilities vis-à-vis Pakistan by expanding its squadron count to 42, a goal necessitating the addition of more than 400 aircraft in the future (Hindustan Times, 2016). At present, the IAF boasts an active fleet consisting of 806 fighters, 82 special mission aircraft, 7 refueling tankers, 232 transport aircraft, 652 helicopters, and 325 training aircraft (Global Security, 2017).

3.2.5 Pakistan's Land Capabilities

Pakistan's army is one of the largest in the world, with many soldiers and a strong organizational structure. Pakistan has around 560,000 active soldiers and about 500,000 reserve soldiers who can be called up during conflicts. It also has paramilitary forces, like the Rangers and the Frontier Corps, that are important for internal security and border management. The Pakistan Army is organized into key parts for various military operations. It has five operational corps, each responsible for specific areas and is usually made up of two to three divisions. Each division consists of several brigades, including infantry, armored units, artillery, and support units. The army's backbone consists of infantry regiments that specialize in different types of warfare, like mountains, mechanization, and light infantry. The Armored Corps has main battle tank units with tanks such as the Al-Khalid and T-80UD, which support infantry and are vital for mobile warfare. The Pakistan Army has various artillery systems, including towed and self-propelled guns, and multiple rocket launchers like the A-100 and M-1975. The Engineer Corps builds defenses and clears obstacles on the battlefield, while the Signal Corps manages communications and technology to support command and control during operations (Hans M. Kristensen, 2023).

Mechanized Forces (Tanks, Armored Vehicles)

Pakistan's mechanized forces are vital for its military, offering options for both offense and defense. The country has a mix of locally made and imported tanks and armored vehicles to meet its strategic needs and respond to regional security challenges.

Al-Khalid Tank

The Al-Khalid tank is a main battle tank developed by Pakistan in collaboration with China. The Al-Khalid tank is based on the Chinese Type 85 tank design and was developed to meet Pakistan's specific requirements for modern armored warfare. The tank is produced in Pakistan, with significant input from the Heavy Industries Taxila (HIT) factory. The Al-Khalid is equipped with a 125mm smoothbore gun capable of firing a variety of ammunition, including armor-piercing and high-explosive rounds. It also has a 7.62mm co-axial machine gun and a 12.7mm anti-aircraft machine gun. The tank features composite armor with additional explosive reactive armor (ERA) to enhance its protection against anti-tank weapons.

The Al-Khalid tank is powered by a turbocharged diesel engine, allowing for good mobility

and speed on different terrains. It includes advanced fire control systems, night vision capabilities, and digital communication systems, improving its effectiveness on the battlefield. The Al-Khalid tank is designed for both offensive and defensive operations and can operate effectively in various combat environments, including urban and mountainous terrains. It has been integrated into the Pakistan Army and has participated in various military exercises, showcasing its capabilities. Powered by a 1,200-horsepower engine, allowing for good mobility and maneuverability on the battlefield. Approximately 600 units are in service, with plans for further production (Jamal, 2020).

T-80UD

The T-80UD and Al-Khalid tank are two distinct models of main battle tanks used by the Pakistan Army, each with its own features and capabilities. The T-80UD is a Ukrainian version of the T-80 tank, which was originally designed in the Soviet Union. The "UD" stands for "Ukrainian Diesel. Pakistan acquired T-80UD tanks from Ukraine in the 1990s to enhance its armored capabilities. The T-80UD is equipped with a 125mm smoothbore gun, allowing it to fire various types of ammunition, including anti-tank guided missiles (ATGMs). It also has a co-axial 7.62mm machine gun and a 12.7mm anti-aircraft machine gun. The tank features composite armor along with explosive reactive armor (ERA) to protect against anti-tank munitions. Powered by a 1,000 hp turbocharged diesel engine, the T-80UD has excellent mobility and can operate in diverse terrains. The tank includes advanced fire control systems, night vision capabilities, and a laser rangefinder, enhancing its combat effectiveness. Also armed with a 125mm smoothbore gun, like the Al-Khalid. Around 350 units are in service (Network, 2021).

Artillery Systems

Pakistan's artillery systems are a vital component of its military capabilities, providing both indirect fire support and enhancing ground combat operations. The artillery forces are designed to deliver firepower on the battlefield, support infantry and armored units, and deter potential adversaries.

M-114 Howitzer

The M-114 is a 155mm towed howitzer, originally designed in the United States. It has been part of Pakistan's artillery inventory since the 1970s. Approximately 14–18 kilometers, depending on the type of ammunition used. Requires a towing vehicle for transport, typically towed by 5-ton

trucks. The M114 howitzer was developed in the early 1940s and officially entered service with the U.S. Army in 1943 during World War II. It was designed to provide indirect fire support for ground troops and replace older artillery pieces. The M114 is classified as a 155mm howitzer, which refers to its caliber and type of ammunition. The M114 has a caliber of 155mm, allowing it to fire a range of ammunition, including high-explosive (HE) shells, smoke rounds, and illumination rounds. The maximum range of the M114 is approximately 14,000 meters (about 15,400 yards) when using standard HE ammunitions. With rocket-assisted projectiles, the range can extend beyond 20,000 meters (over 21,000 yards). The M114 can achieve a sustained firing rate of about 3 rounds per minute, with a maximum rate of fire of around 6 to 8 rounds per minute for short periods. The howitzer is towed by vehicles, typically a truck or a prime mover, allowing for mobility on the battlefield. It can also be transported by air or sea, making it versatile for different operational environments. The M114 typically requires a crew of 8 to 10 soldiers for operation, including positions for the gun commander, section chief, gunners, and ammunition handlers. The M114 howitzer's ability to fire a variety of ammunition types and its relatively long range made it an effective artillery piece for both offensive and defensive operations. Although it was eventually replaced by more advanced artillery systems, such as the M198 and M777 howitzers, many M114s were upgraded with modern technology, extending their service life in some countries. The M114 was exported to numerous nations, contributing to its status as one of the more widely used artillery systems of its time (Bukhari, 2023).

FH-70 Howitzer

The FH-70 is a towed howitzer developed as a joint project between Germany, Italy, and the United Kingdom in the 1970s. It is known for its advanced design and capabilities, providing artillery support to ground forces. The FH-70 was developed in the late 1960s and early 1970s in response to the need for a modern 155mm towed artillery piece capable of delivering accurate and powerful fire support. It officially entered service in the 1970s. The FH-70 is classified as a 155mm howitzer and is designed to meet NATO standards, making it compatible with other NATO artillery systems. The FH-70 has a caliber of 155mm, allowing it to fire a variety of ammunition types, including high-explosive (HE) rounds, smoke shells, illumination rounds, and precision-guided munitions. The FH-70 can achieve a maximum range of approximately 24,000 meters with standard ammunition and up to 30,000 meters when using rocket-assisted projectiles. The FH-70 has a

sustained firing rate of about 3 rounds per minute and can achieve a maximum rate of fire of around 6 to 8 rounds per minute for short periods. The FH-70's ability to fire a wide range of ammunition types and its long range make it an asset for providing indirect fire support in various combat situations. Its design incorporates modern features, such as an automated loading system and advanced fire control, reflecting the technological advancements of its time. Although it is gradually being replaced by more advanced systems, the FH-70 remains in service in some countries and has influenced the design of subsequent artillery systems

The M-109 is a self-propelled 155mm howitzer that provides mobility and firepower. Pakistan has acquired various variants of this artillery system. Approximately 24 kilometers, with extended-range projectiles capable of exceeding 30 kilometers. Mounted on a tracked chassis, allowing for quick deployment and repositioning. The SH-15 is a modern 155mm self-propelled howitzer developed in China, which Pakistan is integrating into its artillery. It can fire shells up to 40 kilometers with rocket-assisted rounds and feature an automated loading system for faster firing. The A-100 is a multiple launch rocket system designed for quick, sustained indirect fire on enemy targets. It has a caliber of 300mm and can fire rockets with a range of 30 to 100 kilometers. Its truck chassis allows for rapid deployment. The Smirch is a Russian-made multiple launch rocket system acquired by Pakistan to enhance its long-range firepower. It has a 300mm caliber, a range of up to 70 kilometers with standard rockets, and up to 90 kilometers with extended-range munitions. The system is towed by heavy trucks for flexible positioning on the battlefield (Hayder, 2022).

Missile Systems

Pakistan's missile systems play a crucial role in its defense strategy, serving as a deterrent against potential adversaries, particularly India. The country has developed a range of missile systems that cover various ranges and capabilities, including tactical, operational, and strategic roles.

Nasr (Hatf-9)

The Nasr, also known as Hatf-9, is a tactical ballistic missile developed by Pakistan. The Nasr missile was developed by the National Development Complex (NDC) of Pakistan. It was first tested in 2011 and is part of Pakistan's strategy to maintain a credible deterrent against regional threats, particularly from India. Type, Tactical ballistic missile Caliber, approximately 60-70 km

Range, up to 60 kilometers (about 37 miles) Payload, Capable of carrying both conventional high-explosive and tactical nuclear warheads, Guidance, Equipped with advanced systems for better accuracy. launched from mobile platforms for quick deployment. Strengthens Pakistan's deterrent strategy against India and enables tactical engagements. Affects regional security dynamics and influences the strategic choices of neighboring countries (Chin, 2019).

Ghaznavi (Hatf-3)

The Ghaznavi, also known as Hatf-3, is a short-range ballistic missile developed by Pakistan. The Ghaznavi missile was developed by the National Development Complex (NDC) and was first tested in 2004. It is named after the historical figure Mahmud of Ghazni and is part of Pakistan's efforts to enhance its strategic deterrence capabilities. It is Short-range ballistic missile, and Approximately 9 inches (around 230 mm). The Ghaznavi has a range of about 290 kilometers (approximately 180 miles), making it effective for targeting enemy positions within this distance. It can carry various types of warheads, including conventional high-explosive warheads and tactical nuclear warheads. The Ghaznavi is designed for launching mobile platforms, allowing for quick deployment and repositioning. It can be launched rapidly, enabling timely responses to emerging threats. The development of the Ghaznavi missile contributes to Pakistan's strategic deterrence against perceived threats, especially from India. Its range allows for targeting key military installations and infrastructure. The introduction of the Ghaznavi missile impacts the security dynamics in South Asia, influencing the military strategies of neighboring countries (Dahlgren, 2021).

Shaheen-I (Hatf-4)

The Shaheen-I, also known as Hatf-4, is a medium-range ballistic missile developed by Pakistan. The Shaheen-I was developed by the National Development Complex (NDC) and was first tested in 1999. It is part of Pakistan's strategic missile program and serves as a critical component of its deterrent capabilities. Medium-range ballistic missile type and Approximately caliber 1,000 mm (1 meter). The Shaheen-I has a range of about 750 kilometers (approximately 466 miles), allowing it to target key installations and cities within this distance. The Shaheen-I is designed for launch from mobile platforms, providing flexibility in deployment and repositioning on the battlefield. The missile can be launched quickly, enabling timely responses to threats. It can

carry both conventional and nuclear warheads, making it suitable for various military applications. The development of the Shaheen-I missile enhances Pakistan's deterrence strategy, particularly against India. Its range allows Pakistan to reach important military and urban targets in India (Dahlgren, Pakistan Test Fires Shaheen-1 SRBM, 2019).

Abdali (Hatf-2)

The Abdali missile, also known as Hatf-2, is a short-range ballistic missile developed by Pakistan. The Abdali missile was developed by the National Development Complex (NDC) and was first tested in 2002. Named after the Afghan king Ahmad Shah Durrani (often referred to as Abdali), the missile represents Pakistan's efforts to enhance its strategic deterrence capabilities against regional threats, particularly from India. Short-range ballistic missiles. The Abdali has a range of about 200 kilometers (approximately 124 miles), making it suitable for striking targets within this distance. This range allows it to engage key military installations and urban centers in India. The Abdali missile is designed for launch from mobile platforms, which enables rapid deployment and repositioning, making it harder for enemies to detect and target the launch sites. The missile can be launched quickly, allowing Pakistan to respond swiftly to potential threats. The development of the Abdali missile is crucial for Pakistan’s deterrence strategy against India. Its short range allows for quick responses to threats and the ability to strike at critical targets, thereby enhancing Pakistan's defense posture (Kristensen, 2021).

Shaheen-II (Hatf-6)

The Shaheen-II, also known as Hatf-6, is a significant medium-range ballistic missile developed by Pakistan. The Shaheen-II missile was developed by the National Development Complex (NDC) and was first tested in 2004. It represents a significant advancement in Pakistan’s missile technology and is designed to enhance the country’s strategic deterrence capabilities against regional threats, particularly from India. Medium-range ballistic missiles weigh 23,600 kg, approximately 1,400 mm (1.4 meters). The Shaheen-II has a range of about 2500 kilometers (approximately 932 miles), allowing it to target major cities and military installations across a wide area, including deep into Indian territory. The Shaheen-II can be launched from mobile platforms, providing it with strategic mobility and making it difficult for adversaries to detect and target launch sites. The missile can be launched rapidly, allowing for timely responses to threats and enhancing its

effectiveness in conflict scenarios. The Shaheen-II enhances Pakistan's deterrence posture against India, as its range and payload capabilities allow it to engage critical military and infrastructure targets, thereby serving as a counterbalance to India’s strategic assets (Dahlgren, Pakistan Test Fires Shaheen 2 Missile, 2019).

Comparative Analysis

In conducting a comparative analysis of India and Pakistan's land capabilities, several factors come into play. While India maintains a numerical and technological advantage, Pakistan's strategic deployment strategies and terrain considerations serve to mitigate India's superiority (Ladwig, 2007/08). Moreover, historical performance and ongoing modernization efforts, as evidenced by Pakistan's adoption of the "new concept of war fighting," suggest a concerted effort to counterbalance India's conventional dominance (Bluth & Lee, 2019). This highlights the dynamic nature of the conventional military balance in the region and underscores the importance of comprehensive analysis in assessing strategic capabilities.

- Numerical strength and technological advancements
- Deployment strategies and readiness
- Historical performance and modernization efforts

3.2.6 Army Aviation: *Close Air Support*

Army Aviation is the part of a country's military that uses helicopters and other aircraft to assist ground forces during various operations. It is essential for improving the army's ability to operate by providing movement, logistical help, reconnaissance, and direct fire support. These helicopters are armed for close air support and can target enemy ground forces, providing crucial firepower. Examples include the Apache and the Mi-28. Helicopters help gather intelligence about enemy positions and movements, aiding in the planning and execution of ground missions. Pakistan Army Aviation supports ground troops with helicopters and fixed-wing aircraft, enhancing the army's capabilities in combat, logistics, reconnaissance, and medical evacuation. The Pakistan Army employs AH-1 Cobra and Mil Mi-24 helicopters for close air support, using advanced weapons to strike enemy targets. They also conduct armed reconnaissance to gather intelligence for ground operations. Army Aviation units speed up troop movement and improve response time, while helicopters are used for delivering supplies and equipment, especially in tough terrains.

Helicopters are essential for fast medical evacuations and improving survival rates. They also conduct aerial reconnaissance with cameras and sensors to monitor enemy movements and terrain. Army Aviation boosts Pakistan's military strength and deters regional threats, while providing fast response and support in counter-terrorism operations.

Pakistan Army Aviation mainly uses attack helicopters like the AH-1 Cobra and Mil Mi-24 for close air support, ensuring quick and effective firepower for ground troops. Pakistan uses CH-47 Chinook helicopters for troop transport and logistics, prioritizing rapid deployment and support in difficult terrains. Pakistan relies on helicopters for reconnaissance but is also developing advanced UAVs for surveillance.

AH-1 Cobra

The AH-1 Cobra is a twin-engine attack helicopter developed by Bell Helicopter in the 1960s. It was originally designed for the United States Army as a dedicated attack platform and has since been widely used in various conflicts around the world. The AH-1 Cobra has a slender fuselage, which enhances speed and maneuverability. It features a tandem cockpit, where the pilot and co-pilot gunner sit one behind the other. Typically powered by two turbo-shaft engines, providing the helicopter with high speed and agility. The engines are located on the sides of the helicopter, contributing to its narrow profile. Led to the development of the AH-1W "Super Cobra" and the AH-1Z "Viper" for the U.S. Marine Corps, reflecting upgrades in weaponry, targeting, and survivability. Slim, tandem-seat design to reduce the target profile; the gunner sits in the front seat, while the pilot is at the rear. Equipped with a 20mm cannon, rockets, and missiles (like TOW anti-tank missiles), allowing versatile attack capability against both infantry and armored targets. Powered by twin engines, which improved reliability and performance compared to single-engine models. The AH-1 could reach speeds of up to 220 km/h (137 mph) and had a range of approximately 570 km (354 miles).

The Indian Army Aviation Corps (AAC) is the air arm of the Indian Army, responsible for aerial combat support, reconnaissance, surveillance, and logistical operations for ground troops. Established in 1986, the AAC has evolved significantly and plays a crucial role in supporting various army operations across India's diverse terrains, including mountainous, jungle, and desert regions. The AAC provides direct support to the Indian Army, enhancing flexibility and rapid

response capabilities in tactical and logistical operations. Operates under the control of the Directorate General of Army Aviation, which plans and oversees missions, training, and acquisitions. Provides critical aerial intelligence on enemy positions, movements, and terrain, particularly in high-altitude areas and border zones. Engages in casualty evacuation (CASEVAC), resupply of forward bases, and troop transportation, especially in remote or difficult-to-reach areas. India has increased its focus on indigenous helicopters, like the HAL Dhruv and the LCH, to reduce dependency on foreign platforms. Integration of night-flying capabilities, advanced avionics, and surveillance equipment to improve operational efficiency (Kulkarni, 2020).

3.3 Air Domain

Aerial superiority plays a crucial role in modern warfare, serving as either the primary means of projecting power or assisting in a traditional ground offensive aimed at occupying land. India would need to confront the Pakistani air force in any probable military operation instead of defeating it on the ground, unless India was to launch a surprise attack on Pakistan with the intention of splitting Pakistani territory and annihilating the Pakistani state. To effectively provide close combat support, the Indian air force must either attain air superiority or face the challenge of dealing with the Pakistani air force.

When considering the overall abilities, it is evident that Pakistan's air force is far inferior to those of India. In 2017, India possessed a cumulative of 845 combat aircraft, whereas Pakistan had 425. At a macro level, this implies that India enjoys a 1.98 to 1 edge. To comprehend the significance of this disparity, it is necessary to examine the caliber of high-performance combat aircraft (such as fourth-generation or even more advanced models). In 2017, the Indian Air Force possessed a total of 327 high-performance fighter aircraft in its fleet. This included 250 Su-30 MkI 'Flankers', 62 MiG-29 'Fulcrums', and 50 Mirage-2000. On the other hand, the Pakistan Air Force possesses a total of 76 F-16 aircraft of different variants, along with 50 JF-17 aircraft. The JF-17 is a fourth-generation aircraft that is collaboratively manufactured by Pakistan and China. According to the Military Balance 2018, the Indian Air Force has a superiority ratio of 2.6:1 in terms of modern aircraft in 2017.

3.3.1 India's Air Capabilities

The Indian Air Force (IAF) is the fourth largest air force in the world, following the United

States, Russia, and China. It has a total of over 170,000 troops and operates from 60 airbases located throughout India (Hindustan Times, 2016). The Indian Air Force (IAF) now consists of 33 squadrons and has the objective of strengthening its air dominance over Pakistan. To achieve this goal, it aspires to hold a total of 42 squadrons. To accomplish this goal, the Indian Air Force (IAF) intends to integrate around 400 additional aircraft into its existing inventory (Hindustan Times, 2016).

RADAR NETWORK

The Indian Air Force – National Technical Research Organization operates four radar types as part of its early warning shield and Ballistic Missile Defense (BMD) network. These include the EL/M 2080, known as Green Pine; the EL/M 2090 Terra Radar System, with both a long-range and long early warning system; and the Thales Master-A fire control radar.

ELM-2080 Green Pine Radar (Long-Range Tracking Radar)

Developed by Israeli Aerospace Industries subsidiary Elta, the ELM-2080 Green Pine radar serves primarily with the Israeli Arrow missile defense system. With a range of approximately 500 kilometers, India procured two units directly from Israel and built two others domestically under license.

Long-Range Tracking Radar Deployment:

1. Konark, Odisha: Monitoring missile tests (Coordinates: 19°51’14.26″N 85°58’9.35″E)
2. Bangalore, Defense Research and Development Organization facility (Coordinates: 13°11’41.06″N 78°10’25.56″E)
3. Delhi, part of BMD (Coordinates: 28° 5’49.42″N 76°55’34.51″E)
4. Bangalore, stored at DRDO radar testing facility (Coordinates: 13°11’56.68″N 78°10’41.78″E)

ELM-2090 Terra Radar System (Very Long-Range Tracking Radar)

Developed by Israeli Aerospace Industries subsidiary Elta, the ELM-2090 Terra system is a strategic Early Warning dual-band radar system. It comprises the ELM-2090U Ultra and the ELM-2090S Spectra, functioning together for target detection and classification.

ELM-2090 Terra Deployment:

1. Bhopal: Early warning system (Coordinates: 23°24’46.89″N 77°29’23.20″E)

2. Udaipur: Early warning system (Coordinates: 24°34’49.82″N 73°33’18.38″E)

ELM-2090S Spectra Radar System (Long Range Early Warning Radar)

Another system from Israeli Aerospace Industries, the ELM-2090S Spectra radar system is a highly accurate search and track radar designed for long-range detection of ballistic missiles, air breathing targets, and satellites.

EL/M 2090S Spectra Deployment: Bangalore, Defense Research and Development Organization radar testing facility (Coordinates: 13°11’56.68″N 78°10’41.78″E)

Thales Raytheon MASTER-A (Multifunction Fire Control Radar)

Part of the Indian Ballistic Missile Defense program in cooperation with Thales of France, the Thales Raytheon Master-A is a Multifunction Fire Control Radar with a range of approximately 350 kilometers.

Thales Master-A Deployment:

1. Delhi, part of BMD (Coordinates: 28°33’55.62″N 76°51’52.95″E)
2. Bangalore, Defense Research and Development Organization radar testing facility (Coordinates: 13° 7’21.48″N 77°33’45.41″E)

Under BMD Phase-I, the Indian Air Force aims to protect the National Capital Region, deploying rada1.rs, Mission Control Centers, and Launch Control Centers accordingly. Multiple systems have been installed and tested across various sites, contributing to the early warning and interception capabilities of India's air defense infrastructure.

3.4 Fighter Jets and Multirole Aircraft

Acquisition of SU-30 MKI Aircraft: Close Air Support

The Indian Air Force (IAF) mainly depends on its versatile SU-30MKI aircraft, which can effectively deploy a range of warheads for different missions. At present, the Indian Air Force (IAF) possesses a fleet of more than 200 SU-30MKI aircraft and has made agreements with Russian defense companies to acquire an extra 53 aircraft (Flight Global, 2017). The SU-30 is a highly adaptable aircraft that is equipped with state-of-the-art avionics, powerful weaponry, and remarkable maneuvering capabilities. The aircraft is equipped with a 30mm Gsh-30-1 gun, which has 150 rounds of ammo. Additionally, it is armed with BrahMos cruise missiles. This combination

of weapons allows the aircraft to excel in air superiority missions, with a remarkable effective range of 3,000 km (Airforce-Technology). This aircraft is an essential element of the Indian military's offensive strategy.

***Induction of Dassault Rafael Aircraft*:**

India has also commenced the acquisition of 36 Rafael aircraft from France, with a value of US$8.7 billion (Military Factory, 2017). The Rafael aircraft is equipped with the ability to transport different types of explosive projectiles across 1,850 kilometers and achieve a top speed of 1,915 kilometers per hour. The weapon is armed with deadly projectiles capable of accurately striking targets within a 10-meter range. The vehicle is outfitted with a 30mm Gsh-30-1 cannon, which is accompanied by 150 rounds of ammo, as well as BrahMos cruise missiles. The SU-30 is a high-performance aircraft designed for air superiority, boasting an impressive operational range of 3,000 km. This aircraft will play a crucial role in the Indian military's offensive strategy.

The Rafael is equipped with a dual gun pod and a Nexteer 30 mm DEFA 791B cannon that has a fire rate of 2,500 rounds per minute. The aircraft's advanced electronic warfare capabilities, such as laser identification pods for accurate air-to-ground targeting and the ability to track up to eight targets simultaneously, significantly improve its operational effectiveness (Airforce-Technology). The introduction of the Rafael aircraft enhances India's ability to carry out both short- and long-range missions against Pakistan, strengthening its strategic versatility and offensive potential.

3.5 Transport and Logistics Capabilities of the Indian Military

3.5.1 C-130J Hercules Transport Aircraft:

The Indian Military procured the technologically sophisticated C-130J Hercules transport aircraft from the United States to enhance its strategic capabilities in South Asia (Cohen & Dasgupta, 2009, p. 24). Presently, the Indian military possesses a fleet of five C-130J Hercules aircraft and has intentions to acquire six more in the next years (Defense World, 2016). The transport aircraft is highly suitable for providing logistical support, conducting special combat operations in challenging locations, and carrying out rescue missions in rough terrains (Lockheed Martin, 2017). The C-130J Hercules can hover at altitudes of up to 26,000 ft and transport payloads weighing up to 20,227 kg of logistics, munitions, or supplies. It has a maximum speed of 410 mph

and can operate at distances of up to 1,956 miles (Forecast International, 2015). Acquiring C-130 aircraft will greatly improve the Indian Air Force's (IAF) ability to reach and carry out missions efficiently in challenging weather circumstances and without being limited by time restrictions.

3.5.2 C-17 Globemaster-III Aircraft:

The Indian Air Force (IAF) obtained C-17 Globemaster-III aircraft to enhance its capabilities for transportation and logistics (Pant, 2016, p. 85). The Indian Air Force (IAF) procured ten Globemaster aircraft from Boeing, a US defense firm, for a total of US$4.1 billion. This acquisition was intended to enhance the IAF's capacity to provide crucial logistics, food, supplies, ammunition, and reinforcements, particularly in high-altitude or difficult terrains during conflicts (Airforce-Technology, 2017). The C-17 Globemaster can transport a maximum of 80 tons of logistics and equipment, so significantly improving the logistical capabilities of the Indian military and its ability to provide support for operations in diverse and difficult environments. The C-17 aircraft possesses the capacity to transport 80 metric tons of logistical supplies, in addition to accommodating 150 fully equipped soldiers. Acquiring C-17 aircraft would enhance India's military transport and logistics capabilities and provide additional offensive power for conducting military operations over the Line of Control (LoC) or deep within Pakistan.

3.5.3 Chinook Heavy Lift Multi-Purpose Helicopters:

India has signed a contract with the United States to purchase fifteen advanced Chinook helicopters, which are capable of heavy lifting and have multiple uses. The total value of the contract is US$833 million (Gupta & Singh, 2015). The Chinooks are highly adaptable helicopters that are primarily employed in a wide range of activities, including specialized missions, logistics transportation, and the delivery of ammunition and supplies in any weather conditions. The introduction of Chinook helicopters will enhance the Indian military's ability to quickly transport supplies, help Special Forces, and deploy weapons in difficult environments with improved speed, agility, and efficiency. This aligns with the strategic goals set forth in the Indian armed forces' limited war doctrines. The Indian military considers these helicopters to be essential for carrying out specialized tasks. Anticipated future confrontations in the South Asian region are expected to consist of limited, intense, and fast military operations aimed at securing tactical victories and taking advantage of elements of surprise against foes.

3.5.4 Apache Attack Helicopter:

India's ability to carry out rapid and efficient military operations under a nuclear defense system is hindered by the Apache Attack Helicopter's limits in terms of speed and maneuverability. This poses issues for the execution of the Cold Start Doctrine (CSD) or proactive military policy (WikiLeaks, 2010). India has signed an agreement with the United States to purchase 22 Apache helicopters worth $2.5 billion. This move aims to strengthen India's military capabilities by increasing its agility and firepower. This helicopter plays a crucial part in implementing India's assertive military tactics. The Apache helicopter is outfitted with cutting-edge attributes such as night vision capabilities, hellfire missiles, 70 mm rockets, and an automatic cannon, making it one of the most formidable airborne vehicles worldwide. The introduction of the Apache helicopter will greatly enhance the capabilities of the Indian ground troops, allowing them to efficiently carry out high-intensity operations against Pakistan.

- Air defense systems (radars, anti-aircraft missiles)
- Technological advancements (indigenous development, acquisitions)

3.6 Pakistan's Air Capabilities

During the early decades, Pakistan acquired arms mainly from the US (for high-technology systems) and China (for low cost but efficient systems), with a small proportion contributed by France. In fact, the massive US arms aid to Pakistan in the late 1950s provided it with both the incentive to initiate the 1965 War as well as demonstrated the philosophy of high technology weapons providing a competitive advantage against India. India was, in any case, saddled at that time with obsolete systems being employed after the war in 1962. The classic case was the shooting down of four Vampire vintage aircraft by a combination of F-104 Starfighters and F-86 Sabers on the opening day of the war, forcing India to withdraw these older fighters from combat, thus, reducing the quantitative advantage that India was supposed to enjoy. A mutual defense assistance agreement signed on May 19, 1954, between the US and Pakistan was the first formal bilateral security commitment between the two countries and provided the legal basis to the US military assistance.

3.7 Air Force Size and Structure

The Pakistan Air Force (PAF) is one of the primary branches of Pakistan's armed forces and

plays a critical role in defending Pakistan's airspace, providing aerial support to ground operations, and ensuring strategic deterrence. Established in 1947 after Pakistan gained independence, the PAF has developed into a modern force with a mix of indigenous and foreign aircraft, focusing on air defense, interdiction, and close air support.

Approximately 70,000 active personnel, including pilots, ground crew, air defense units, and administrative staff. The PAF operates around 400 combat aircraft, which includes fighter jets, multi-role aircraft, transport aircraft, and special mission platforms. Its fleet size and composition have evolved with a focus on regional security, especially along its borders with India and Afghanistan. Located in Islamabad, AHQ is the central command authority overseeing operations, strategy, acquisitions, and training. It is responsible for formulating PAF policies, coordinating national defense initiatives, and guiding operational missions. PAF fighter squadrons are organized into various wings across the three commands, each consisting of different types of combat aircraft.

JF-17 Thunder: A multi-role fighter co-developed with China and produced in Pakistan, the JF-17 is a backbone of the PAF with plans to produce upgraded Block III versions.

F-16 Fighting Falcon: U.S.-made multi-role fighters used primarily for air defense, ground attack, and electronic warfare. The PAF operates both A/B and C/D models.

Mirage III and Mirage V: Older French-designed aircraft used mainly for strike and reconnaissance, though gradually being phased out.

J-10C: Recently inducted Chinese multi-role fighter with advanced avionics and radar systems, enhancing PAF's aerial capabilities. Includes the C-130 Hercules and the Ilyushin Il-78, which serve for cargo transport, troop movement, and refueling missions. Airborne Early Warning & Control (AEW&C): Includes systems like the Saab 2000 Erieye AEW&C and the Chinese ZDK-03 Karakoram Eagle to improve situational awareness, especially along borders. Unmanned Aerial Vehicles (UAVs): PAF uses UAVs for reconnaissance and surveillance, with some armed variants for targeted strikes, including locally developed drones like Burraq and Shahpar. The PAF operates a sophisticated network of radar installations and surface-to-air missile (SAM) systems, integrated with the air defense network to provide 24/7 monitoring of Pakistani airspace. Located at Risalpur, this academy is responsible for training fighter pilots, ground controllers, and technical officers. Like the U.S. Air Force's "Top Gun" school, the CCS provides advanced tactical and combat

training for PAF pilots. The PAF aims to modernize its fleet by inducting newer, more capable aircraft such as the JF-17 Block III and J-10C, with an emphasis on locally produced or co-developed systems (Chawla, 2019).

The Indian Air Force (IAF) is the air arm of the Indian Armed Forces and ranks among the world's largest and most powerful air forces. Founded in 1932, it plays a crucial role in maintaining air superiority, supporting ground operations, conducting humanitarian missions, and providing disaster relief. Its extensive modernization program focuses on acquiring cutting-edge aircraft, missiles, and advanced technology to address evolving security challenges, particularly in a region that shares borders with both Pakistan and China. Approximately 140,000 personnel, including pilots, ground staff, engineers, technicians, and administrative support. The IAF operates around 1,700 aircraft, which include fighter jets, multirole aircraft, transport aircraft, helicopters, and UAVs. It is one of the largest air forces in the world by fleet size and personnel. Located in New Delhi, AHQ is the central command, overseeing operations, strategy, acquisitions, and training. Headed by the Chief of the Air Staff (CAS), AHQ handles national security policies related to the air force (Mehra, 2009).

i. Air defense systems (radars, anti-aircraft missiles)
ii. Technological advancements (indigenous development, acquisitions)

3.8 Comparative Analysis

- Air fleet strength and technological sophistication
- Operational doctrines and air defense capabilities
- Historical performance and modernization efforts

3.9 Sea Domain

3.9.1 India's Naval Capabilities

India is rapidly enhancing its navy modernization endeavors to rectify operational deficiencies in its maritime combat capabilities. The Indian Navy has identified the Bay of Bengal, the Indian Ocean, and the Arabian Sea as its main areas of focus. To effectively manage these areas, the navy has established three naval commands in Vishakhapatnam, Kochi, and Mumbai (Indian Navy, 2017). Harsh V Pant asserts that the Indian Ocean is becoming a major area for the rising

geopolitical rivalry between China and India. Pakistan is aligning itself with China to counter balance India, as stated by Pant in 2017.

As a result, India has allocated a minimum budget of US$8 billion for the upgrading of its naval fleet (Eadie & Rees, 2016). Since 90 percent of India's trade occurs through sea channels, consecutive governments have placed a high importance on maintaining a strong navy to protect maritime interests and create superiority (Khattak, 2011). India now possesses a fleet consisting of 171 vessels, more than 250 aircraft, and 16 submarines. India is the only South Asian country that has an aircraft carrier and intends to have three carriers by 2020 to establish control in the Indian Ocean Region (Bajpaee, 2015).

Nevertheless, specialists argue that aircraft carriers may present more disadvantages than advantages in the South Asian environment. According to former Air Chief Marshal Tahir Rafique Butt, India's aircraft carriers have less importance compared to Pakistan, as Pakistan has the potential to render them ineffective when they are nearby. Butt asserts that Pakistan's armaments have the capability to effectively neutralize Indian aircraft carriers within a radius of 200 km (Butt, 2017).

3.9.2 Naval Fleets (Surface Ships, Aircraft Carriers, Submarines)

India’s surface fleet reflects a mix of indigenously built vessels and imports, focusing on versatility, long-range operations, and support roles. Additional ships are under construction as part of India’s long-term naval modernization plan. Indian Navy operates a significant fleet of surface ships designed to fulfill diverse roles, from power projection and fleet defense to anti-submarine warfare and coastal security.

The Indian Navy commands a formidable and versatile fleet of surface ships designed for a spectrum of maritime roles, including power projection, fleet defense, anti-submarine warfare, and coastal security. Among its flagship assets are two aircraft carriers: *INS Vikramaditya*, a heavily modified Russian-origin Kiev-class carrier, and *INS Vikrant*, an indigenous carrier commissioned in 2022. The destroyer fleet includes approximately nine active vessels, consisting of three Kolkata-class (Project 15A) destroyers (*INS Kolkata*, *INS Kochi*, and *INS Chennai*), two Visakhapatnam-class (Project 15B) destroyers with two additional ships currently under construction, one Rajput-

class destroyer (*INS Rana*) slated for gradual decommissioning, and three Delhi-class destroyers (*INS Delhi*, *INS Mysore*, and *INS Mumbai*).

In the frigate class, the Navy operates around 14 active vessels. These include three Shivalik-class (Project 17) frigates (*INS Shivalik*, *INS Satpura*, and *INS Sahyadri*), six Talwar-class frigates of Russian origin (including two modified variants), three Brahmaputra-class frigates (*INS Brahmaputra*, *INS Betwa*, and *INS Beas*), and two Nilgiri-class (Project 17A) frigates, with five additional ships of this class currently under construction. The corvette fleet is approximately 12 strong, comprising four Kamorta-class (Project 28) anti-submarine warfare corvettes, four Kora-class guided-missile corvettes, and four Khukri-class guided-missile corvettes.

For amphibious operations, the Navy maintains one Landing Platform Dock (LPD), *INS Jalashwa* (formerly the USS Trenton), along with approximately eight Landing Ship Tanks (LSTs) in the Magar and Shardul classes. Patrol assets include four Saryu-class offshore patrol vessels, six Sukanya-class patrol vessels, and about ten fast attack crafts. Although the Navy currently lacks dedicated mine countermeasure vessels following the decommissioning of the Pondicherry-class, plans are underway to develop a new class of MCMVs.

Overall, the Indian Navy's surface fleet includes two aircraft carriers, about nine destroyers, approximately 14 frigates, 12 corvettes, around nine amphibious vessels, and over 20 patrol and fast attack craft. This varied fleet reflects a balance of domestically constructed and imported vessels, focusing on operational versatility, extended range, and multi-role support. With ongoing construction of additional ships, the Indian Navy is advancing steadily in its long-term modernization strategy.

3.10 Maritime Strategies and Doctrines

India's maritime strategy and doctrine are designed to safeguard its extensive coastline, secure its interests in the Indian Ocean Region (IOR), and establish itself as a regional naval power. Given its geographic positioning, the Indian Navy (IN) focuses on both defensive and power projection capabilities, with strategic interests that align with national security, economic interests, and geopolitical influence in the region. Ensuring the defense of India's 7,500 km coastline, exclusive economic zone (EEZ), and island territories like the Andaman and Nicobar Islands. Protecting critical SLOCs, especially in the Indian Ocean through which a large percentage of global trade and

energy supplies pass, crucial for India's energy imports and exports. Establishing strategic influence in the Indian Ocean and beyond, extending to the Strait of Malacca, the Arabian Sea, and the western Pacific. Developing and maintaining a credible nuclear deterrent through a naval nuclear triad, including submarine-launched ballistic missiles (SLBMs). The IMD, first formalized in 2004 and updated periodically, outlines the operational principles for the Indian Navy, focusing on sea control, sea denial, and power projection. It emphasizes a layered defense of India's maritime interests, with forward presence and surveillance in critical choke points. India's nuclear triad relies significantly on its maritime component, with the Arihant-class SSBNs equipped with SLBMs like the K-4 and K-15. This capability ensures a secure second-strike option, acting as a deterrent against potential nuclear adversaries. As part of the Quadrilateral Security Dialogue (QUAD) with the U.S., Japan, and Australia, India promotes a free and open Indo-Pacific, engaging in joint exercises and cooperation to counterbalance China's assertive maritime activities. India partners with ASEAN countries for maritime cooperation and with IOR countries through mechanisms like the Indian Ocean Naval Symposium (IONS). India has signed logistics support agreements with nations like the U.S., France, and Australia, enhancing operational reach and logistical support for the Indian Navy (Pant, 2016).

Safeguarding India's territorial waters, Exclusive Economic Zone (EEZ), and island territories from external threats. Dominating the Indian Ocean, ensuring freedom of navigation, and deterring adversaries from establishing a foothold in India's strategic maritime neighborhood. Ensuring the security of Sea Lines of Communication (SLOCs), especially in the Arabian Sea, Bay of Bengal, and critical chokepoints like the Strait of Malacca, to maintain the flow of energy imports, trade, and commerce. Establishing control over critical maritime areas and denying adversaries access to strategic regions within India's sphere of influence. Employing a multi-tier defense framework to protect maritime interests, which includes surveillance, forward-deployed naval assets, and layered response mechanisms. Building a versatile fleet with aircraft carriers, submarines (nuclear and conventional), and surface ships to project power and protect SLOCs over long ranges. Investing in ISR (Intelligence, Surveillance, Reconnaissance) systems and network-centric platforms for enhanced operational effectiveness and response time (Khurana, 2009).

3.11 Naval Bases and Logistics

The Indian Navy's network of strategically placed naval bases and logistics centers across the Indian Ocean Region (IOR) underpins its blue-water capabilities, safeguarding national maritime interests and enabling extended operational reach. The Western Naval Command in Mumbai oversees key bases such as INS Shikra and INS Kunjali for air and submarine support, INS Dwarka in Gujarat for coastal defense, and the expanding Karwar Naval Base in Karnataka, a major hub for large combat vessels. The Eastern Naval Command in Visakhapatnam includes INS Virbahu, India's first submarine base, INS Kalinga for missile operations, INS Dega for air support, INS Chilka for training, and INS Baaz in the Andaman and Nicobar Islands, providing strategic oversight of the Malacca Strait. The Southern Naval Command in Kochi hosts INS Garuda (air support), INS Venduruthy (logistics), and INS Zamorin (Indian Naval Academy).

In Port Blair, the Andaman and Nicobar Command (ANC)—India's only tri-services command—oversees INS Kohassa and INS Baaz, crucial for monitoring regional chokepoints. Additional forward operating bases like INS Sardar Patel in Gujarat, INS Kardip in the Nicobar Islands, and INS Parundu in Tamil Nadu further extend India's surveillance and response capacity. India has bolstered this infrastructure with foreign logistics agreements, securing Duqm Port (Oman) for refueling in the Arabian Sea and establishing bases on Assumption Island (Seychelles) and Agalega Islands (Mauritius) for operations near East Africa. Fleet Support Units (FSUs) provide vital support to ships and submarines, enhancing endurance across the IOR. This integrated network of bases and agreements underscores India's goal of being a central maritime power and security provider in the region.

3.12 UAVs for Maritime Surveillance and Reconnaissance

India's Navy leverages a fleet of sophisticated UAVs for maritime surveillance and reconnaissance, essential for maintaining security and strategic awareness across the vast Indian Ocean Region (IOR). These UAVs extend India's surveillance reach, providing long-duration, real-time intelligence, and enabling the Navy to monitor sea lanes, detect potential threats, and conduct search and rescue missions. Among the prominent UAVs in operation is the MQ-9B Sea Guardian, an advanced, long-endurance UAV acquired from the United States. Outfitted with state-of-the-art sensors, including radar and electro-optical/infrared (EO/IR) systems, the Sea Guardian can perform continuous surveillance over extensive maritime areas, supporting anti-submarine warfare (ASW), intelligence gathering, and rapid response capabilities.

Another key UAV, the Heron, developed by Israel Aerospace Industries, offers medium-altitude, long-endurance (MALE) surveillance capabilities. The Heron is equipped with high-resolution EO/IR payloads, synthetic-aperture radar (SAR), and specialized maritime patrol systems, making it well-suited for patrolling coastal regions and extended ranges. These UAVs, integral to India's maritime security strategy, enable the Navy to maintain a constant watch over critical sea routes, bolster its anti-piracy and coastal security operations, and enhance overall maritime domain awareness. Through this growing UAV fleet, the Indian Navy reinforces its strategic position in the IOR, providing a persistent, agile, and effective surveillance solution (Singh, 2024).

3.13 Pakistan's Naval Capabilities

Pakistan's marine interests are mostly influenced by its strategic considerations. Pakistan heavily relies on maritime trade and energy transportation, and any interruption in these activities can significantly impede its progress and economic advancement. Nearly 97 percent of Pakistan's trade is conducted through its seaports. Pakistan possesses three prominent ports, including Karachi, Port Qasim, and Gwadar. To address upcoming issues, it is imperative to uphold maritime order. Pakistan considers safeguarding its coastline, territorial waters, exclusive economic zone (EEZ), and sea lines of communication (SLOCs) crucial for maintaining its maritime security. Seaborne trade is projected to have a significant increase in volume in the future.

Regrettably, as traffic increases, there is also an anticipated increase in the range and severity of dangers, including piracy, maritime terrorism, drug trafficking, gunrunning, human smuggling. Regarding the risks to Pakistan's maritime interests, the most pressing issue is the expanding Indian influence in the Indian Ocean and its escalating naval capabilities. Regrettably, there is a lack of alignment of interests for marine collaboration between India and Pakistan. The Indian Navy (IN) possesses a fleet of 55,000 personnel, 19 submarines, and 153 surface ships. These surface ships include missile destroyers, missile frigates, missile corvettes, frigates, patrol crafts, vessels, minesweepers, oil and survey tankers, training vessels, hospital ships, and other types of ships.

India possesses an aircraft carrier and maintains a substantial naval air arm. Russia has received an order for an additional aircraft carrier, while India intends to lease two Russian nuclear

submarines. By 2010, the Indian naval projection aims to possess approximately three aircraft carriers, six nuclear submarines, and many surface ships and aircraft.

Pakistan possesses the second largest fleet in the South Asian region to protect its control over the Arabian Sea, which is a part of the Indian Ocean. Following the Cold War, the Pakistan Navy (PN) saw significant changes in its mission. Particularly, after the events of 9/11, the idea of maritime. Originally, the navy's main purpose was to serve as a formidable military force, constantly ready to protect the nation's territorial seas. With these advancements, the duties of the PN have significantly multiplied to address these difficulties.

3.14 Pakistan Naval Doctrine

The Pakistan Naval Doctrine is designed to secure Pakistan's maritime interests by ensuring the defense of its coastal and sea-based assets, while also contributing to regional stability and cooperative security efforts. As part of Pakistan's Armed Forces, the Pakistan Navy is tasked with protecting the nation's Exclusive Economic Zone (EEZ), securing its sea lines of communication, and safeguarding the interests tied to its extensive maritime resources. The doctrine prioritizes a balanced, modern naval force with a focus on strategic deterrence, especially considering regional dynamics in the Indian Ocean, where naval presence is critical due to proximity to the Strait of Hormuz a vital global energy corridor. To achieve this, the Pakistan Naval Doctrine emphasizes readiness to counter both conventional and asymmetric threats. This includes addressing the risks posed by terrorism, piracy, and regional maritime disputes, as well as larger conventional threats from potential adversaries. The doctrine supports Pakistan's broader strategic policy of minimum credible deterrence by maintaining a submarine-based deterrence capability and a fleet of surface and aerial assets that can respond to a range of missions, from direct engagement to humanitarian assistance and disaster relief. Additionally, the doctrine outlines cooperation with regional navies and international alliances, recognizing that joint exercises and information sharing can enhance maritime security and collective defense mechanisms. The Pakistan Navy also invests in modern technology and training to ensure its personnel are equipped to operate effectively in a rapidly evolving security landscape, keeping in line with the doctrine's emphasis on adaptability, precision, and operational readiness (Basharat, 2018).

3.15 Naval Fleets (Surface Ships, Aircraft Carriers, Submarines)

The Pakistan Navy operates a modest yet strategically balanced fleet to ensure the defense of its maritime interests. The surface fleet includes several frigates, corvettes, fast attack craft, and various auxiliary vessels, with around 10 major surface combatants at its core. These include four Zulfiquar-class frigates, which are multi-role vessels capable of anti-air, anti-surface, and anti-submarine warfare, and are supported by several other classes of corvettes and missile boats that enhance Pakistan's coastal defense and littoral operations. The Navy continues to modernize its surface fleet with the induction of MILGEM-class corvettes from Turkey, adding versatile capabilities to Pakistan's naval inventory. In terms of submarine capabilities, the Pakistan Navy operates approximately 5 Agosta-class submarines, with some of these being retrofitted with Air Independent Propulsion (AIP) technology, enhancing their stealth and underwater endurance. The submarine fleet is expected to expand with the addition of eight Hangor-class submarines from China, a move aimed at strengthening Pakistan's underwater defense and deterrence, especially in terms of strategic depth. Pakistan does not operate an aircraft carrier, given its strategic focus on asymmetric naval capabilities and deterrence rather than power projection. However, it maintains an aerial fleet for maritime patrol, anti-submarine warfare, and reconnaissance. This fleet includes several P-3C Orion and ATR-72 aircraft, well-equipped for extended patrol missions, along with Sea King helicopters, which provide air cover and support anti-submarine operations for the surface fleet. The composition and modernization of these surface, underwater, and aerial assets collectively empower the Pakistan Navy to fulfill its defensive mandate and contribute to regional maritime security.

The Pakistan Navy’s fleet comprises various assets designed to secure the nation’s maritime boundaries and strategic interests. Currently, the Navy operates around 10 frigates, which serve as its primary surface combatants. This includes four Zulfiquar-class frigates, which are multi-role vessels capable of addressing diverse threats. The Navy is also enhancing its surface capabilities with the introduction of new MILGEM-class corvettes. In terms of submarines, the fleet includes approximately 5 Agosta-class submarines, some of which are equipped with Air Independent Propulsion (AIP) systems that extend their underwater operational capabilities. Pakistan has also planned to acquire 8 new Hangor-class submarines from China, further strengthening its strategic deterrence capabilities.

While the Pakistan Navy does not maintain a dedicated fighter aircraft wing, it utilizes a range of maritime patrol aircraft, such as the P-3C Orion and ATR-72, for anti-submarine warfare and maritime surveillance operations. The Pakistan Air Force (PAF) provides air cover over maritime zones with its fighter jets, including the JF-17 Thunder. Importantly, Pakistan does not currently possess an aircraft carrier, focusing instead on asymmetric naval capabilities and enhancing underwater deterrence to maintain a balance in regional power dynamics. This combination of frigates, submarines, and maritime patrol aircraft effectively ensures Pakistan's maritime defense while avoiding the high operational costs associated with an aircraft carrier fleet.

3.16 Pakistan UAVs Fleet for Surveillance and Reconnaissance

The Pakistan Navy has developed a robust fleet of unmanned aerial vehicles (UAVs) specifically designed for maritime surveillance and reconnaissance, significantly enhancing its operational capabilities in monitoring vast oceanic areas and securing maritime interests. Central to this fleet is the Shaheen, a medium-altitude long-endurance UAV that provides real-time intelligence, surveillance, and reconnaissance (ISR) capabilities. Equipped with advanced sensors and imaging technologies, the Shaheen can effectively monitor maritime traffic, detect potential threats, and gather critical information over expansive distances. Additionally, the Pakistan Navy employs other UAV platforms such as the Burraq, which is designed for reconnaissance missions and can operate in various environments, including coastal and offshore regions. These UAVs are capable of being launched from naval vessels and shore-based installations, providing operational flexibility and extending the reach of maritime operations.

The integration of UAVs into the Pakistan Navy's surveillance framework is crucial for enhancing maritime domain awareness, enabling the early detection of unusual activities or threats, and facilitating timely responses to emerging challenges. Furthermore, the data collected by these UAVs can be crucial for intelligence-sharing with allied forces, contributing to collaborative maritime security efforts in the region. As part of ongoing modernization efforts, the Pakistan Navy continues to explore advancements in UAV technology, ensuring that its surveillance and reconnaissance capabilities remain effective in a rapidly evolving maritime environment. Overall, the UAV fleet represents a vital component of Pakistan's maritime strategy, reinforcing the Navy's

ability to safeguard its territorial waters and maintain a secure maritime environment (Syed Eesar Mehdi, 2024).

CHAPTER 4
CONVENTIONAL ASYMMETRIES: IMPLICATIONS FOR PAKISTAN

4.1 Continuous Arms Race: *Financial Burden*

The ongoing arms race between India and Pakistan, driven by India's growing defense capabilities, imposes significant financial pressure on Pakistan. India's defense investments, including advanced systems like S-400 missiles and Rafale jets, reflect its ambition to strengthen regional power and counterbalance China. In response, Pakistan, relying on nuclear and conventional deterrence, is compelled to increase military spending to maintain strategic balance. However, Pakistan's smaller economy struggles under the weight of this defense spending, diverting resources from essential sectors like education and healthcare. The high military budget worsens Pakistan's national debt and dependence on external aid, including IMF loans and foreign military support. This defense burden limits Pakistan's ability to invest in economic growth, creating inflationary pressures and fiscal deficits, which strain its public services and development efforts. Ultimately, Pakistan's need to keep up with India's military advancements fuels an unsustainable arms race, despite the country's economic limitations, raising concerns over long-term financial stability and regional security risks. The stability between Pakistan and India is uncertain. Therefore, the South Asia region is expanding advanced military equipment. That's why this situation is creating tension and further worsening by enhancing the arms race, and implementation of assertive military strategies, irritating actions. In 2019, India's attempted surgical strike after the Pulwama attack and the cancellation of Article 370, which connected Indian-occupied Kashmir, significantly heightened conflicts between Pakistan and India. Concerns are escalating that conflicts over Kashmir, cross-border terrorism, and shared water resources could grow to a conventional or nuclear war. The expansion of militarization and escalation of nuclear weapons have largely been in response to mutual and regional security threats. The escalation of competition between United States of America and China further conflicts between China and India has become more difficult the strategic landscape and decreased the feasibility of effective reduction of the advance militarization.

China and India both side security threats have increased, which in turn, fuels Pakistan's interests over India's aspirations for regional control. The addition of advanced technologies like ballistic missile defense systems and hypersonic missiles to the militaries of Pakistan and India

leads the risk of expansion the nuclear weapons in South Asia. Recently, advanced militarization and technologies like artificial intelligence may crucially pressurize strategic stability in the South Asian region, further, Pakistan, India and rising power China examine its applications in military bases and areas, as well as command and control, surveillance, unmanned vehicles, and cyber warfare, enabling faster and more precise computing tasks. A cyber-attack or a conventional attack applying artificial intelligence could reduce the state's nuclear capabilities by damaging its second-strike response.

In 2019, India's Kudankulam reactor faced a cyber-attack that led to data theft, increasing new security threats. The escalation of advanced technologies leads to regulation problems, expanding to the militarization of artificial intelligence that leads to benefits powerful state's additionally smaller nation's trying to develop keep up. The maximum apply of AI in militarization would deepen the imbalance both side Pakistan and India, specifically because India is particularly investing in advanced technologies like AI, developing arms control harder to achieve. Pakistan and India's relationship is going to define by mistrust, hostility, and misunderstandings. There is a pressing need for arms control talks to regulate the nuclear actions of both countries. Developing nations with smaller economies rather than United States of America and China, both states could gain benefits from reduction of the weapons to lower their defensive budgets and heavily investing on energy resources. Major powers like United States of America, China and Russia are not leading to reduce the weapons in South Asia region right now. However, Masco is focused on the Ukraine war and Washington is extracting on deterring China's growing influence through security agreements like QUAD and AUKUS. First, both states Pakistan and India's governments and leaders should take strict action on the expansion of advanced militarization further both sides resume peaceful dialogues to reduce and limitation of weapons and ensure the peace and stability of South Asia (Naz, 2023).

Around one-fourth of the world population lives in the South Asia region. The South Asia region struggles with difficulties such as lack of education, poverty, and various conflicts. India and Pakistan have been in conflict for a long time. The conflict between both states like India and Pakistan could have hurt their economic progress by causing an arms race. The territory of South Asia includes seven countries and a significant number of poor people. South Asia holds 43% of the global poor and contributes just 2% to the world's GDP. The expansion of militarization in this

region outcomes from the long-standing tension between the two large nations. The escalation of the defensive budgets has deteriorated socio-economic expands in Pakistan and India, resulting in many social and economic issues and budget shortfalls.

Due to political instability, complicated ethnic and religious problems, power imbalances between both sides, governance challenges, and conflicts between both states make the South Asia region insecure and unstable. Pakistan and India states are focusing on arms production and exports, which is negatively affecting their social and economic growth. Both states are escalating their spending on powerful weapons and military expansion. Their defense spending is driven by concerns about national security threats, because states are expanding their military power that's why South Asia region has transferred disputed region. The Kashmir issue has become main source of conflict which led tension between Pakistan and India, that's why both states are escalating in a dangerous military power as well as Pakistan and India conventional and nuclear weapons states. Most countries in the region have a low ranking in the 2001 United Nations Development Program's Development Index compared to 162 countries. Human development is not developing, and both states are facing challenges in lack of the well education, good health, and nutrition. Many children, especially females, can't go to school. The region struggles with illiteracy, malnutrition, and poverty; therefore, people are facing poverty.

Due to the lack of resources, it is one of the most malnourished and deprived regions in the world, with many people not got to access proper health care, sanitation, and safe drinking water. A large amount of GDP both states are investing on advanced militarization. Both states India and Pakistan should try to develop health and education and reduce poverty, but they still face challenges in improving the quality of life for their people, further both are going to improve their military capabilities. The focus should be on assisting people instead of just production. Many children cannot go to primary level, due to lack of basic healthcare, and the gap between the rich and the poor has increased over time. Both states are heavily investing in advanced militarization rather than on better health and good education systems. Together, they show about 22% of the world's population but only generate 1.3% of global income, with around 500 million people living in poverty. Both nations are facing many social and economic challenges, with over 40% of their combined population living in poverty.

Escalation of population growth is also expanding to serious environmental issues in the region. India heavily invests on arms production specifically created threats Pakistan's security. With limited resources and tough socio-economic conditions, therefore, Pakistan invests on defense system rather than to other social services. If Pakistan decreases its military investment, it can heavily invest in other social services. Developed nations invest to improve their citizens' quality of living style. Therefore, Pakistan and India should also prioritize stability, economic welfare, and peace in their region. But Pakistan and India can get their goals due to the reduction of the militarization together. This disarmament can lead to stability and economic growth for both sides (Naz S. , 2019).

4.2. Risk of Limited War and Threat of Escalation

Limited war is a type of military conflict in which the belligerent parties do not expend all their resources or pursue destruction of the enemy. Unlike Total War, which seeks the complete submission or annihilation of an opponent, limited war is constrained by objectives, geography, rules of engagement, or resources. The aim of a limited war is often to achieve specific, limited objectives without escalating the conflict into a larger or more destructive war. The primary goal is to achieve specific, often political, aims rather than the complete subjugation of the enemy. Examples might include securing territorial gains, achieving regime change, or safeguarding economic interests. It avoids full mobilization of a nation's population or economy.

Limited Resources, Limited war involves only a portion of the country’s military and economic resources. Full-scale national mobilization, as seen in total war, is avoided to preserve the nation’s capacity or to prevent provoking a larger response from the enemy or third-party states. Geographic Restrictions: The conflict is often geographically confined. The scope of military operations may be limited to specific regions rather than encompassing the entire enemy nation. The avoidance of striking certain areas (such as civilian centers or neutral territories) is common. One of the central tenets of limited war is to avoid full-scale escalation. Military actions and strategies are often designed to prevent the conflict from growing into a larger or more catastrophic war. Diplomacy often plays a role in managing escalation and maintaining control over the conflict's intensity. Use of Proxy Forces, in many limited wars, major powers support or finance proxy forces (other governments or rebel groups) to achieve their objectives without committing their own forces directly. Examples include the Korean War (1950-1953) and Vietnam War (1955-1975), where

global superpowers like the U.S. and the Soviet Union indirectly clashed through local forces. Though backed by superpowers (the U.S. and Soviet Union/China), the conflict remained localized to the Korean Peninsula. Neither side sought to escalate the war into a broader global conflict, despite the involvement of global powers.

Vietnam War (1955-1975): Another example of a Cold War-era limited war, the U.S. intervened to prevent the spread of communism in Southeast Asia. The war did not involve a full-scale invasion of the North or direct attacks on Soviet or Chinese forces, adhering to limited war principles. The Gulf War (1990-1991), Aimed at expelling Iraqi forces from Kuwait after their invasion, the coalition forces under U.S. leadership limited their operations to restoring Kuwaiti sovereignty rather than pursuing the overthrow of Saddam Hussein's regime. Strategic Considerations, Deterrence and Diplomacy: In limited wars, diplomatic efforts and the threat of escalation play a key role in preventing conflicts from expanding. This is particularly evident in Cold War proxy conflicts, where both superpowers avoided direct confrontations that might have led to nuclear war. Public Opinion: Leaders often pursue limited wars to maintain public support, which may dwindle in the case of drawn-out, high-casualty conflicts.

Limited war is seen to achieve objectives without the massive societal costs of total war. Nuclear weapons: The existence of nuclear weapons has further cemented the logic of limited war. The fear of mutual destruction in a nuclear conflict incentivizes powers to restrict their military actions and avoid direct confrontations that could escalate to the nuclear level. Criticisms and Challenges, difficulties in control, one of the main challenges of limited war is managing escalation. Limited conflicts can quickly spiral out of control, especially if one side misinterprets the intentions of the other. In sum, limited war is a strategy designed to achieve specific goals without fully committing a nation's resources or escalating into a total conflict. It has been a common feature of post-WWII international relations, especially during the Cold War, where the presence of nuclear weapons made full-scale war too risky. However, the inherent complexity of controlling escalation and the potential for prolonged conflicts presents significant challenges (Elkus, 2012).

Nuclear and deterrence will operate by its own various principles in the South Asian region. These observations overlook the unique discussion and plans of India and Pakistan, applying lessons from the America and Soviet Union to smaller nuclear states. The belief that India and

Pakistan's rivalry will mirror the super-powers' leads to overlooking key changes in South Asia region. Due to the changes direction Pakistan and India suggest a limited war might be possible without triggering nuclear conflict. The interviews indicated that this idea is gaining support in Pakistan and India, raising the chances of a short, limited conflict, because both nations have nuclear weapons, therefore, both states have changed their domain. Currently, events show that a limited war can lead without triggering nuclear action. Indian Army Chief gave a statement in January 2018, India wouldn't late to retaliate to Pakistani invades and challenged Pakistan's limits on nuclear use. Pakistani General Khalid stated that if Pakistan used short-range nuclear weapons, it would prevent India from launching a limited war against Pakistan.

He said Pakistan's military needed these weapons urgently because India is escalating advanced military weapons and modernization. Pakistan should take strict actions to stop limited war have promoted India to adjust its military strategy. In 2004, the Indian Army introduced its long-standing defensive strategy was no longer fit to handle threats from Pakistan, however, Pakistan is also nuclear weapon state. In April 2004, the Indian Army informally started using a strategy called "Cold Start," which it continues to implement. The strategy aims for quick deployment of battle groups to carry out surprising but limited attacks on Pakistan. These attacks target specific goals without causing a nuclear response and happen before external pressure can participate. The Pakistani military thinks it can back terrorists to target India without fearing retaliation, as it believes its nuclear strategy will deter India from launching a military response. The lack of an Indian military response to the Mumbai and Pathankot attacks reinforced the idea that New Delhi prefers to act with restraint. On September 2018, 19 Indian spies were killed by Pakistani militants in Jammu and Kashmir so therefore this restraint likely stopped. Indian director general of military operations conducted a press conference on 29 September 2016 and said an operation by Indian Special Forces anti-militants' groups camps in Pakistan Azad Kashmir. India's decision to take military action contradicts Islamabad's idea that its nuclear strategy and short-range weapons prevent India from responding militarily.

India uses tactical weapons, though not very effective in countering threats, were aimed at identifying its political solution to respond to terrorism connected to Pakistan. The military action assisted relieve public pressure on India, which was facing escalating calls to take action against Pakistan. Assists of India's limited war strategy neglect Pakistan's limits on nuclear weapon use

(Motwani, 2028). Pakistan and India warplanes strikes each sides boundaries on 26 February and 27, 2019 and engaged in aerial combat for the first time since 1971. Since 1947 Pakistan and India have been rivals and both states have become nuclear weapons that can be apply from land, air and sea routes. If compared to Russia and American nuclear weapons both states India and Pakistan have weak and less powerful nuclear weapons therefore, which have thousands of megaton-class weapons that can destroy entire cities with a single blast. Pakistan and India can be effect through A limited nuclear war would affect the entire South Asia region like Pakistan and India. People often struggle to grasp the risks of rare but catastrophic events, as a full-scale nuclear war has never happened, despite some near misses. Ongoing terrorist attacks from Pakistan-backed groups over Jammu and Kashmir's status have repeatedly led New Delhi to threaten military responses. Pakistan asserts it could use nuclear weapons first to offset India's greater conventional military strength. Triggers for a response could be major damage to Pakistan's military or Indian forces entering its territory. Pakistan claims it might also strike if India enforces a damaging blockade or creates political unrest.

According to Indian policy that it will not use first nuclear weapons but if Pakistan uses nuclear weapons, then India will use with an overall counter strike. The small size of bomb which was used in Hiroshima in 1945 caused the deaths of approximately 100,000 people and further 73% destroyed infrastructure. Pakistan and India are home to some of the world's most densely populated cities, with Calcutta, Karachi, and Mumbai having over 65,000 people per square mile. A 2014 study indicates that the bombs' immediate effects, like the fireball, shockwave, and radiation burns, could lead to twenty million fatalities. The potential catastrophic consequences of nuclear bomb detonation, emphasizing the severity of their immediate impact on human life. The mention of twenty million deaths illustrates the scale of destruction that nuclear weapons can inflict, reinforcing the urgency of nuclear disarmament discussions and the need for global efforts to prevent such an event (Roblin, 2020).

4.3. Possibility of Future Surgical Strikes

The possibility of future surgical strikes between Pakistan and India depends on several factors, including political dynamics, regional security concerns, and international pressures. India conducted surgical strikes in September 2016 across the Line of Control (LoC) in Pakistan-administered Kashmir. This was in response to an attack by militants on an Indian Army base in

Uri, which killed 19 soldiers. After a terrorist attack in Pulwama that killed over 40 Indian paramilitary personnel, India launched airstrikes on Pakistani territory in February 2019. Pakistan responded with retaliatory airstrikes, and both countries were on the brink of a larger conflict. Under Prime Minister Narendra Modi, India has adopted a more assertive military posture, with an emphasis on "zero tolerance" for cross-border terrorism. This suggests that India might not hesitate to respond militarily to any future terrorist attacks linked to Pakistan. Political instability in Pakistan (with military influence often a dominant factor) and its stance on Kashmir makes it a key factor. Pakistan's focus on internal security issues, such as economic crises and political unrest, may reduce its ability to escalate tensions in the region, but the military's response to Indian provocations could vary. The presence of terrorist groups operating out of Pakistan and targeting Indian security forces in Kashmir remains a flashpoint. If another high-profile terrorist attack occurs, particularly on Indian soil or in Kashmir, it could provoke a military response. India's emphasis on combating terrorism through preemptive strikes may also increase the possibility of future surgical operations, especially if intelligence suggests imminent threats. Both India and Pakistan are nuclear-armed nations, which acts as a deterrent against large-scale warfare. However, limited engagements like surgical strikes or air incursions can still occur, as they are seen as less likely to escalate into full-scale nuclear conflict.

The international community, especially the United States, China, and Russia, has a vested interest in preventing escalation between India and Pakistan due to the potential for wider regional instability. Post-strike international diplomatic intervention typically follows any conflict, as seen in 2016 and 2019, and this external pressure can play a role in de-escalating tensions. Pakistan's internal security situation, particularly in regions like Baluchistan and Khyber Pakhtunkhwa, could divert its focus away from its eastern border with India. If Pakistan's military is engaged internally, it may avoid escalating tensions with India. India's increasing focus on modernization of its military and surveillance technology might lead to more precision in its responses, potentially lowering the threshold for smaller, targeted operations. The unresolved status of Kashmir remains the most significant source of tension. Any change in the situation in Jammu and Kashmir, particularly related to the revocation of Article 370 in 2019, could further inflame tensions (Kaura, 2020).

Indian forces crossed into Myanmar and attacked camps of the NSCN in June 2015. This was retaliation for an earlier ambush by the NSCN, where they killed 18 Indian soldiers. To clarify,

the Indian forces were retaliating against the NSCN for killing Indian soldiers, not militants. Indian Army commandos crossed the Line of Control on 28 September at night, which is the de facto border between India and Pakistan in the Kashmir region. and which carried out a targeted military operation, which the Indian Army referred to as a 'surgical strike'. A surgical strike is a precise, quick military attack aimed at specific targets, usually to minimize damage to other areas or civilians. The military raid aimed at specific locations in northern Kashmir, particularly in the Kel, Shardi, Bhimber, and Lipa areas like Azad Kashmir. These sites are known for helping militants cross into India. The raid caused major destruction to locations known as terrorist launch pads, which are used by militants to prepare for attacks against India. The operation led to the deaths of more than 40 terrorists who were likely involved in militant activities, as well as the deaths of at least two soldiers from the Pakistan Army, indicating that the raid had both a tactical and human impact. The Indian Army has a history of conducting cross-border raids aimed at targeting militants or terrorist groups. In the eastern region, these raids were typically carried out with the agreement of connecting boundaries, while in the west, they were carried out secretly. By permitting raids against militants, the army increased the confidence and spirit of its soldiers. Positive morale is important for maintaining effectiveness and commitment among troops. The statement emphasizes that the army is unwilling to tolerate the constant attacks on its officers and soldiers by terrorists. It signifies a commitment to acting rather than being passive in the face of these threats. Highlights how military actions can serve to encourage troops and demonstrate a strong stance against ongoing violence and terrorism (Editors, 2016).

Near Azad Kasmir border both states like India and Pakistan were used occasional instruments of shelling. India announced that it had started an operation aimed at combating terrorism in Kashmir that is controlled by Pakistan. The Indian military announced that its soldiers crossed the heavily fortified border separating India and Pakistan at night. They attacked approximately six places that were identified as staging areas. These are spots where militants were assembling and preparing for future attacks. The militants were reportedly planning to launch attacks in the disputed Kashmir region as well as in various cities across India. highlights a specific military operation by India aimed at disrupting the activities of militants preparing to carry out attacks in sensitive areas. Prime Minister Nawaz Sharif of Pakistan criticized the actions of the Indian forces, describing them as "unprovoked aggression." This implies that he viewed India's

military actions as unwarranted and unjustified. The statement mentions that at least two Pakistani soldiers were killed because of these actions, highlighting the human cost of the conflict. In contrast, India claimed that its military operation resulted in the deaths of several suspected militants, indicating that they believe their actions were aimed at combating terrorism rather than being aggressive.

The relationship between India and Pakistan has become more strained or hostile because the escalation in tension began on September 18. India and Pakistan have a long history of conflict, having fought four wars over various issues, including territory. Both countries claim ownership of the Kashmir region, which is a disputed area. India has accused Pakistan of supporting armed insurgents or rebels who are fighting against Indian control in the part of Kashmir that India administers. This suggests that India believes Pakistan is contributing to unrest and violence in the region. Singh reported that the military received trustworthy information indicating that terrorist groups had gathered in staging areas along the Line of Control. These groups were preparing to carry out attacks in both the Kashmir region and various cities in India. In reaction to this intelligence, the army conducted strikes that resulted in "significant casualties" among the terrorists and their supporters. This means that the military action was effective in harming or killing the targeted groups. Indian government officials indicated that their soldiers carried out operations that went more than half a mile beyond the Line of Control, which shows a more aggressive military stance and possibly an escalation in the conflict. Singh emphasized that India will not tolerate terrorists operating across the Line of Control who can attack Indian citizens without facing consequences.

This indicates India's commitment to acting against terrorism. Pakistan's foreign ministry criticized India for what they referred to as "unprovoked cease-fire violations," suggesting that India is violating agreements intended to maintain peace along the border. They claim that India is deliberately increasing tensions in the Kashmir region, which suggests a perception of hostility from India. Sharif stated that Pakistan's intention for a peaceful relationship with its neighbors should not be interpreted as weakness. He is asserting that Pakistan has a strong military force that can adequately defend its territory against any threats. Abid Mir is a senior police officer in Rawalakot, which is located near the Line of Control (the border between India and Pakistan). Mir stated that India did not conduct a targeted operation aimed specifically at militants. Instead, he claims that

India shelled an army post, indicating that the attack may have been less precise and more indiscriminate. Mir accused the Indian government of being dishonest or "lying" to the public, suggesting that India is trying to deceive its citizens about the nature of their military actions. Indian and Pakistani soldiers were engaged in heavy gunfire at different places in Jammu and Kashmir.

This indicates active military conflict between the two sides. The heavy fire led to widespread fear among residents. This suggests that the ongoing conflict is causing anxiety and concern for people's safety in the area. Officials indicated that they were preparing for possible retaliatory attacks from Pakistani forces. This implies that there is an expectation of further military actions in response to the ongoing exchange of fire, indicating a heightened state of alert. U.S. officials are encouraging both India and Pakistan to avoid escalating tensions and to act with restraint in the current situation. National Security Adviser Susan E. Rice spoke with Ajit Doval, India's National Security Adviser, indicating a diplomatic effort to address the situation. Rice expressed her sympathy for the casualties from the Uri attack, acknowledging the loss of life and the impact it has had on India. Rice emphasized that the U.S. expects Pakistan to take steps to combat terrorist groups, specifically naming Lashkar-e-Taiba and Jaish-e-Muhammad, which are known to operate in Pakistan. It is noted that they did not talk about any specific military operations against these terrorist groups, indicating that their conversation focused more on diplomatic concerns rather than military actions (Hussain, 2016).

4.4. Pakistan's Reliance on Nuclear Weapons: *Full Spectrum Deterrence*

Pakistan's nuclear weapons refer to the country's collection of nuclear warheads and the systems designed to deliver them, which form a key part of its defense strategy, especially against India. The development of Pakistan's nuclear weapons program was driven by security concerns, primarily its rivalry with India, and is seen as a deterrent against potential aggression. Pakistan is believed to possess approximately 160-165 nuclear warheads. However, these numbers are not official, as Pakistan, like other nuclear states, does not publicly disclose exact figures. Pakistan's nuclear weapons use highly enriched uranium (HEU), which was the initial focus of their program. In recent years, Pakistan has also expanded its plutonium production capabilities, enhancing the flexibility and sophistication of its arsenal. Pakistan's nuclear policy is based on maintaining a credible minimum deterrence. This means that its nuclear forces are not aimed at achieving nuclear superiority, but at deterring an attack from India. Unlike India, which maintains a "No First Use"

policy, Pakistan reserves the right to use nuclear weapons first in the event of a large-scale conventional attack that threatens its existence. Pakistan has adopted a "full-spectrum deterrence" posture, meaning it seeks to develop a range of nuclear weapons (tactical, strategic, and long-range) to address various threats, from conventional to nuclear. Pakistan has developed a wide range of delivery systems for its nuclear weapons, including ballistic missiles, cruise missiles, and aircraft.

Ballistic Missiles:

- Short-range: Ghaznavi (Hatf-III), Abdali (Hatf-II), Nasr (Hatf-IX – a tactical nuclear missile)
- Medium-range: Shaheen-I, Shaheen-II, Ghauri (Hatf-V)
- Long-range: Shaheen-III (estimated range of 2,750 km), capable of reaching India's farthest regions and possibly some parts of the Middle East.

Cruise Missiles:

- Babur (Hatf-VII): A subsonic cruise missile capable of carrying nuclear and conventional warheads.
- Ra'ad (Hatf-VIII): An air-launched cruise missile, capable of carrying nuclear warheads.

The NCA oversees Pakistan's nuclear arsenal. It controls policy development, deployment, and the decision to use nuclear weapons. This is the operational arm of the NCA, responsible for managing Pakistan's nuclear stockpile, overseeing the security of nuclear assets, and coordinating the armed forces' role in nuclear deployment. Pakistan has developed tactical nuclear weapons, such as the Nasr missile system, designed for battlefield use. These are shorter-range weapons intended to deter or slow down an advancing Indian military force during a conventional conflict. TNWs are highly controversial due to their lower yield and the risk of escalation from conventional to nuclear conflict. Pakistan's key facility for uranium enrichment, where A.Q. Khan worked. This facility enriches uranium to weapons-grade level. Pakistan has developed several plutonium production reactors, primarily at the Khushab Nuclear Complex.

These reactors can produce weapons-grade plutonium, which allows Pakistan to develop lighter, more advanced nuclear weapons. Pakistan is not a signatory to the Nuclear Non-Proliferation Treaty (NPT). This is in line with its stance that the treaty is discriminatory, as it recognizes only the nuclear weapon states that were tested before 1967. Pakistan has sought membership in the NSG, an international body aimed at controlling nuclear exports but has faced

opposition due to concerns about proliferation. Pakistan has been the subject of international concern regarding the safety and security of its nuclear weapons. Fears of internal instability, extremist threats, and unauthorized use have led to continuous international scrutiny. In 2004, A.Q. Khan confessed to running a black-market network that supplied nuclear technology to countries like Iran, North Korea, and Libya. Although Pakistan disavowed the network and placed Khan under house arrest, the incident raised serious concerns about nuclear proliferation. Pakistan's nuclear weapons program serves as a critical part of its defense and deterrence strategy, primarily aimed at countering India. With an evolving arsenal that includes strategic and tactical nuclear capabilities, Pakistan has solidified its position as a nuclear-armed state. However, the challenges of proliferation, regional stability, and security remain significant concerns for the international community.

To reduce nuclear risks, conditions must be established both politically and technically. Effectively lower the dangers associated with nuclear weapons, actions need to be taken in two main areas: political decisions (like international agreements and diplomacy) and technical measures (such as safety protocols, control systems, and technology management). Both aspects are necessary for meaningful risk reduction. We can suggest 9 key conditions to reduce nuclear risks in the South Asia region. The Kashmir issue should be addressed through talks between Pakistan, India, and eventually the Kashmiris. This means that to resolve the Kashmir conflict, Pakistan and India should start by having discussions, and later, the people of Kashmir should also be involved in the process. This approach aims to find a peaceful solution through dialogue. To sort out the Kashmir conflict, it is crucial to maintain a strong cease-fire along the Line of Control (LOC), the boundary separating Indian and Pakistani territories. The LOC that was established after the 1971 war should be fully accepted, which involves India pulling back its military presence from Siachin and any other areas it has taken control of since that time. If these steps are not taken, there will always be a possibility of renewed fighting or tension between the two countries. The foster trust and ensure that both sides respect the cease-fire agreement in the Kashmir region, there should be international observers—people from organizations like the United Nations (UN) or the South Asian Association for Regional Cooperation (SAARC)—monitoring the situation on both sides of the Line of Control (LOC). Their presence would help prevent any violations and encourage peaceful relations. The discussions about nuclear issues with India is important for creating a

common understanding of important concepts. If countries interpret these concepts differently, it can lead to misunderstandings and confusion, which could complicate efforts to ensure nuclear security and stability (Dr. Shireen M. Mazarí , 2004).

This means that Pakistan's strategy regarding its nuclear weapons is focused on two main goals: first, to discourage India from launching any military attacks, and second, if deterrence doesn't work and a conflict occurs, to ensure that India fails in winning that conflict. Essentially, it's about using nuclear capabilities to maintain security against potential threats from India. Pakistan's nuclear program serves multiple roles, and there are now suggestions it could deter threats from countries besides India. Pakistan's nuclear strategy has not been adapted to address threats from other countries, and it remains focused primarily on deterring India. There is no evidence that Pakistan's nuclear policy is aimed at any country other than India. Pakistan's nuclear policy is primarily focused on addressing security threats it perceives from India. The development of the doctrine has been centered around India's potential actions. Pakistan has chosen not to commit to a policy that would prevent it from using nuclear weapons first in a conflict. It keeps the option open to launch a nuclear strike before India does, largely due to India's increasing military power in conventional weapons.

Pakistan's nuclear doctrine is not officially documented in a single written form, but it has been articulated through various statements, speeches, and policy papers by key officials. Pakistan's nuclear policy is based on the principle of maintaining a "credible minimum deterrence," meaning it aims to deter aggression through a sufficient nuclear capability without seeking nuclear superiority. Unlike India, Pakistan has not declared a no-first-use policy. It reserves the right to use nuclear weapons first in response to any significant conventional or nuclear threat from India. Pakistan's nuclear doctrine emphasizes the need for nuclear weapons as a counterbalance to India’s conventional military superiority. Pakistan has developed tactical nuclear weapons to be used on the battlefield to deter conventional military incursions (Tasleem, 2026).

4.5. Asymmetry in Space Domain: *Real Time information challenges*

Air asymmetry refers to the unequal distribution of air power capabilities between two or more nations or military forces. This asymmetry can manifest in various ways, including differences in the quantity and quality of aircraft, technological advancements, operational readiness, and strategic doctrines. Understanding air asymmetry is crucial for assessing military balance and

national security dynamics between adversaries. The deployment of systems designed to protect against aerial attacks, such as surface-to-air missiles (SAMs) and radar systems. The use of air power to deter potential adversaries or project military strength beyond national borders. The financial resources allocated to air force modernization, procurement of new aircraft, and technological development.

India and Pakistan have long been engaged in strategic competition, including in the domain of space capabilities. Their space programs, however, exhibit significant asymmetries, reflecting broader differences in their national priorities, technological capacities, and strategic objectives. The Indian Space Research Organization (ISRO), founded in 1969, has focused on peaceful and scientific objectives, such as satellite communications, earth observation, and space exploration. Its civilian space program is internationally recognized, especially for missions like Chandrayaan (moon) and Mangalyaan (Mars). Additionally, India utilizes its space assets for military purposes, particularly in intelligence, surveillance, reconnaissance (ISR), and navigation. Pakistan's space agency, SUPARCO, established in 1961, has been underfunded and technologically lagging compared to India. Its focus has been on military applications, reflecting the country's strategic priorities. However, SUPARCO has not achieved the same level of technological advancements or long-term scientific goals as ISRO. India's space program has increasingly included military aspects, with the development of satellites for navigation (NavIC), surveillance (Cartosat series), and communication improving its military capabilities.

In 2019, India successfully conducted an anti-satellite (ASAT) missile test (Mission Shakti), showcasing its ability to target space assets, marking a key advancement in space deterrence. Pakistan's space program largely depends on China for satellite launches and military support. It lacks its own satellite launch capability, with much of its military space capacity tied to Chinese technology, including communication and observation satellites like PAKSAT and PRSS-1. Without an anti-satellite (ASAT) capability or strong space infrastructure, Pakistan relies on Chinese partnerships for any strategic applications of space. India considers space vital for regional and global power projection.

Its space capabilities are part of its defense strategy, focusing on intelligence, surveillance, reconnaissance (ISR), and strategic communications. The ASAT test shows India's dedication to

protecting its space assets and deterring potential threats. Pakistan is worried about India's expanding space capabilities, particularly its surveillance and communication abilities over Pakistan. Although relying on China for space technology offers some benefits, it restricts Pakistan's capacity to independently compete with India's space power. India's space program will continue to balance civilian and military aims. Projects like the Gaganyaan human spaceflight and advanced satellite systems are likely to boost India's strategic influence both regionally and globally. Pakistan's space future will depend on continued Chinese support. Without significant investment and technological growth, it will struggle to keep up with India's expanding space capabilities (Qasir, 2020).

The air asymmetry domain between Pakistan and India is a multifaceted issue that encompasses various elements, including military capabilities, technological advancements, strategic doctrines, operational readiness, and geopolitical factors. Understanding this asymmetry is crucial for analyzing the defense strategies and regional stability in South Asia. The Indian Air Force (IAF) is one of the largest and most advanced air forces in the world, with approximately 1,700 aircraft, including a diverse mix of fighter jets, transport aircraft, and helicopters. The IAF has invested heavily in modernizing its fleet, acquiring advanced multi-role combat aircraft like the Su-30MKI, Rafale, and indigenous Tejas fighters. The Pakistan Air Force (PAF) has around 1,200 aircraft, including a combination of fighter jets, transport aircraft, and helicopters. While it has advanced aircraft such as the F-16, JF-17 Thunder, and Mirage III, the overall quantity and diversity of the PAF’s fleet are inferior to the IAF's. India's investment in indigenous aircraft development, advanced avionics, and weapon systems, such as the BrahMos missile and Astra air-to-air missile, has strengthened its technological edge. The IAF also operates advanced radar systems and electronic warfare capabilities. Pakistan has made significant progress in developing its indigenous fighter aircraft, notably the JF-17, in collaboration with China. However, its overall technological capabilities are still lagging India's, particularly in terms of advanced avionics and missile systems.

India's air strategy focuses on deterrence, power projection, and maintaining air superiority in regional conflicts. The IAF aims to conduct integrated operations with the Indian Army and Navy, emphasizing joint exercises and coordination. Pakistan's air strategy is largely defensive, aimed at countering India's conventional military superiority. The PAF has emphasized quick response and deterrence, particularly in the context of its nuclear capabilities, often integrating its

air power with strategic deterrent forces. India maintains a credible nuclear deterrent, with air-deliverable nuclear capabilities. The IAF has aircraft capable of carrying nuclear payloads, which are part of its overall deterrence strategy. Pakistan has developed a comprehensive air component for its nuclear deterrence, deploying aircraft capable of delivering nuclear weapons. This asymmetry adds complexity to the air domain, as both nations seek to maintain credible deterrence. India has invested in robust air defense systems, including advanced surface-to-air missile (SAM) systems like the S-400 and indigenous systems like Akash. This multi-layered air defense network aims to protect critical assets from aerial threats. Pakistan has developed its air defense capabilities, acquiring systems such as the Chinese HQ-9 and indigenous projects like the Shaheen series. However, its air defense network lacks the depth and sophistication of India's systems (Ravichandran Moorthy, 2015).

The air asymmetry between Pakistan and India has significant regional implications that can affect security dynamics, military strategies, and diplomatic relations in South Asia. The disparity in air power can lead to an arms race, as each country seeks to enhance its military capabilities to counterbalance the other. This could involve increasing the number of aircraft, investing in advanced technology, and expanding air defense systems. Both countries may engage in military exercises and show of force, which can escalate tensions and create an environment of distrust. India’s superior air capabilities may lead to a more assertive posture, potentially emboldening it to take military action under certain circumstances, believing it can achieve air superiority. Pakistan may adopt more aggressive defensive measures, focusing on rapid response and asymmetric warfare strategies to compensate for its air power disadvantage. The air asymmetry can exacerbate the security dilemma, where one country’s defensive measures are perceived as aggressive by the other, leading to a cycle of military buildup and tension. Countries in the region may feel compelled to align with one side or the other based on perceived threats from Pakistan or India. This could lead to new alliances or the strengthening of existing ones. Major powers may become involved in South Asian dynamics, seeking to support one side or influence outcomes based on their strategic interests. Both countries may divert resources toward military spending at the expense of economic development, healthcare, and education. This could hinder overall economic growth and development in the region. Ongoing military tensions may also affect trade relations, as security concerns could lead to economic isolation or barriers between the countries (Ross, 2024).

India's military is stronger in terms of equipment (like tanks, aircraft, and weapons) and the number of soldiers compared to Pakistan, largely because India spends more money on its defense budget. The bigger budget allows India to invest in more advanced technology and maintain a larger military force. The difference between Pakistan and another country (likely India) in terms of military or defense capabilities is increasing. As this gap grows, Pakistan feels more pressure to strengthen its basic defense forces to maintain a balance of power in the region and avoid falling behind in terms of security. India must deal with two major rivals, China and Pakistan, while Pakistan's nuclear weapons strategy is aimed only at India. Meanwhile, India is strengthening its conventional (non-nuclear) military power by purchasing advanced weapons from countries like the U.S., Russia, France, and Israel, increasing the gap between India's and Pakistan's military capabilities. India is investing heavily in modern military equipment, making it one of the top buyers worldwide. Along with that, it is developing an advanced missile defense system, using cutting-edge technology from powerful countries like France and Israel. This enhances India's military capabilities significantly (Khan, 2020).

4.6. Maritime Domain Asymmetries: *Threat to Pakistan's Maritime Interests*

Maritime domain asymmetries refer to the differences between countries in naval power and capabilities. These include disparities in fleet size, technology, surveillance, and power projection. Some nations have more advanced ships, submarines, missile systems, and global reach, while others are limited to coastal defense. Other key factors include access to strategic ports, logistics, and maritime air power. These imbalances affect a country's ability to defend its waters, control sea routes, and maintain a strong presence at sea. The maritime domain is an important area of strategic competition between India and Pakistan, with notable differences between them. These asymmetries are driven by factors such as geography, military capabilities, and economic interests. India has a major geographical advantage in the maritime domain with its long coastline of over 7,500 km along the Indian Ocean. It is bordered by the Arabian Sea, Bay of Bengal, and the Indian Ocean, giving it access to important global shipping routes like the Strait of Hormuz, Strait of Malacca, and Gulf of Aden, crucial for international trade and energy supplies. Pakistan has a shorter coastline of about 1,046 km along the Arabian Sea. Its key maritime assets are Karachi and the Chinese-developed Gwadar port, part of the China-Pakistan Economic Corridor (CPEC). However, Pakistan has less access to major international sea routes compared to India.

The Indian Navy is one of the largest and most advanced in the region. It operates aircraft carriers, nuclear and conventional submarines, destroyers, frigates, and corvettes. India also has strong shipbuilding and defense production capabilities, enabling it to maintain and grow its naval fleet. India's navy plays a crucial role in its goal to be a "net security provider" in the Indian Ocean Region, allowing it to project power beyond its borders. In contrast, the Pakistan Navy is smaller and less advanced, operating fewer submarines, frigates, and patrol vessels. Although Pakistan is modernizing its navy with help from China and Turkey, it still lacks the extensive reach and operational capabilities of the Indian Navy. Pakistan has no aircraft carriers and relies heavily on foreign suppliers for advanced naval technology.

India’s maritime strategy is closely linked to its regional and global goals. The Indian Navy aims to maintain control in the Indian Ocean, protect important sea routes, and secure its large Exclusive Economic Zone (EEZ). India is worried about China's increasing presence in the Indian Ocean, which is part of its "String of Pearls" strategy that involves investing in ports and bases like Gwadar in Pakistan, Hambantota in Sri Lanka, and Djibouti. To counter this influence and protect its maritime interests, India is expanding its navy. Pakistan's maritime strategy is mainly defensive, focusing on securing its coastline, Exclusive Economic Zone (EEZ), and important ports like Karachi and Gwadar. Due to the imbalance with India, Pakistan relies on asymmetric warfare tactics such as submarines, sea mines, and anti-ship missiles to counter potential Indian naval dominance. It views naval development as essential for protecting its interests in the Arabian Sea, especially regarding regional trade and energy security. India has established a reliable sea-based nuclear deterrent as part of its nuclear triad. The INS Arihant, a nuclear-powered ballistic missile submarine, gives India a second-strike capability, enhancing its defense in case of a nuclear conflict. These naval nuclear capabilities are vital for India's deterrence strategy against both China and Pakistan. Pakistan lacks a nuclear-powered submarine but is developing nuclear-tipped cruise missiles for its submarines, like the Babur-III. This effort aims to create a credible second-strike capability, but it is much more limited in operational reach and technology compared to India's capabilities. India is a key player in regional maritime security, frequently conducting anti-piracy operations in the Gulf of Aden and sending ships for humanitarian assistance and disaster relief in the Indian Ocean. Its maritime diplomacy is shown through partnerships with island nations like Mauritius, Seychelles, and the Maldives, which strengthen its influence in the region. Pakistan's role

in maritime security is more restricted and primarily aimed at protecting its coastline and territorial waters. However, the development of Gwadar under China's Belt and Road Initiative (BRI) could improve Pakistan's position in regional trade and energy security, although this is still in progress (Saif-ul-Haq, 2021).

Navies, like armies and air forces, can pose threats to each other. After the Pulwama attack, the Indian Navy prevented incursions into Pakistani waters, claiming to search for the lost PNS Saad. The Indian Navy sent its top submarines, including a nuclear one, to find and attack the PNS if it was a threat, but this turned out to be untrue. The incident highlights the tense relationship between the Indian and Pakistani navies and the urgent need for peace, as both sides continue to exchange artillery fire and have fought multiple wars. Despite economic difficulties, the Pakistan Navy is strong and should avoid negative comparisons with the Indian Navy, which needs more naval strength due to its longer coastline and more ports. Pakistan Navy focuses on India in its development plans, while India's naval spending is meant to show strength and reassure Western allies about its readiness to counter China's influence. Pakistan's naval strategy emphasizes protecting its maritime interests through deterrence and a defensive approach instead of being aggressive. With a limited navy, Pakistan avoids aggression and war, prioritizing the protection of its maritime resources and interests.

The navy relies on deterrence, but if that fails, it will focus on denying the enemy access to the sea, aiming to protect sea lines of communication during combat. Protecting maritime trade routes and sea lines of communication (SLOC) is essential for Pakistan's economy, even in land or air conflicts, as cargo, oil, and coal transport are critical, making SLOC a top priority for the country. In peacetime, Pakistan prioritizes nation-building and military exercises, currently focusing on strengthening ties with China related to the China-Pakistan Economic Corridor (CPEC). The Indian naval strategy has different goals in the Indian Ocean Region (IOR) than Pakistan's, but both navies prioritize deterrence. While India and Pakistan have similar naval strategies, their impacts differ mainly because of the differences in their naval fleet strengths. The Indian naval forces prioritize sea control and deny access, employing task forces to maintain control during missions. Sea denial is an offensive tactic that prevents enemy units from operating in certain maritime areas to hinder their deployment. Pakistan's future for its navy is shaped by its strategic challenges and limited resources as a small nation. It's unrealistic to expect advanced naval equipment; the focus

should be on understanding maritime issues through Pakistan's new Maritime Doctrine (Damiya Saghir, 2020).

CONCLUSION

This study embarks on an examination of the efficacy of conventional deterrence within the context of South Asia, specifically focusing on the cases of Pakistan and India. The region, home to two nuclear-armed neighbors, is emblematic of the complexities and sensitivities surrounding deterrence in a volatile geopolitical landscape. Historically, South Asia has been marked by tensions and conflicts, and both Pakistan and India have developed extensive conventional military capabilities to maintain security and exert influence. The two nations have engaged in a series of armed conflicts, leading to an enduring security dilemma that continues to shape their military strategies. The current trends in South Asia could also be seen from this angle. The history of the past conflicts between these countries could provide a good starting point for analyzing what is in store for them in the strategic realm. During the 2001 crisis between the two states, the Indian army's lack of mobilization frustrated its military objectives forcing them to see for other venues which could surprise Pakistan and reduce the escalation dangers as well. As a result, India came up with the Cold Start Doctrine (CSD) based on a fast- paced incision into Pakistani territory. The complexity of ensuring credible deterrence at conventional, strategic, and tactical levels further exacerbates the situation. A key factor influencing threat perception for both India and Pakistan are the intentions conveyed through their military doctrines. These intentions are communicated through various means at different times and are often interpreted differently by the opposing side. This differential perception impacts each state's assessment of the credibility of the other's deterrent capabilities, which in turn affects their own strategic decisions to ensure the survivability of their deterrent forces. The security dilemma concept is essential to understanding how states' efforts to enhance their own security can inadvertently lead to increased tensions and conflicts. This framework is applied to investigate the reciprocal actions and reactions of Pakistan and India in the realm of conventional deterrence. Realism helps elucidate the strategic calculations and competition between Pakistan and India in South Asia. Given the nuclear capabilities of both Pakistan and India, nuclear deterrence theory is integrated into the analysis. It explores how conventional deterrence interacts with the nuclear threshold and escalation dynamics.

By integrating these theoretical frameworks, the study aims to offer a well-rounded analysis of the efficacy of conventional deterrence in South Asia. It recognizes that state behavior and security strategies are shaped by a multitude of factors, including rational calculations, historical

legacies, normative considerations, and power politics. The efficacy of conventional deterrence in South Asia, particularly between India and Pakistan, is a critical component of the region's strategic stability. Conventional deterrence refers to the ability of a state to prevent aggression through the threat of conventional military retaliation. In the context of South Asia, where both India and Pakistan possess nuclear weapons, the role of conventional deterrence becomes even more significant as it serves as the first line of defense, potentially preventing conflicts from escalating to the nuclear level. India, with its larger and more technologically advanced military, seeks to maintain a credible conventional deterrent to counter Pakistan's sub-conventional strategies, such as support for insurgency and proxy warfare.

The 2016 surgical strikes by India across the Line of Control (LoC) are an example of how India attempts to use its conventional forces to deter further aggression by demonstrating its capability and willingness to respond. The nuclearization of South Asia fundamentally shifted the strategic doctrines of both India and Pakistan, forcing both countries to reassess their military postures and strategies. These doctrinal shifts reflect how both nations have adapted to the nuclear environment while managing their conventional military capabilities. India's military strategy, influenced by the Sunderji Doctrine in the 1980s, focused on the rapid mobilization of strike corps to deliver deep, decisive blows inside Pakistan in the event of conflict. This doctrine aimed to exploit India's conventional military superiority to potentially incapacitate Pakistan before international pressure could intervene. However, with Pakistan achieving nuclear capability in 1998, this strategic calculus fundamentally changed. After the failure of Sunderji Doctrine due to the attainment of nuclear weapons by Pakistan Indian policymakers came up with the idea of Cold Start Doctrine (CSD) in 2004. Limited war is a type of military conflict in which the belligerent parties do not expend all their resources or pursue destruction of the enemy. Unlike Total War, which seeks the complete submission or annihilation of an opponent, limited war is constrained by objectives, geography, rules of engagement, or resources. The aim of a limited war is often to achieve specific, limited objectives without escalating the conflict into a larger or more destructive war. The primary goal is to achieve specific, often political, aims rather than the complete subjugation of the enemy. Examples might include securing territorial gains, achieving regime change, or safeguarding economic interests. It avoids full mobilization of a nation's population or economy. Air asymmetry refers to the unequal distribution of air power capabilities between two or more nations or military

forces. This asymmetry can manifest in various ways, including differences in the quantity and quality of aircraft, technological advancements, operational readiness, and strategic doctrines. Understanding air asymmetry is crucial for assessing military balance and national security dynamics between adversaries. The deployment of systems designed to protect against aerial attacks, such as surface-to-air missiles (SAMs) and radar systems. The use of air power to deter potential adversaries or project military strength beyond national borders. The financial resources allocated to air force modernization, procurement of new aircraft, and technological development.

REFERENCES

D. S. (2004). Understanding Pakistan's Nuclear Doctrine. *JSTOR*, 1,2,3,4,5,6. Retrieved October 6, 2024, from https://www.jstor.org/stable/45242536?seq=1

Army, I. (2018). *Land Warfare Doctrine 2018.* New Delhi: https://www.ssri-j.com/MediaReport/Document/IndianArmyLandWarfareDoctrine2018.pdf.

Baruah, D. M. (2015, 3 December). India's Evolving Maritime Strategy. pp. 1,2,3,4. Retrieved September 30, 2024, from https://thediplomat.com/2015/12/indias-evolving-maritime-strategy/#:~:text=The%20Indian%20Navy%20released%20its%20latest

Baruah, D. M. (2015, December 7). India's Evolving Maritime Strategy – Analysis. *Observer Research Foundation*, 1,2,3,4,5,6. Retrieved September 30, 2024, from https://www.eurasiareview.com/07122015-indias-evolving-maritime-strategy-analysis/#:~:text=On%20October%2026,%202015,%20the%20Indian%20Navy

Basharat, S. (2018, November). Maritime Doctrine of Pakistan (MDP):Preserving Freedom of Seas. *The Beacon Journal*, 1,2,3. Retrieved November 1, 2024, from https://pnwc.paknavy.gov.pk/thebeaconjournal/crs/Vol3No1_2023/8.pdf

Bukhari, S. S. (2023, January 19). Pakistan's A-100 MLRS And Deterrence Equation For South Asia. *Eurasia Review*, 1,2,3. Retrieved October 8, 2024, from https://www.eurasiareview.com/23012019-pakistans-a-100-mlrs-and-deterrence-equation-for-south-asia-oped/#:~:text=Pakistan%20inducted%20A-100%20rocket%20in

Chawla, S. (2019, July). Pakistan Air Force: Modernisation Trends. *AIR POWER*, 1,2,3,4. Retrieved October 30, 2024, from https://capsindia.org/wp-content/uploads/2022/03/Shalini-Chawla.pdf

Chin, J. (2019, January 25). Pakistan Conducts Test Launch of Hatf 9 "Nasr". pp. 1,2. Retrieved October 8, 2024, from https://missilethreat.csis.org/missile/hatf-9/#:~:text=The%20Nasr%20(Ha tf%209)%20is%20a%20Pakistani

Dahlgren, M. (2019, May 2). Pakistan Test Fires Shaheen 2 Missile. *Center for Strategic and International Studies.*, 1,2,3,4,5. Retrieved October 8, 2024, from https://missilethreat .csis.org/missile/hatf-6/#:~:text=The%20Shaheen%202%20 (Hatf%206)%20is% 20a%20 Pakistani

Dahlgren, M. (2019, November 18). Pakistan Test Fires Shaheen-1 SRBM. pp. 1,2,3,4. Retrieved October 8, 2024, from https://missilethreat.csis.org/missile/hatf-4/#:~:text=The%20Shaheen%201%20(Hatf%204)%20is%20a

Dahlgren, M. (2021, August 15). Pakistan Test-Fires Ghaznavi Missile. pp. 1,2,3,4. Retrieved October 8, 2024, from https://missilethreat.csis.org/missile/hatf-3/#:~:text=The%20Ghaznavi%20(Hatf%203)%20is%20a%20Pakistani

Damiya Saghir, D. K. (2020, July 2). A Comparative Analysis of India and Pakistan's Naval. *South Asian Studies*, 1,2,3,4,5. Retrieved October 7, 2024, from https://pu.edu.pk/images/journal/csas/PDF/12_35_2_20.pdf#:~:text=ABSTRACT.%20Pakistan%20and%20India%20have

Editors, F. (2016, October 3). How to tackle Pakistan? Surgical strikes and the future of Indian military responses. pp. 1,2,4,5,6,7. Retrieved October 5, 2024, from

https://www.firstpost.com/india/how-to-tackle-pakistan-surgical-strikes-and-the-future-of-indian-military-responses-3030968.html

Elkus, A. (2012, April 17). The Strategic and Operational Dynamics of Limited War. *Small Wars Journal*, 1,2,3,4,5,6,7,8. Retrieved October 4, 2024, from https://smallwarsjournal.com/jrnl/art/the-strategic-and-operational-dynamics-of-limited-war#:~:text=War%20as%20a%20Non-State-Centric%20Concept%20of

Hagerty, D. T. (2020). *Nuclear Weapons and Deterrence Stability in South Asia.* New York: Palgrave Pivot Cham.

Hans M. Kristensen, M. K. (2023, September 11). Pakistan nuclear weapons, 2023. *Bulletin of the Atomic Acientists*, 1,2,3. Retrieved October 8, 2024, from https://thebulletin.org/premium/2023-09/pakistan-nuclear-weapons-2023/#:~:text=The%20Pakistani%20government%20states%20that%20the

Hayder, H. (2022, January 27). Pakistan Gets First Batch of Nuclear-Capable SH-15 Howitzers From China. pp. 1,2,3,4,5. Retrieved October 8, 2024, from https://propakistani.pk/2022/01/27/pakistan-gets-first-batch-of-nuclear-capable-sh-15-howitzers-from-china/#:~:text=Pakistan%20Army%20has%20reportedly%20received

Hussain, A. G. (2016, September 29). India claims 'surgical strikes' against militants in Pakistan-controlled Kashmir. pp. 1,2,3,4,5,6,7,8. Retrieved October 5, 2024, from https://www.washingtonpost.com/world/india-hits-militant-launchpads-in-pakistan-in-escalation-between-nuclear-armed-rivals/2016/09/29/e0145168-d97e-4149-977a-24d08b16ea0b_story.html

Jamal, S. (2020, July 29). Pakistan inducts modernised Al Khalid-I tanks with 'outstanding capabilities'. pp. 1,2,3. Retrieved October 8, 2024, from https://gulfnews.com/world/asia/pakistan/watch-pakistan-inducts-modernised-al-khalid-i-tanks-with-outstanding-capabilities-1.72866602#:~:text=Islamabad:%20Pakistan%20Army%20has%20inducted

Kaura, V. (2020, June 17). India's Pakistan policy: from 2016 'surgical strike' to 2019 Balakot 'airstrike'. *The Commonwealth Journal of International Affairs*, 1,2,3,4. Retrieved October 5, 2024, from https://www.tandfonline.com/doi/full/10.1080/00358533.2020.1760499#:~:text=India%E2%80%99s%20actions%20stemmed%20from%20its%20desire

Khan, Z. (2020, July 1). *Pakistan Horizon* , 1,2,3,4,5. Retrieved October 6, 2024, from https://pakistan-horizon.piia.org.pk/index.php/pakistan-horizon/article/view/140#:~:text=The%20article%20concludes%20that%20the%20growing

Khattak, M. U. (2020). The Indian Army's Land Warfare Doctrine. *IPRI*, 1,2,3,4,5,6,7. Retrieved October 1, 2024, from https://ipripak.org/wp-content/uploads/2020/06/Article-5-IPRI-Journal-XX-I-Ind-Arm-New-Lan-ED-SSA-FINAL.pdf#:~:text=The%20article%20 examines%20the%20Indian%20Army's

Khurana, G. S. (2009, March 22). Indian Navy Updates Indian Maritime Doctrine 2009. *National Maritime Foundation*, 1,2,3,4. Retrieved October 30, 2024, from

https://www.maritimeindia.org/wp-content/uploads/2021/01/22-3-2016-Indian-Navy-updates-Indian-amritime-doctrine-2009.pdf

Kristensen, H. M. (2021, September 7). Pakistani nuclear weapons, 2021. *Bulletin of the Atomic Scientists* , 1,2,3. Retrieved October 8, 2024, from https://www.tandfonline.com/doi/full/10.1080/00963402.2021.1964258#abstract

Kulkarni, S. (2020, November 2). What is Army Aviation Corps, the youngest Corps of the Indian Army? pp. 1,2. Retrieved October 30, 2024, from https://indianexpress.com/article/explained/explained-what-is-army-aviation-corps-the-youngest-corps-of-the-indian-army-6912908/

malik, s. (2020, March 15). Indian Surgical Strike: Implications and Response by Pakistan. *IPRI Journal*, 1,2,3,4. Retrieved September 30, 2024, from https://ipripak.org/wp-content/uploads/2020/06/Article-4-IPRI-Journal-XX-I-Ind-Sur-Str-ED-SSA-FINAL.pdf#:~:text=grounds%20to%20launch%20its%20much-touted%20and

Mehra, P. (2009, March). FUTURE SHAPE, SIZE AND ROLE OF INDIAN AIR FORCE. *Air Power*, 1,2,3. Retrieved October 30, 2024, from https://www.capsindia.org/wp-content/uploads/2022/10/PK-Mehra.pdf

Motwani, N. (2028, October 5). Be Prepared for an India-Pakistan Limited War. pp. 1,2,3,4,5. Retrieved October 5, 2024, from https://thediplomat.com/2018/10/be-prepared-for-an-india-pakistan-limited-war/#:~:text=Indian%20army%20soldiers%20shout% 20slogans%20in

Nawaz, A. (2023, May 31). India's Evolving Maritime Strategy. pp. 1,2,3,4. Retrieved September 30, 2024, from https://southasianvoices.org/indias-evolving-maritime-strategy/#:~:text=How%20has%20India%20transformed%20its%20naval

Naz, S. (2019, Decembber). Arms Race and Socio-economic Development of South. *Journal of Indian Studies*, 1,2,3,4,5,6,. Retrieved October 4, 2024, from https://pu.edu.pk/images/journal/indianStudies/PDF/1_v5_2_19.pdf#:~:text=This%20research%20explores%20the%20impact%20of

Naz, S. (2023, October 16). Prospects of and Challenges to Arms Control in South Asia: A Pakistani Perspective. *Istituto Affari Internazionali*, 1,2,3,4,5. Retrieved October 3, 2024, from https://www.iai.it/sites/default/files/iaicom2350.pdf

Network, F. I. (2021, 08 05). Pakistan Army T-80UD MBT overhaul begins in Ukraine. pp. 1,2,3. Retrieved October 8, 2024, from https://frontierindia.com/pakistan-army-t-80ud-mbt-overhaul-begins-in-ukraine/

Noor, S. (2023). *Did Pakistan Just Overhaul Its Nuclear Doctrine?* Cambridge: Foreign Policy. Retrieved from https://foreignpolicy.com/2023/06/19/pakistan-india-nuclear-weapons-zero-range-cold-start-doctrine/

Noreen Naseer, M. F. (2022, September 18). A comparative view of India and Pakistan's defence capabilities: Historical evolution and future trends. *Sage Journals Home*, 1,2,3,4,5,6,7. Retrieved 8 October, 2024, from https://journals.sagepub.com/doi/full/10.1177/20578911221124384#:~:text=This%20article%20discusses%20and%20highlights

Pant, G. K. (2016, August 8). Indian Navy's Maritime Security Strategy. *National Maritime Foundation*, 1,2,3,4. Retrieved October 30, 2024, from https://maritimeindia.org/wp-content/uploads/2021/02/INDIAN-NAVYS-MARITIME-SECURITY-STRATEGY.pdf

Qasir, R. (2020). Space Programs of India and Pakistan: Military and Strategic Installations in Outer Space and Precarious Regional Strategic Stability. *Space Policy*, 1,2,3,4,5. Retrieved October 7, 2024, from https://www.academia.edu/102795233/Space_Programs_of_India_and_Pakistan_Military_and_Strategic_Installations_in_Outer_Space_and_Precarious_Regional_Strategic_Stability

Ravichandran Moorthy, H. K. (2015, January 1). Power Asymmetry and Nuclear Option in India-Pakistan Security Relations. *Asian Journal of Scientific Research*, 1,2,3,4. Retrieved October 6, 2024, from https://scialert.net/abstract/?doi=ajsr.2015.80.94

Roblin, S. (2020, November 10). A "Limited" Nuclear War Between India and Pakistan? Forget It. pp. 1,2,3,4,5,6,7. Retrieved October 5, 2024, from https://nationalinterest.org/blog/reboot/limited-nuclear-war-between-india-and-pakistan-forget-it-172375

Ross, S. (2024, September 11). How to Fix the Problem of Asymmetric Information. pp. 1,2,3,4,5. Retrieved October 6, 2024, from https://www.investopedia.com/ask/answers/050415/how-can-problem-asymmetric-information-be-overcome.asp#:~:text=The%20Bottom 20Line%20.%20Information%20in%20a

Saif-ul-Haq. (2021). Indian Naval Modernization and its . *Islamabad Policy Research Institute*, 1,2,3,4. Retrieved October 7, 2024, from https://journal.ipripak.org/wp-content/uploads/2021/12/Article-3-IPRI-Journal-XXI-2-Saif-ul-Haq.pdf#:~:text=marine-launched%20ballistic%20as%20well%20as

Saravanan, M. (2022, June 20). India's Maritime Security Strategy in the 'Century of Seas'. *Modern Diplomacy*, 1,2,3,4. Retrieved September 30, 2024, from https://moderndiplomacy.eu/2022/06/20/indias-maritime-security-strategy-in-the-century-of-seas/#:~:text=The%20Naval%20Strategy%20forms%20a %20major%20part%20of

Singh, D. (2024, January 10). The Hindustan Times. pp. 1,2,3. Retrieved October 31, 2024, from https://www.thehindubusinessline.com/news/national/indian-navy-receives-first-uav-from-adani-defence-and-aerospace-strengthening-maritime-surveillance/article677264 57.ece

Sultan, D. A. (2019). *India's 'Surgical Strike' Doctrine: Implications for South Asian Strategic Stability.* Islamabad : Strategic Forsight for Asia. Retrieved from https://strafasia.com/indias-surgical-strike-doctrine-implications-for-south-asian-strategic-stability/

Syed Eesar Mehdi, T. A. (2024, March 28). Understanding Pakistan's Unmanned Aerial Vehicle (UAV) Programme. *International Centre for Peace Studies*, 1,2,3. Retrieved November 1, 2024, from https://www.icpsnet.org/comments/Pakistan-Unmanned-Aerial-Vehicle-UAV-Programme

Tasleem, S. (2026, June 30). Pakistan's Nuclear Use Doctrine. *Carnegie Endowment for International Peace*, 1,2,3,4,5,6,7,8. Retrieved October 8, 2024, from https://carnegieendowment.org/research/2016/06/pakistans-nuclear-use-doctrine?lang=en

Bluth, C. (2010). India and Pakistan: A case of asymmetric nuclear deterrence. *Korean Journal of Defense Analysis*, *22*(3), 387–406. https://doi.org/10.1080/10163271.2010.500027

Farzana Siddique. (2020). Role of Signalling in Doctrinal Evolution: A Case Study of India-Pakistan Deterrence Equation. *Strategic Studies*, *40*(3), 60–81. https://doi.org/10.53532/ss.040.03.0070

Aarten, S. R. (2021). Deterrence (In)stability Between India and Pakistan. In F. Osinga & T.Sweijs (Eds.), NL ARMS Netherlands Annual Review of Military Studies 2020: Deterrence in the 21st Century—Insights from Theory and Practice (pp. 215–230). T.M.C. Asser Press.https://doi.org/10.1007/978-94-6265-419-8_12

Jaspal, D. Z. N. (n.d.). *NUCLEAR WEAPONS EFFICACY FOR DETERRENCE & COMPELLENCE: POST PULWAMA APPRAISAL.*

Kapur, S. P. (2005). India and Pakistan's Unstable Peace: Why Nuclear South Asia Is Not Like Cold War Europe. *International Security*, *30*(2), 127–152. https://doi.org/10.1162/016228805775124570

Clary, C., & Narang, V. (2019). India's Counterforce Temptations: Strategic Dilemmas, Doctrine, and Capabilities. *International Security*, *43*(3), 7–52. https://doi.org/10.1162/isec_a_00340

Ladwig Iii, W. C. (2015). Indian Military Modernization and Conventional Deterrence in South Asia. *Journal of Strategic Studies*, *38*(5), 729–772. https://doi.org/10.1080/01402390.2015.1014473

Montgomery, E. B., & Edelman, E. S. (2015). Rethinking Stability in South Asia: India, Pakistan, and the Competition for Escalation Dominance. *Journal of Strategic Studies*, *38*(1–2), 159–182. https://doi.org/10.1080/01402390.2014.901215

Wadood, A. (2020). The Efficacy of Nuclear Deterrence in South Asia: A Case Study of Pakistan and India. *Pakistan Social Sciences Review*, *4*(II), 751–762. https://doi.org/10.35484/pssr.2020(4-II)61

Biswas, A. (2017). Surgical strikes and deterrence-stability in South Asia. *ORF Occasional Paper*, *115*.

Abid, A. A. (2023). The Efficacy of Pakistan's Full Spectrum Deterrence. *CISS Insight Journal*, *11*(1), P01-21.

Khattak, M. U. R., & Kundi, M. A. (2019). Conventional Asymmetries between India and Pakistan: A threat to the Deterrence Stability of South Asia. *Journal of Political Studies*, *26*(1), 71-94.

Sridharan, E. (2020). International Relations Theory and the India—Pakistan Conflict. In *The India-Pakistan Nuclear Relationship* (pp. 26-50). Routledge India.

Jervis, R. (1979). Deterrence Theory Revisited. *World Politics*, 31(2), 289-324.

Morgan, P. M. (2003). Deterrence Now. Cambridge: *Cambridge University Press*.

Powell, R. (2005). Bargaining and Learning While Fighting. *American Journal of Political Science,* 49(2), 333-347.

Air Chief Marshal Rafique, T. (2017, November 23). [Personal interview].

Lockheed Martin. (2017, March 20). C-130J Super Hercules. http://lmt.co/2m1cH0H

WikiLeaks. (2010, February 16). Cold Start - A Mixture of Myth and Reality. http://bit.ly/2rjAjfj

Military Factory. (2017, March 18). Dassault Rafael multi-role 4th Generation Fighter. http://bit.ly/2sb5ZI6

Economic Times. (2017, March 20). Here is why Apache and Chinook Helicopters are Game Changers for India. http://bit.ly/2sgVrb6

BBC. (2016, August 24). India Investigating French Submarine Company Data Leak. http://bbc.in/2buSomC

Airforce-Technology. (2017, March 20). India Plans to Acquire Ten C-17 Globemaster III from Boeing. http://bit.ly/2r7HcRH

Nuclear Threat Initiative. (2015, September 30). India Submarine Capabilities. http://bit.ly/2sbeYsD

Indian Navy. (2017, March 23). Indian Navy: Commands. http://bit.ly/2sQCn0o

Deutsche Welle. (2015, February 23). Naval Build-up Reflects India's Ambition to Project Power. http://bit.ly/2rjA8kk

Airforce-Technology. Su-30MKI Multirole Fighter Aircraft, India. http://bit.ly/2r7Gm7v

Defence World. (2016, March 30). India to Get Six C-130J Transport Aircraft in 2017. http://bit.ly/2reAHAX

Stockholm International Peace Research Institute (SIPRI). (2022, April 25). World Military Expenditure Passes $2 trillion for the first time. https://www.sipri.org/media/press-release/2022/world-militaryexpenditure-passes-2-trillion-first-time

Bajpaee, C. (2015, February 23). Naval Build-up Reflects India's Ambition to Project Power. Deutsche Welle. http://bit.ly/2rjA8kk

Cohen, S. P., & Dasgupta, S. (2009). Arming without Aiming: India's Military Modernisation. Brookings Institution Press.

Eadie, P., & Rees, W. (2016). The Evolution of Military Power in the West and Asia: Security Policy in the post-Cold War Era. Routledge.

Gupta, S., & Singh, R. (2015, May 26). Defence Ministry Okays deals worth over $3bn to buy 15 Chinook, 22 Apache Copters. Hindustan Times. http://bit.ly/2rOydrj

Kasper, J. (2015, May 26). C–130 Hercules. Forecast International. http://bit.ly/2sgSQxR

Khattak, M.-U.-R. (2011, December 25). Indian Naval Modernisation: Implications for Pakistan. Eurasia Review. http://bit.ly/2rODD5K

Pant, H. V. (2016). Handbook of Indian Defence Policy: Themes, Structures and Doctrines. Routledge.

Pant, H. V. (2016). The Rise of the Indian Navy: Internal Vulnerabilities, External Challenges. Routledge.

Singh, R. (2017, April 27). India World's 5th Largest Military Spender: 7 Weapon Systems Govt is Buying. Hindustan Times. https://www.hindustantimes.com/india-news/shelling-out-on-defence-7-weaponsystems-india-is-buying-to-build-its-military-muscle/story-ZJ3QAoMfncQeeXivd8UutO.html

Singh, R. (2017, February 16). From 290 km to 450 km: India to soon test Extended Range BrahMos Missile. Hindustan Times. http://bit.ly/2r7ImN2

Sen, S. R. (2013, September 3). Indian Air Force Inducts C-17 Globemaster, its Biggest Transport Aircraft. NDTV. http://bit.ly/2sh3c0D

Tellis, A. J. (2017). India is and will remain, the dominant naval power in the Indian Ocean. (Personal communication, October 11, 2017).

Wezeman, P. D., Kuimova, A., & Wezeman, S. T. (2022, March). Trends in International Arms Transfers. SIPRI Fact Sheet. https://www.sipri.org/sites/default/files/2022-03/fs_2203_at_2021.pdf

Gupta, S., & Singh, R. (2015, May 26). Defence Ministry Okays deals worth over $3bn to buy 15 Chinook, 22 Apache Copters. *Hindustan Times*. http://bit.ly/2rOydrj

"Cold Start - A Mixture of Myth and Reality." (2010, February 16). *WikiLeaks*. http://bit.ly/2rjAjfj

Kapur, S. P. (2009). Dangerous Deterrent: Nuclear Weapons Proliferation and Conflict in South Asia. Singapore: NUS Press.

Narang, V., & Ladwig III, W. C. (2017, January 11). Taking 'Cold Start' out of the freezer? Hindu. https://bit.ly/2B6DDlO

Chauhan, B. S. (2015). F-INSAS Programme: Future Infantry Soldier as a System - A Reality Check. Indian Defence Review, 30(2). http://bit.ly/2r7pr5f

Programmes at a Glance. (2015). Soldier Modernisation, 16(Winter/Spring), 32. http://bit.ly/2sb7Jkx

Saksena, A. (2017, January 18). Indian Army's Future Infantry Soldiers to Get Lethal Weapons and Better Protection. India Times. http://bit.ly/2rjl6uQ

Jervis, R. (1978). Cooperation under the Security Dilemma. World Politics, 30(2), 167-214.

Kapur, S. P. (2013). Deterrence Stability and Escalation Control in South Asia. Strategic Studies Quarterly, 7(1), 35-58.

Liang, Y., & Yang, H. (2014). An Evaluation Framework for the Military Balance Between China and Taiwan. Security Challenges, 10(1), 79-94.

Miller, S. G. (2017). Strategic Stability: Contending Interpretations. Strategic Studies Quarterly, 11(1), 47-72.

Powell, R. (2006). War as a Commitment Problem. International Organization, 60(1), 169-203.

Smith, J. (2010). Deterrence and International Conflict: Empirical Findings and Theoretical Debates. Annual Review of Political Science, 13, 183-204.

Tellis, A. J. (2001). Stability in South Asia: A Net Assessment. Strategic Studies Institute.