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Shaping Security Beyond Arms: The Quad and Human Futures in the Indo-Pacific

Parfej Ali^{1*}

¹ Department of Political Science, Gauhati University, Guwahati, Assam, India.

* Correspondence: parfejali2000@gmail.com.

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ABSTRACT

In contemporary world politics, non-traditional security has emerged as a significant concern, with threats posed by terrorist networks, drug cartels, civil wars, maritime piracy, and environmental degradation. Human security functions as a core analytical lens for understanding these non-traditional security (NTS) challenges. The Quad was established in 2004 to coordinate humanitarian efforts related to tsunamis. It has since expanded its agenda beyond strategic-security cooperation to embrace human-centric priorities. By addressing health, climate resilience, disaster relief, and digital empowerment, the Quad increasingly reflects human-security principles within its Indo-Pacific strategy. This study clarifies key concepts such as “human futures,” defined as the long-term safeguarding of social, environmental, and technological well-being, and “climate governance,” referring to collaborative mechanisms for managing climate risks. Using human-security and climate-governance lenses, the study evaluates the Quad’s initiatives through the criteria of effectiveness, inclusiveness, and long-term resilience. Conducted through qualitative, descriptive, and analytical methods based on secondary data, the study addresses three questions: (1) how non-traditional security challenges have reshaped the Quad’s evolving agenda; (2) how human-security principles are incorporated into its regional initiatives; and (3) how these initiatives perform in terms of effectiveness, inclusiveness, and long-term resilience. The paper argues that the Quad’s expanding engagement with non-traditional security contributes to the emergence of a more human-centric Indo-Pacific order.

KEYWORDS

Human Security, Quad, Indo-Pacific, Non-Traditional Security, Climate Governance, India, USA.

1. Introduction

Security is a dynamic concept that adapts to changing global realities. At its most basic level, security refers to a condition in which individuals, communities, states, or systems are free from danger, threat, or harm. It encompasses the measures, conditions, and policies designed to safeguard safety, stability, and effective functioning. Traditionally, security has been understood in state-centric terms, focusing primarily on military threats, territorial integrity, and external aggression. In contemporary world politics, however, the scope of security has expanded significantly, leading to a distinction between traditional and non-traditional security.



While traditional security primarily concerns military conflict between states, non-traditional security (NTS) addresses a range of challenges that transcend national boundaries and often involve non-state actors. The emergence of terrorist networks, drug cartels, intra-state conflicts such as civil wars, maritime piracy, and environmental degradation has transformed the global security landscape and introduced complex, transnational threats (SRIKANTH, 2014). Among these challenges, environmental degradation represents one of the gravest threats to the long-term sustainability of both modern sovereign entities and human societies.

The growing prominence of non-traditional security has reinforced the relevance of human security as an analytical framework that shifts the focus of security studies from states to people. The ultimate aim of security, therefore, is the protection and enhancement of human life, dignity, and well-being. This perspective was formally articulated in the 1994 United Nations Development Programme (UNDP) Human Development Report, which argued that security should extend beyond concerns of nuclear confrontation and territorial defense to address threats affecting everyday human existence. Reflecting on the transformative impact of nuclear weapons after the Second World War, Albert Einstein observed that “everything changed. He cautioned that humanity would require “a substantially new manner of thinking if mankind is to survive” (UNDP, 1994). Despite the absence of a global war on the same scale, individuals across developed and developing states continued to experience persistent insecurity in their daily lives.

During the Cold War, superpowers competed to establish ideological dominance, while newly independent and developing states struggled to consolidate fragile national identities and ensure national security. Yet, irrespective of levels of development, many states failed to provide comprehensive security for their populations. In this context, human security emerged as a critical framework encompassing both “freedom from want” and “freedom from fear,” capturing positive and negative freedoms related to fundamental human needs and rights (Newman, 2010).

The Quadrilateral Security Dialogue (Quad) was established in 2004 in the aftermath of the Indian Ocean tsunami to coordinate humanitarian assistance and disaster relief. Although often associated with strategic and geopolitical cooperation in the Indo-Pacific, human security has remained an important, if sometimes implicit, component of the foreign policy priorities of its member states. While explicit references to human security in Quad leaders’ declarations have become less frequent since 2017, people-centered cooperation continues to shape its engagement, particularly in areas such as health security, climate change, disaster resilience, emerging technologies, and cooperation with Pacific Island countries (Takahashi, 2024).

Against this backdrop, this study examines how the Quad addresses non-traditional security challenges and whether its evolving agenda reflects a shift toward a more human-centric approach. By analyzing Quad initiatives related to health security, climate governance, disaster resilience, and digital empowerment, the study seeks to assess the effectiveness, inclusiveness, and long-term resilience of these efforts in shaping a secure and sustainable Indo-Pacific order.

2. Theoretical framework

To examine the evolving role of the Quad in addressing non-traditional security challenges in the Indo-Pacific, this study is guided by Human Security Theory and Regional Security Complex Theory (RSCT). Together, these frameworks provide complementary analytical lenses that link people-centered security concerns with broader regional security dynamics.

Human Security Theory shifts the focus of security studies from a predominantly state-centric and military-oriented paradigm to the protection of individuals and communities. It emphasizes key dimensions of security central to contemporary global challenges, including livelihoods, health, dignity, environmental sustainability, and resilience to humanitarian crises. From this perspective, threats such as pandemics, climate change, maritime piracy, and large-scale natural disasters are not merely policy challenges but existential risks to human survival and well-being. Human security, therefore, underscores the need for cooperative, inclusive, and people-centered responses that transcend national borders and traditional security mechanisms.

Complementing this approach, Regional Security Complex Theory, as developed by Buzan and Wæver (2003), situates human-security concerns within the structural dynamics of regional security. RSCT argues that security interactions are regionally clustered, shaped by patterns of interdependence, proximity, and shared

vulnerabilities. In the Indo-Pacific context, transnational challenges such as climate change, disaster risks, and health emergencies generate interconnected security concerns that cannot be addressed by individual states alone. Cooperative frameworks such as the Quad thus emerge as significant platforms for managing these shared risks.

By integrating Human Security Theory with RSCT, this study conceptualizes the Quad as both a people-centered and regionally embedded security actor. This combined framework helps explain the Quad's transition from a narrowly defined strategic-security arrangement to a more comprehensive platform that incorporates disaster relief, health cooperation, climate resilience, and digital empowerment. In operational terms, the analysis evaluates Quad initiatives using three key indicators derived from the theoretical framework: effectiveness (the capacity to deliver tangible outcomes), inclusiveness (the extent of regional engagement and stakeholder participation), and long-term resilience (the sustainability and adaptive capacity of initiatives). This approach enables a systematic assessment of how human-security principles are embedded in the Quad's evolving regional security role in the Indo-Pacific.

3. Methodology

This study employs a qualitative, descriptive, and analytical approach, relying primarily on secondary data, including official Quad statements, government reports, and scholarly literature. The analysis is guided by Human Security Theory and Regional Security Complex Theory (RSCT), which together provide complementary lenses linking people-centered concerns to broader regional security dynamics. Human Security Theory shifts the focus from state-centric, military-oriented paradigms to the protection of individuals and communities, emphasizing livelihood, health, dignity, environmental sustainability, and resilience to humanitarian crises. RSCT situates these concerns within regional security structures, highlighting interdependence, proximity, and shared vulnerabilities that necessitate multilateral cooperation. The study operationalizes these frameworks through three core indicators: effectiveness, assessing tangible outcomes of Quad initiatives; inclusiveness, evaluating the extent of regional engagement and attention to vulnerable populations; and long-term resilience, examining the sustainability and adaptability of interventions. By combining these analytical lenses with systematic analysis of secondary sources, the study evaluates how the Quad addresses non-traditional security challenges while promoting a human-centric Indo-Pacific strategy.

4. The evolution of the Quad

The Quad is a group of four Indo-Pacific democracies—India, the United States, Australia, and Japan—established in the aftermath of the 2004 Indian Ocean tsunami to coordinate humanitarian assistance and disaster relief (Wei, 2024). As Harsh V. Pant, Vice President of the Observer Research Foundation, noted, “by the end of the humanitarian relief mission in mid-January 2005, a new seeding of the Quad framework emerged in the leaders’ minds” (Wei, 2024). In 2007, Japanese Prime Minister Shinzo Abe formalized the Quad to enhance maritime security and strengthen cooperation among the four democracies in response to China’s growing influence. In May, the countries held their first Quad meeting, accompanied by a joint naval exercise in the Bay of Bengal. However, differing national interests and China’s suspicion regarding the group’s aims led to a temporary lapse in cooperation.

The Quad was later revived during the presidency of Donald J. Trump. In 2012, Abe, in his second term as Prime Minister, published the opinion piece “Asia’s Democratic Security Diamond” on Project Syndicate (Wei, 2024). In 2016, before Trump’s presidency, Abe introduced Japan’s “Free and Open Indo-Pacific” strategy, emphasizing security, political, and economic cooperation. In his Nairobi speech, he called for a regional order rooted in freedom, rule of law, and prosperity, free from coercion, highlighting maritime security as a central pillar. Subsequently, Quad foreign ministers met in New York to discuss cooperation on counterterrorism, humanitarian assistance and disaster relief, maritime security, development, and cybersecurity.

In recent years, the Quad has expanded its initiatives to address non-traditional security challenges and promote human-centric regional cooperation. At the 2022 Quad Leaders’ Summit in Tokyo, the group launched the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA), enhancing the ability of Indo-Pacific

partners to detect and respond to illicit maritime activities, climate events, and humanitarian crises through advanced maritime domain awareness systems (Cabinet, 2023). This shift reflects the Quad's broader transition from a purely strategic security grouping to a more human-centric partnership.

In the realm of health security, the Quad Vaccine Partnership, launched in 2021, delivered nearly 800 million COVID-19 vaccine doses globally and later evolved into the Quad Health Security Partnership, focusing on pandemic preparedness, health workforce training, and disease surveillance (DFAT, 2023). Climate change cooperation is promoted through the Quad Climate Working Group and Q-CHAMP, which support clean energy, climate resilience, and environmental disaster response (Mizo, 2025). On emerging technologies, the Quad's Critical and Emerging Technology Working Group advances collaboration on AI, 5G, semiconductors, and technology governance aligned with democratic values (Quad, 2021). Cybersecurity efforts include joint principles on secure software and a Quad action plan for undersea cable protection to enhance digital resilience (Press Information Bureau, 2024). Additionally, the Quad Infrastructure Coordination Group supports sustainable infrastructure development in digital connectivity, health systems, and energy, complemented by training programs such as the Infrastructure Fellowships initiative (U.S. Embassy & Consulates in India, 2024).

Collectively, these initiatives demonstrate the Quad's evolution into a comprehensive Indo-Pacific strategy centered on human security, inclusivity, and resilience, reflecting a deliberate integration of non-traditional security priorities into regional cooperation.

5. Non-traditional security challenges in the Indo-Pacific

In recent years, the Indo-Pacific region has emerged as a critical arena not only for traditional geopolitical rivalries but also for a complex array of non-traditional security challenges that transcend conventional military concerns. These challenges—ranging from climate change and pandemics to cyber threats and transnational crime—pose significant risks to the stability, development, and security of the diverse nations within this strategically vital region. Include key areas of human security relevance:

Health Security In 2023, the Quad leaders decided to develop a comprehensive Health Security Partnership aimed at strengthening coordination and collaboration among member countries, enhancing regional and global health security, and supporting economic recovery in the Indo-Pacific, building on prior joint efforts such as COVID-19 vaccine delivery (Cabinet, 2023). The Quad is spearheading initiatives to assist partner countries in tackling pandemics, combating diseases, and responding to natural disasters (Pib, 2024).

A significant example is the Quad Cancer Moonshot, launched in 2024 to reduce the burden of cervical cancer in the Indo-Pacific (Ministry of External Affairs, 2024). This landmark collaborative initiative—led by India, Japan, Australia, and the United States—aims to strengthen health infrastructure, expand research partnerships, and promote early detection, prevention, and treatment of cervical cancer, particularly in underserved areas. Despite being preventable and treatable, cervical cancer remains a leading cause of death among women in the region, with low HPV vaccination and screening rates. The initiative addresses these gaps through vaccine deployment, improved access to screening, medical training, and research collaboration.

Each member contributes uniquely: the United States provides funding, training, and global research support; India offers screening tools and digital health expertise; Australia scales vaccination programs through the EPICC consortium; and Japan provides medical equipment and technical assistance. The initiative also involves partnerships with international organizations and NGOs, including the WHO, World Bank, and philanthropic networks such as WHEN and the Minderoo Foundation. Together, these stakeholders aim to reduce disparities in cancer care and advance equitable access to lifesaving services.

The Cancer Moonshot exemplifies a broader human security vision, framing health as a regional security priority and reinforcing the Quad's shift toward a human-centric Indo-Pacific strategy. The Quad continues to enhance health security and regional resilience through initiatives such as the Pandemic Fund, pandemic simulation exercises, specialist training, and the development of standardized emergency protocols. India will host workshops and release a white paper on emergency public health strategies, Australia is expanding its deployable public health workforce with training programs in Darwin, and the United States has pledged over \$84.5 million to strengthen disease prevention, detection, and response capacities in 14 Indo-Pacific countries.

Additionally, the Quad coordinates equitable vaccine access during mpox outbreaks, including supporting local vaccine production in low- and middle-income countries where appropriate.

Climate Change & Environmental Threats: The Quadrilateral Security Dialogue (Quad) has positioned climate change as a top non-traditional security priority, recognizing the Indo-Pacific as home to a quarter of the world's population and 35 percent of global GDP (Roy, 2021). The region faces significant climate impacts, making the Quad a potential leader in advancing the global climate agenda. To address these challenges, the Quad established a Working Group on Climate Change. It launched the Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP), which focuses on both climate mitigation and resilience, while fostering diplomatic engagement with regional organizations such as ASEAN to address vulnerabilities effectively (Verma & S, 2024).

The Quad also supports the Coalition for Disaster Resilient Infrastructure (CDRI) to strengthen climate resilience and infrastructure across the Indo-Pacific (Ramnath, 2022). To provide technical assistance to small island developing states, the Quad will organize a Climate & Information Services Task Force and establish a new technical center under the CDRI framework (India, 2024). Initiatives also aim to enhance Early Warning Systems and Climate Information Services (CIS) in the Pacific, boosting regional climate resilience. For example, the United States is providing 3D-printed weather stations and expert training in Fiji; Australia contributes through the Weather Ready Pacific initiative, which supports the UN's EWS4ALL program; and Japan implements its Pacific Climate Resilience Initiative, focusing on disaster preparedness and renewable energy. Local experts are being trained to improve flash flood forecasting and emergency response.

Despite these collaborative efforts, differences remain among member countries. Japan and the United States have committed to achieving net-zero emissions by the mid-21st century, whereas India and Australia have not yet adopted concrete net-zero targets (Roy, 2021). Nevertheless, by advocating for climate change and other non-traditional security issues, the Quad demonstrates its capacity for productive collaboration and tangible benefits for the region (Centre for Social and Economic Progress, 2023). These initiatives underscore the Quad's commitment to advancing climate resilience, sustainable development, and a human-centric security framework in the Indo-Pacific.

Disaster Relief and Humanitarian Aid, the Quad countries first came together over twenty years ago in response to the devastating 2004 Indian Ocean earthquake and tsunami, providing rapid humanitarian assistance to affected nations (Press Information Bureau, 2024). Since then, the Quad has institutionalized its approach to Humanitarian Assistance and Disaster Relief (HADR), responding to crises across the Indo-Pacific. For example, in 2024, the Quad coordinated HADR efforts following a deadly landslide in Papua New Guinea, jointly providing over \$5 million in humanitarian aid and supporting long-term resilience initiatives. These efforts follow the UN principles of humanity, neutrality, and impartiality, as outlined in Resolution 46/182.

The Quad strengthens disaster-relief coordination by pre-positioning essential supplies for rapid response in regions such as the Indian Ocean, Southeast Asia, and the Pacific. In the coming months, Quad disaster relief experts will conduct tabletop exercises to enhance preparedness for future emergencies. In addition, the Quad is providing over \$4 million in humanitarian assistance to support Vietnam's recovery from Typhoon Yagi (Press Information Bureau, 2024).

Under the Partnership framework, Quad assistance requires a formal request from the affected country. Support may be provided collectively or individually during all phases of disaster response—preparedness, emergency response, and recovery—while fully respecting national sovereignty and territorial integrity. The Partnership emphasizes inclusive humanitarian action, promoting gender equality, empowering women and girls, involving persons with disabilities, and ensuring that indigenous peoples, minorities, and other vulnerable groups are not left behind. There is a strict zero-tolerance policy regarding Sexual Exploitation, Abuse, and Harassment (SEAH).

Quad partners meet twice annually to exchange operational updates and lessons learned, and conduct at least one scenario-based tabletop exercise each year to strengthen coordination and preparedness. The Partnership collaborates closely with the UN, international donors, regional and local governments, NGOs, and other relevant actors to ensure practical and principled humanitarian assistance (Ministry of External Affairs, Government of India, 2022).

On April 3, 2025, the Quad countries announced that they had collectively committed over \$20 million in humanitarian aid. This included providing relief supplies, deploying emergency medical teams, and supporting humanitarian organizations assisting victims of the recent earthquake in Myanmar. The Quad also expressed support for recent temporary and partial ceasefire agreements, urging all parties to uphold and expand these measures to ensure safe and timely delivery of aid. Furthermore, the Quad welcomed statements from ASEAN Foreign Ministers in March 2025, acknowledging the critical support provided by ASEAN and regional partners to affected communities (The Hindu, 2025).

Energy Security: The Quad countries have committed to deepening cooperation on clean energy by aligning policies, investments, and standards to build high-quality, diversified supply chains that enhance energy security and create economic opportunities across the Indo-Pacific. A key milestone was the Wilmington Declaration in September 2024, in which the four countries agreed to strengthen clean energy supply chains as part of broader efforts to boost energy security and regional economic resilience (Schwartz & Subramanlan, 2025). Joint initiatives focus on critical areas such as mineral production, recycling, and battery manufacturing, leveraging each partner's complementary strengths.

Specific national contributions include Australia's AUD 50 million Quad Clean Energy Supply Chains Diversification Program to support solar, hydrogen, and battery projects; India's \$2 million commitment for new solar initiatives in Fiji, Comoros, Madagascar, and Seychelles; Japan's \$122 million in grants and loans for regional renewable energy projects; and the United States' \$750 million in loans to Tata Power Solar and First Solar to support solar manufacturing in India, alongside ongoing efforts to mobilize private capital in solar, wind, cooling, batteries, and critical minerals. Additionally, the Quad is promoting affordable, high-efficiency cooling systems to help climate-vulnerable communities cope with rising temperatures, with the U.S. providing \$1.25 million in technical assistance for initial implementation (Pib, 2024).

Cybersecurity & Technology Cybersecurity the Quad is working to create a stronger, secure, and resilient cyber ecosystem for its members and partners. The four democracies face increasing cyber threats, including DDoS attacks, ransomware, supply chain breaches, zero-day exploits, and cyber espionage, which threaten both regional security and stability (Patil et al., 2025). In response, the Quad Senior Cyber Group (QSCG) was established on 24 September 2021 during a summit hosted by President Biden with Prime Ministers Scott Morrison, Narendra Modi, and Yoshihide Suga (Australian Department of Home Affairs, n.d.).

Key initiatives include the Quad Action Plan to Protect Commercial Undersea Telecommunications Cables, which strengthens digital infrastructure and connectivity, and the 2023 Joint Principles for Secure Software, designed to reduce vulnerabilities across the software lifecycle—from development to procurement and use (Fabiani, 2024; MoEA, GoI, 2023). The Quad also partners with software firms and industry leaders to implement secure software standards, enhancing government networks and digital supply chain resilience.

Capacity-building initiatives include the annual Quad Cyber Challenge, focusing on responsible cyber practices and career development in cybersecurity, particularly for women and underrepresented groups. The previous campaign engaged over 85,000 participants across the Indo-Pacific. Complementary programs, such as the Quad Cyber Bootcamp and a regional conference in the Philippines, aim to strengthen regional cyber capacity, share threat intelligence, and coordinate responses to major cybersecurity incidents (Pib, 2024). Collectively, these efforts contribute to a more resilient, digitally secure Indo-Pacific, aligning with the Quad's broader human-centric security agenda.

India's Role in Promoting Human Security within the Quad India plays a pivotal role in advancing human security within the Quad, focusing on disaster assistance, climate change, and pandemic preparedness. These contributions align with both regional security objectives and India's national priorities, supporting resilience and inclusive development in the Indo-Pacific.

In health security, India participates in the Quad Vaccine Partnership, develops standard response procedures, hosts workshops, and publishes guidance on emergency public health strategies (Pib, 2024). In climate and disaster resilience, India leverages space-based monitoring to track extreme weather events, contributing to regional preparedness (Wilson Center, Environmental Change and Security Program, 2021). India also leads counter-terrorism initiatives, hosting the first working group in 2023 focused on threats from drones, chemical, biological, radiological, and nuclear weapons, and online terrorism (Pib, 2024).

India contributes to space situational awareness programs to promote sustainable space use, which supports climate monitoring, and its maritime security initiatives, such as SAGAR and the Indo-Pacific Oceans Initiative, complement Quad priorities (Pant, 2022). The Quad framework also emphasizes human rights and dignity, consistent with the Sustainable Development Goals and inclusive principles (MoE, GoI, 2024). Strategically, India maintains caution regarding a formal military alliance within the Quad, balancing its engagement with Russia, the Shanghai Cooperation Organisation, and other actors, while managing border tensions with China to ensure the Quad is not perceived as an anti-China bloc (Upadhyay, 2022; Oros & Gordan, 2021).

Overall, India's engagement reflects a multifaceted approach, advancing human security and inclusive development in the Indo-Pacific while advocating for the interests of the Global South.

6. Challenges & Critique

While the Quad has broadened its agenda beyond traditional military concerns through initiatives such as the Vaccine Partnership, climate change working groups, and disaster relief programs, it remains heavily anchored in strategic and security discourse. For example, the Quad Vaccine Partnership aims to strengthen health infrastructure in the Indo-Pacific; however, critics argue that coordination mechanisms to ensure equitable access and long-term resilience remain underdeveloped (Stromesh, 2021). Similarly, its disaster relief efforts (HADR) are often ad hoc and not fully institutionalized, which limits their sustained impact on human security (Halder, 2024).

Although the Quad officially frames itself as promoting “a free and open Indo-Pacific,” analysts note that it remains implicitly oriented toward balancing China's influence. Some commentators describe it as an “Asian NATO” or a soft security bloc: while it provides public goods, much of its cohesion derives from military coordination and strategic signaling (Kwek, 2021). The absence of formal alliance structures compounds ambiguity: the Quad executes joint exercises and engages in crisis diplomacy but does not commit to collective defense, unlike AUKUS or similar frameworks, leaving a predominantly military-driven orientation without full alignment (Koga, 2023).

Limited institutionalization also constrains the Quad's effectiveness compared to other regional platforms such as the EU or ASEAN. Unlike these organizations, the Quad lacks a secretariat, permanent bureaucracy, or binding protocols, operating primarily through occasional leaders' summits and ministerial dialogues. This ad hoc structure limits continuity and long-term planning. Scholars have described its institutional framework as “thin,” with only incremental movement toward deeper institutionalization. Comparisons with ASEAN suggest that the Quad's informal nature can reduce implementation effectiveness and legitimacy, particularly among smaller regional states (ISEAS, 2023).

Geopolitical competition with China further complicates the Quad's human security agenda. While Quad statements generally avoid explicit references to China, their emphasis on coercive behavior and rules-based norms clearly signals a strategic counterbalance (Lee, 2023). Chinese sources often frame the Quad as a U.S.-led instrument of containment, implying that hard security priorities may overshadow or deprioritize human security initiatives as strategic rivalry intensifies.

Power asymmetries among Quad members also pose challenges for cohesion and agenda-setting. The United States is the dominant power, while India, Japan, and Australia differ in economic resources, military capacity, and strategic priorities. India, in particular, is cautious about formal military alliances due to its strategic autonomy tradition, whereas Australia, Japan, and the U.S. rely on established alliance frameworks and shared threat perceptions. These disparities complicate the Quad's ability to move beyond coordination toward collective human security action.

In sum, while the Quad has expanded into human security domains such as health, climate, and disaster relief, these efforts remain constrained by strategic and military imperatives, limited institutional infrastructure, power asymmetries, and geopolitical competition with China. Consequently, the Quad's capacity to deliver sustained, inclusive human security outcomes remains limited (Kumar & Khan, 2021).

7. Summary of Quad Initiatives

The Quad has implemented a range of initiatives across multiple non-traditional security domains, reflecting its human-centric Indo-Pacific strategy. In **health security**, the Quad Vaccine Partnership (2021) and the Quad Cancer Moonshot (2024) enhanced vaccine delivery, strengthened health systems, expanded research collaborations, and improved disease prevention and treatment infrastructure across the region. In **climate and environmental security**, the Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP) and the Coalition for Disaster Resilient Infrastructure (CDRI) initiatives bolster climate resilience, develop Early Warning Systems, provide technical support to small island states, and coordinate adaptation efforts with regional partners. In **disaster relief and humanitarian aid**, the Quad coordinates Humanitarian Assistance and Disaster Relief (HADR), prepositions supplies, deploys emergency response teams, and implements inclusive interventions aligned with UN principles. In **energy security**, Quad members collaborate on clean energy supply chains, renewable energy projects, and technological investments, leveraging the complementary strengths of each country to enhance regional energy resilience. In **cybersecurity and emerging technologies**, the Quad Senior Cyber Group (QSCG) and related initiatives promote secure software development, protect critical infrastructure, enhance cyber capacity, and facilitate workforce training and private sector collaboration. By assessing these efforts through the lens of **effectiveness**, **inclusiveness**, and **long-term resilience**, the Quad demonstrates its transition from a strategic-security forum to a comprehensive platform focused on human security, regional cooperation, and sustainable development.

8. Conclusion

The Indo-Pacific region is at a critical crossroads, where traditional security approaches are insufficient to address the complex threats facing its populations. Non-traditional security (NTS) challenges—such as pandemics, environmental disasters, cyber-attacks, and humanitarian crises—underscore the urgent need to prioritize human security in regional policies. In this context, the Quadrilateral Security Dialogue (Quad), comprising India, the United States, Japan, and Australia, has evolved over the years from a primarily military-strategic framework into a more human-centric multilateral initiative. This shift reflects a broader recognition that enduring peace and stability in the Indo-Pacific require addressing vulnerabilities at the individual and community levels affected by transnational threats.

The Quad's origins in 2004, following the Indian Ocean tsunami, were rooted in humanitarian assistance and disaster relief (HA/DR). Since then, the Quad has expanded its focus to include health security, climate change, cybersecurity, and energy resilience. Programs such as the Quad Vaccine Partnership, climate working groups, and digital capacity-building initiatives illustrate deliberate efforts to operationalize a human security agenda. These initiatives reflect a new, inclusive, and people-centered approach to regional security.

Nevertheless, significant challenges persist that limit the Quad's effectiveness as a fully human-centric multilateral platform. Critics note that the Quad remains strategically oriented, with much of its cohesion implicitly tied to balancing China in the region. While leaders emphasize a "free and open Indo-Pacific," human security initiatives are sometimes overshadowed by geopolitical competition. Additionally, the lack of formal institutional structures—such as a permanent secretariat, binding agreements, or mechanisms for long-term policy implementation—makes the Quad's operations dependent on the political will of member states, leading to episodic and ad hoc action rather than sustained impact.

Internal asymmetries among Quad members further constrain its potential. The United States, as the dominant economic and military power, naturally plays a leading role, while India, Japan, and Australia vary in capacity and strategic priorities. This imbalance affects agenda-setting and coordination, complicating the Quad's ability to deliver inclusive, long-term human security outcomes.

In sum, while the Quad has achieved notable successes in responding to pandemics, disaster relief, and other non-traditional security challenges, these remain largely episodic and constrained by strategic, institutional, and power-related limitations. Addressing these structural and operational challenges will be critical if the Quad is to evolve into a genuinely human-centered multilateral platform capable of fostering enduring security and resilience across the Indo-Pacific.

Limitations and Future Research

This study relies primarily on secondary data sources, including official documents, press releases, and scholarly literature. While these sources provide comprehensive insights into the Quad's initiatives and regional strategies, they limit access to internal decision-making processes and real-time operational evaluations. As a result, some nuances regarding intra-Quad coordination and informal diplomatic negotiations may not be fully captured.

Future research could address these limitations through primary data collection methods such as expert interviews, fieldwork in member and partner countries, and surveys of regional stakeholders. Comparative studies of similar multilateral frameworks, such as AUKUS or ASEAN Plus mechanisms, could provide additional insights into institutionalization and effectiveness. Longitudinal studies tracking the Quad's initiatives over time would also enhance understanding of the sustainability and long-term impact of its human-centric approach in the Indo-Pacific.

Data Availability Statement

All data analyzed or generated during this study are included in the manuscript and drawn from publicly available sources, including official government statements, press releases, and academic publications. No primary data were collected.

Competing Interests Statement

The authors declare that there are no competing interests associated with this manuscript.

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