The La Trobe Asia Brief

Fresh Perspectives on the Quad

Emerging leaders on the key security challenges in our region

Lam Tran, Hikaru Okamoto, Patrick Saunders, Abhishek Sharma, Kenji Nagayoshi, Charlotte Bradstreet, Jada Fraser, Eleanor Shiori Hughes, Rena Sasaki, Aakash Guglani, Afeeya Akhand, Aditi Mukund, Lily Schlieman, and Mana Takahashi

Message from the Director

La Trobe Asia is delighted to introduce the eighth edition of the La Trobe Asia brief.

In this edition, emerging leaders from Australia, Japan, India and the United States discuss key issues facing the "Quad" (formerly known as the Quadrilateral Security Dialogue). This Brief puts forward a strong case for the Quad working together on non-traditional security issues across the Indo-Pacific region. The next generation of Quad leaders view enhancing resilience against grey zone challenges, geoeconomics, outer spaces, critical technologies and human security as keys to unlocking the Quad's potential. This challenges the Quad to deliver on public goods commitments to strengthen the free and open Indo-Pacific.

This publication is the second instalment of the La Trobe Asia Emerging Leaders Program, which brings together young leaders from across the Indo-Pacific to discuss key issues facing the region. In November 2022, La Trobe Asia was honoured to host sixteen emerging leaders in Melbourne for a Dialogue on the Quad.

This publication showcases next generation perspectives on the security issues we discussed during the workshop.

La Trobe Asia is grateful to the US Embassy for funding this program and supporting emerging leadership in the Indo-Pacific. Since 2021, La Trobe Asia has established itself as a hub for regional next-generational security leaders.

On behalf of the authors, I sincerely hope you enjoy reading these insights into contemporary challenges and opportunities across the Indo-Pacific.

Associate Professor Rebecca Strating
Director, La Trobe Asia

About the series

The La Trobe Asia Brief is a publication from La Trobe Asia, based at La Trobe University. This series provides a platform for commentary, research and analysis of policy issues that are of key importance in the Asian region. The papers in The La Trobe Asia Brief series are written for an informed audience. Authors will be invited by La Trobe Asia to contribute to this series.

Photos

Front cover: HMAS Arunta (right) and USS Milius conduct a duel Replenishment at Sea with JS Oumi (centre) as INS Kamorta (back) sails into formation during Exercise Malabar 2022. (Photo: LSIS Susan Mossop, Australian Defence Force).

Inside issue: U.S. Embassy Bangkok, Metamorworks, Prime Minister's Office of Japan.

Back cover: Quad foreign ministers Anthony Blinken, Penny Wong, Subrahmanyam Jaishankar and Hayashi Yoshimasa meet in New York at the margins of the 2022 UN General Assembly (Photo: U.S. Department of State)
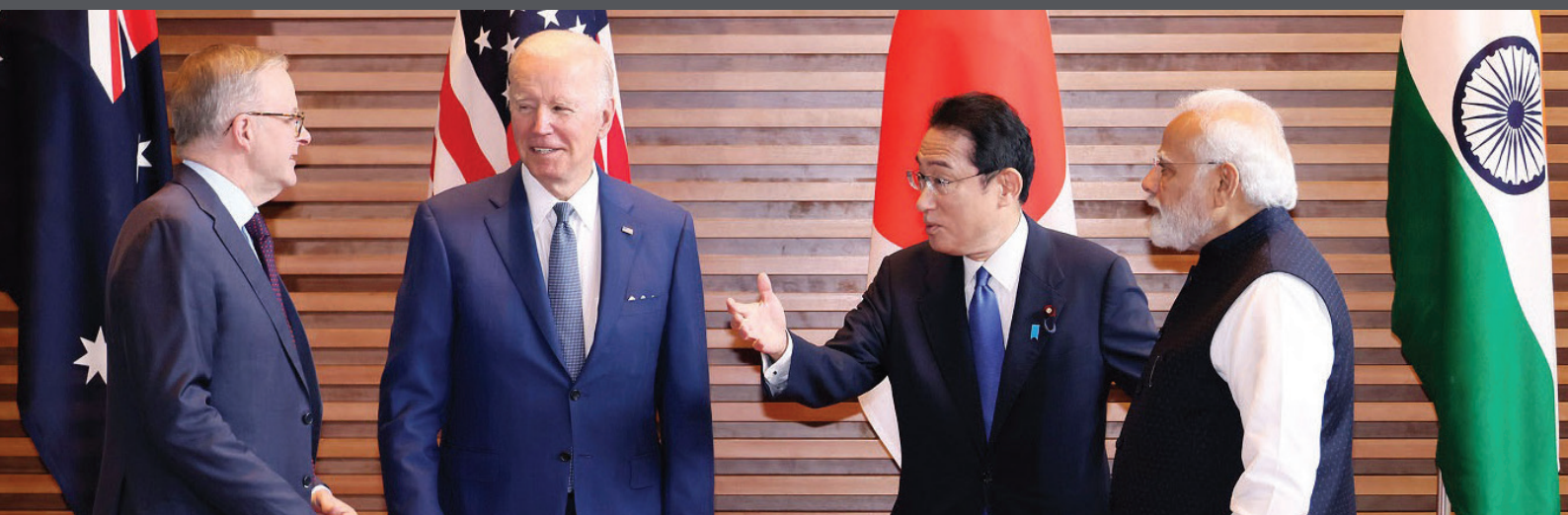
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Reinventing the Quad

Lam Tran, Hikaru Okamoto, Patrick Saunders

The Quadrilateral Security Dialogue (Quad) - comprising India, the United States, Australia, and Japan - was first convened to coordinate humanitarian assistance and disaster relief in the wake of the 2004 Boxing Day Tsunami. This grouping was later conceptualised in 2007 to be a discussion forum focused on security-related issues. What was originally established as an ad-hoc disaster response project subsequently evolved into a 'talk-shop' on security affairs, and has now grown into a prominent minilateral actor in the regional security and economic architecture.

The Quad's strategic focus is in the Indo-Pacific, particularly Southeast Asia and the Pacific Islands – regions that are trying to maintain a delicate balance amidst intense great power competition. It has received great scrutiny from regional countries. Presently, the Quad faces a paradox between its objectives and function. Tangible security challenges posed by China in the Indo-Pacific demand support for regional countries. However, reluctance on the part of Quad's members and regional states to be drawn into either a rhetorical or confrontational conflict with China hinders concrete progress.

From Quad 1.0 to Quad 2.0

The Quadrilateral Security Dialogue is today viewed as a crucial pillar of not only the Indo-Pacific regional architecture but also of member country's foreign policy in the region. However, the Quad did not begin out the dynamic and ambitious regional stakeholder as it is currently. In the early days of its inception, member countries had varying degrees of tolerance, dependence, and comfort toward China. Australia, for example, was able to weather the storm of the 2008 global financial crisis in relative comfort thanks in part to its expansive trading partnership with China. These different levels of sensitivities vis-a-vis China together with immature bilateral and trilateral links among Quad countries led to the disintegration of the first iteration of the Quad in 2008.

Beijing's elevated assertiveness over the next ten years saw a tighter convergence of attitude towards China, as well as deepening bilateral and trilateral ties among Quad partners. Examples include India instituting an annual 2+2 Defense and Foreign Ministers meeting with Australia in 2017 in addition to the meetings it has with the United States and Japan; India, Australia, and Japan convening for a ministerial-level trilateral dialogue starting in 2015; and India's forces agreeing to join the Malabar naval exercise hosted by Australia in 2023.

In 2017, after a ten year hiatus, the grouping was revived in the face of shifting power balance in the region. Whether publicly stated or not, the driving force behind the Quad's agenda is now based on a shared concern over an increasingly capable and assertive China. The once ad-hoc dialogue has more formally operationalised with regular senior leader's meetings in 2017 and annual Foreign Ministers meetings beginning in 2020. This brief history of the Quad shows its flexibility as a minilateral organisation adapting itself to the shifting international order.

The newly revived Quad has been further consolidated under the Biden administration. Since 2021 the group has convened meetings at the highest leader-level, issued joint statements, and established working groups - growing into an organisation with a substantive agenda. In the military sphere, the four countries along with other regional players have worked to deepen their defence interoperability through joint military exercises such as the Malabar Naval Exercises. However, most notable among the Quad's recent developments is the expansion of its workstreams to non-traditional security activities, including vaccines, climate change, critical technologies, and infrastructure, thereby reflecting the Quad's attempt to deliver public goods to the region. These efforts have the goals of addressing the region's needs, competing with China's diplomatic and developmental influence in the region, and downplaying the Quad's hard security agenda which could worry regional countries.

Regional uneasiness toward the Quad and the Quad's Under-delivered Promises

Quad members' effort to underline their goal by delivering public goods to the region has made progress in public narratives, but is still often perceived as a body aiming to counter China by both China and countries in the region. China has openly expressed its discontent with the Quad since it first met in 2007, especially their activities in security cooperation. China closely monitors and condemns the Quad's joint military exercises while actively promoting the narrative that the Quad is a destabilising force in the region.

There is a split amongst Southeast Asian countries in how they view the Quad, with 55 percent of respondents in a security insiders survey agreeing that the Quad would contribute to the peace and stability of the Indo-Pacific region. Elites in some ASEAN (Association of Southeast Asian Nations) states such as Indonesia have concerns that a robust Quad may sideline ASEAN and undermine its centrality in the region.

Another concern, often raised by some Southeast Asian states, is that the Quad could intensify the competition between the U.S.-led coalitions and China and force ASEAN states to choose sides - a decision that many developing Southeast Asian economies, who have close economic ties with and depend on China for development, try to avoid.

Quad critics often point to its inability to form a strong economic pillar, with economics being a major ground of great power rivalries. The Quad is, nevertheless, neither appropriately situated nor designed to effectively compete with China's economic dominance. Quad members do not always share the same position on trade policy. India has been a major outlier with its history of practicing protectionist trade measures. The current hyper-polarising domestic politics in Washington with trade being a highly politicised issue also inhibits the Biden administration from making meaningful progress in international trade. Although the Indo-Pacific Economic Framework (IPEF) can be seen as a stopgap solution, the framework with buy-in from 14 countries has more potential for countries with a shared stake in the liberal rule-based order to work together in the economic sphere.

The Quad is still in the early stages of learning to work together, especially in the non-security domains. As such, the Quad's track record in delivering public goods so far has been disappointing. In public health, the Quad Vaccine Partnership announced in 2021 has vastly underperformed expectations and delivered a fraction of what the Chinese donated to Indo-Pacific countries. A year after pledging to donate 1.2 billion doses,only 250 million doses were delivered. The Quad chose to donate only the Johnson & Johnson and then experimental Corbevax vaccines, but not the Pfizer or Moderna vaccines. The U.S. Food and Drug Administration (FDA) then in 2022 decided to restrict the use of the Johnson & Johnson vaccine because of reported blood clot symptoms. To make matters worse, India refused to sign a liability waiver that allows Johnson & Johnson to avoid lawsuits over the vaccine's side effects. These series of conflicting decisions by the Quad members delayed the delivery and led to the ultimate failure to hit its target. The Quad Vaccine Partnership reflects the difficulties for four countries with different systems to cooperate in diplomatic initiatives like this. This program also shows how over-promising and under-delivered result has and will only delegitimise the Quad's goal to materialise a positive and affirmative vision for the region.

Delivering public goods in security-adjacent areas to win the region's hearts and minds

Going forward, the Quad needs to continue refining its vision and strategy, and walk the fine line between building up security cooperation while emphasising and actually delivering its other non-security workstreams.

The following two steps are particularly critical. First, the Quad needs to continue building up its member capabilities to be ready for a potential contingency in the region. Quad members should also provide capacity building support to regional partners whether in traditional security or security-adjacent domains depending on individual countries' level of comfort to engage in these security cooperation activities. Increasingly aggressive Chinese behaviour in the South China Sea and the Taiwan Strait and the paradigm shift in the security landscape after the Russian invasion of Ukraine has heightened the threat perception of countries

in the region. The Quad can leverage its natural strength in security cooperation and capacity building to serve as a security stabiliser in the Indo-Pacific.

The Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) announced at last year's Quad forum in Tokyo presents an opportunity for the Quad to expand its role as a capacity building provider to regional countries. The IPMDA addresses security-adjacent challenges that regional countries face including illegal fishing, and has the potential to be the Quad's flagship project if implemented properly in close consultation with partner countries. By launching and effectively going through with initiatives such as the IPMDA, the Quad can keep an appropriate distance from being seen as overly confrontational, enabling the group to occupy a role as a regional security provider rather than a destabilising actor.

Second, while the Quad may have identified delivering of public goods as a means to gain regional influence, shortfalls in delivering promises in development areas show that Quad members still have a lot of work to do to get the four systems to work in sync with each other. The four members need to establish exchange programs among government officials in relevant development related departments to learn more about others' bureaucratic and technical systems. The grouping has seen success in the 2+2 consultations and should expand these meetings beyond defence and foreign ministers to include health, climate and infrastructure representatives in these bilateral, trilateral, and quadrilateral exchanges.

As the tide of domestic politics in each country and international security environments continue to evolve in the coming years, the Quad must continue to develop institutional capacity, tighten partnerships among the four members, and deepen interoperability in areas beyond traditional security issues. With the above recommendations, the second iteration of the Quad must adapt and re-invent itself to meet the current security challenges in an age of a global polycrisis.

Handover of 200,000 doses of COVOVAX vaccines to Thailand under the Quad Vaccine Partnership.

Enhancing Resilience to Grey Zone Coercion in the Indo-Pacific

Abhishek Sharma, Kenji Nagayoshi, Charlotte Bradstreet and Jada Fraser

The Quad's return to the geopolitical fore in 2017 took place against a backdrop of increasing security concerns in the Indo-Pacific. These concerns encompassed traditional and non-traditional areas of security, including climate, food, energy, economic, cyber, maritime, and human security. Increasing tensions in the U.S.-PRC relationship have stoked traditional security anxieties over what the return of great power competition might mean for each Quad country and the region broadly.

In the years since the Quad's revival, many of these concerns have grown. Putin's invasion of Ukraine shocked energy markets and economies around the world. Climate action demands greater attention and investment in order to avoid the worst externalities harming the most vulnerable populations. Moreover, the emerging 'fourth' Taiwan Strait crisis has fuelled further spiralling in the U.S.-PRC relationship, with regional actors calling for restraint and stability.

Amidst these security developments, the Quad has chosen to focus on the areas of non-traditional security that matter most to the region, while being mindful of general anxieties toward hard security initiatives. Such a balancing act is no easy endeavour, especially given the sometimes-disparate security priorities of the Quad members. Yet continuing to build upon the Quad initiatives on cybersecurity and maritime security might be a recipe for success.

Maritime security

Maritime security, especially "blue crime," features as a core concern for the region, comprising two of the world's three largest oceans and home to the world's busiest strait for global seaborne trade. Maritime security holds particular salience in Southeast Asia, a region where virtually all sea areas are enclosed as territorial seas, exclusive economic zones (EEZ) or archipelagic waters. Several Southeast Asian countries are locked into territorial disputes with the People's Republic of China over land features and maritime boundaries in the South China Sea. Protection of vital sea lanes of communication is a mutual concern of member states and non-member states of the Quad alike.

Maintaining international rule-of-law in the maritime domain has positive second-order effects on the region's food security, energy security, human security, climate security, and economic security. Combating maritime security issues such as piracy; illegal, unreported, and unregulated (IUU) fishing; trafficking of people and illicit goods; and marine pollution all benefit from investment and actions that enhance the ability of regional actors to uphold international rule-of-law in the Indo-Pacific waters. Such convergence makes maritime security initiatives a prime opportunity for bringing in the cooperative efforts of other countries to build legitimacy for the Quad and add comprehensive value to the region.

Despite the Chinese accusation of being an "Asian NATO", the Quad is not a formal security alliance but an alignment of nations. Accordingly, cooperation on maritime security using the Quad's architecture has been limited to the non-traditional area. However, given its shared vision to uphold the maritime rules-based order in the Indo-Pacific, there is room for the Quad to further collaborate in traditional and non-traditional areas of maritime security.

On numerous occasions, the Quad members have shared a strong concern about the PRC's assertive and coercive maritime activities that threaten maritime security in the Indo-Pacific. Although the text did not criticise the PRC specifically, the Quad Joint Leaders' Statement from May 2022 voiced the Quad's support for the maritime rules-based order and strongly opposed any unilateral attempts to challenge it.

One non-traditional maritime security initiative the Quad leaders announced at the Tokyo summit is a new maritime domain awareness program called the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA). Together with regional partners, the IPMDA will offer technology and training to support maritime domain awareness of participating countries and enhance their capability to respond to Humanitarian Assistance and Disaster Relief (HADR) missions and combat illegal fishing.

In addition to the announced initiatives such as IPMDA, the Quad countries could also help Indo-Pacific countries in maritime security using pre-existing programs. For instance, the Quad could provide coordinated capacity-building assistance to Southeast Asian countries and Pacific Islands, an area in which Australia, Japan, and the United States have championed over the last several decades. For over 30 years, Australia has provided 22 Pacific-class Patrol Boats and crew training to 12 Pacific island nations through the Pacific Patrol Boat Program. Australia initiated the succeeding Pacific Maritime Security Program (PMSP) in 2018, a 30-year commitment to gift 21 new Guardian-class Patrol Boats and accompanying capacity-building assistance to 12 Pacific Island countries and Timor-Leste. In the AUSMIN 2022, the United States announced it will provide the U.S. Coast Guard (USCG) assets to the PMSP, expanding it to a bilateral initiative. Since the 1970s the Japanese Coast

Guard has provided capacity-building assistance overseas through the Japan International Cooperation Agency (JICA) as official development assistance (ODA), and this assistance has become an instrumental diplomatic tool in Japan's policy of pursuing the Free and Open Indo-Pacific. Japan has recently expanded its capacity-building assistance to a joint effort with the USCG through the SAPPHIRE initiative.

The Quad could expand these unilateral and bilateral initiatives into a coordinated, burden-sharing effort to provide capacity-building assistance to more countries in the region, as the Indo-Pacific is simply too vast for a single country to provide such assistance. Through a coordinated effort, Australia's Maritime Border Command (MBP) and the Japan Coast Guard (JCG) should function as primary actors focusing their capacity-building assistance to the South Pacific and Southeast Asia respectively, while the USCG and the Indian Coast Guard complementing areas in which the MBP and JCG lack resources.

In addition to maritime security cooperation in the non-traditional area, the Quad could play a more prominent role in enhancing regional security through close security cooperation. Since 2020, the four Quad members have participated in the Malabar, a naval exercise that initially started as a joint exercise between the U.S. and Indian navies. In Malabar 2022, the four Quad navies conducted high-end tactical training, submarine integration, anti-submarine warfare training, air defence exercises, multinational replenishment-at-sea operations, communications drills, joint warfighting planning, gunnery exercise, and maritime interdiction operations. All aspects of this exercise further strengthen the interoperability of four Quad navies to deal with potential maritime threats posed in the region. Although Malabar is not within the Quad framework, the exercises signal the Quad's determination to push back any unilateral challenges to a maritime rules-based order in the Indo-Pacific. Such a pre-existing effort should be integrated into the Quad architecture. Given the Quad's hesitation to expand the alignment to include traditional security issues, such integration of joint military exercises is currently difficult to achieve. However, expanding its roles is integral to enhancing the Quad's traditional maritime security capabilities and providing the Quad as a public good to the Indo-Pacific countries facing PRC coercion to realize a Free and Open Indo-Pacific.

Expanding Quad's partnership in cyberspace

Another area that needs as much attention as traditional security concerns is cyberspace, due to its interlinkages with security, economic, political and strategic concerns. The Indo-Pacific region will be the epicentre of the economic growth of this century. It will be primarily responsible for pushing the Industrial Revolution 4.0, led by the adoption of new technologies and innovation, and leading to the digitisation of states and societies.

As states increasingly rely on digital technologies to function, this will make cyberspace a target from adversarial states and non-state actors, particularly through sophisticated cyber-attacks such as ransomwares and malware. The security of hard and soft digital infrastructure will have direct implications for national security, and is one domain that affects Quad countries, adding to the effects of the pandemic (data losses, business disruptions, IP theft).

In addition, the region is increasingly becoming a hotbed of illegal cyber activity and cyber-attacks. Therefore, as techno-democracies that have considerable political, economic and technological interests in the safety, security, and openness of cyberspace it becomes crucial to collaborate on cybersecurity to safeguard and strengthen the regional critical cyber infrastructure following a multi-stakeholder approach rather than multilateral with particular emphasis on protection of individual rights in accordance with respective constitutional principles. The Quad countries, through bilateral and multilateral frameworks, are already engaged in capacity building, training, and supporting the resilience of critical infrastructure. India works in the region to enhance cyberinfrastructure in Nepal and Bangladesh and has helped countries like Mongolia set up Cyber Security Training centres. In addition, India has also taken the lead in multilateral forums like Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation (BIMSTEC) to establish a plan of action on cyber security, which includes "exchanges of cyber-related information, cybercrime, protection of critical information infrastructures, cyber incident response and international developments related to cyber norms." Similarly, Australia has focused on strengthening cyber infrastructure and security in the Pacific by cooperating and collaborating with the Pacific Cyber Security Operational Network (PaCSON). Japan has also worked with ASEAN in strengthening their cybersecurity vulnerabilities, with the US taking a lead role in strengthening cyber security partnerships with all members of Quad, and supporting the regional grouping as well as shaping and influencing international negotiations at UN. The countries now need to work together to enhance and strengthen cyber security infrastructure, capacity-building and awareness in the Indo-Pacific region. This also helps the respective countries create a comprehensive mechanism by linking their initiatives to strengthen regional cyber security.

The Quad's response to this has been in conjunction with the UN Framework for Responsible State Behaviour in Cyberspace along with direct state and private corporation integration. The UN framework established 11 key norms of behaviour in the cyberspace, and facilitated the creation and integration of UN Cyber Groups and UN-facilitated intergovernmental negotiation processes. With the integration of cybersecurity into the traditional security architecture, the Quad is expanding their scope of influence and contributing to enhanced geopolitical stability. The Quad has replicated the methods of the UN, with the Quad Senior Cyber Group who has established a set of goals and joint principles surrounding shared cyber standards, the development of secure software, and capacity building of the workforce to establish an

Anthony Albanese, Joseph Biden, Fumio Kishida and Narendra Modi at the 2022 Quad Leaders' Meeting in Tokyo.

overarching secure and trustworthy digital infrastructure. This group currently acts as a detached regulatory group, establishing goals and frameworks, without any interference with state actions or associated enforcement mechanisms. More practical initiatives include the establishment of capacity-building programs to strengthen cyber infrastructure and build resilience against ransomware attacks in the region through the Quad Cybersecurity Partnership.

Quad leaders are committed to an 'open, secure, stable, accessible and peaceful cyberspace.' This is fundamentally important for the broader security framework with an overarching reliance on cyber across all domestic and foreign policy areas. In order to achieve collective security, Quad states are encouraging further cooperation on information sharing of key threat information and risks, the standardisation of security procedures, and using collective purchasing powers to promote technological advancement in software development. Cyber security remains to be a dynamic area, with Quad and states continuing to develop individual risk mitigation techniques in accordance with updated research and following suggestions by Quad working groups and external intergovernmental organisations.

Recommendations

1. Quad members should increase capacity building and defence technology transfers with Southeast Asian claimant states in the South China Sea as a necessary component of the IPMDA. Enhancing the ability of Southeast Asian states to collect and analyse data indigenously and respond to incidents independently lightens the burden-sharing load of the Quad countries and frees up resources for other missions.

2. The Quad members should expand existing mechanisms to counter new cybercrimes by working closely with Southeast Asian states. Intelligence sharing, Policy and legal framework support, and collaboration on capacity-building activities by Quad

countries will be able to help Southeast Asian states in fighting against the rise of cybercrimes. Existing mechanisms like CRI (Counter Ransomware Initiative) can be leveraged to help with rising cyber-crimes activities such as Pig Butchering, Fish Butchering, and Bird Butchering scams.

3. The Quad Cybersecurity partnership should establish a Quad-Plus mechanism to engage with Indo-Pacific states and regional grouping to create consensus towards a joint framework on cyber norms and rules. Establishing a Cybersecurity working group mechanism with Indo-Pacific states and regional groupings like ASEAN and BIMSTEC for better consultation, sharing, and forming a common understanding of responsible state behaviour in cyberspace would help strengthen cooperation in the Indo-Pacific region and international negotiating forums like UN-facilitated cybercrime negotiations.

Conclusion

While the Quad is not a new "Asian NATO," it does have an important role to play in the Indo-Pacific as a provider of public goods that directly enhance regional security and resilience. By focusing on maritime security and cybersecurity initiatives, the Quad can add value to the region and enhance its own reputation by working to address the security concerns that matter most to Indo-Pacific countries, such as food security, energy security, human security, climate security, and economic security.

Our recommendations for expanding the Quad's maritime and cybersecurity agenda would also enhance countries' independent abilities to counter grey zone coercion, whether at sea or in cyberspace. The benefits of a security agenda focused on non-traditional areas such as maritime and cyber can offer one part of the solution to the "Quad paradox." Such initiatives would appeal to regional interests while ultimately pushing back against PRC attempts to undermine a rules-based free and open Indo-Pacific.

The Quad's Strategic Compass: Geoeconomics and Outer Space

Eleanor Shiori Hughes, Rena Sasaki, and Aakash Guglani

Supply chain resilience, digital connectivity, and opportunities in outer space as agenda items have increasingly turned themselves into the bread and butter of the Indo-Pacific's minilateral architecture, and the Quad is no exception to this trend. Since the first leadership summit in March 2021, the Quad countries have vocalised their strategic alignment on issues relating to maritime domain awareness; infrastructure; climate change; critical and emerging technologies; and global health - all of which are important issues.

As evidenced by the leadership summits so far, the Quad countries are in sync with each other on high-level issues regarding economic security and space governance. That said, each country also faces its own constraints and restraints. Various stakeholders within each Quad nation also place their own interests at the heart of their Quad agendas, hindering the ability for policymakers from Quad countries to cultivate the necessary political bandwidth to push cooperation forward. But as geopolitical uncertainties rise due to a range of factors including (but not just limited to) China's growing regional and global ambitions, the Quad countries would be well served by taking steps to promote their shared vision and interests.

Supply chain security

The key for states to achieve economic security is ensuring supply chain security. The goal of supply chain security is to reduce dependence on other states so that other states cannot exploit the opportunity to use economic coercion by breaking supply chains. This does not mean that states should actively seek to
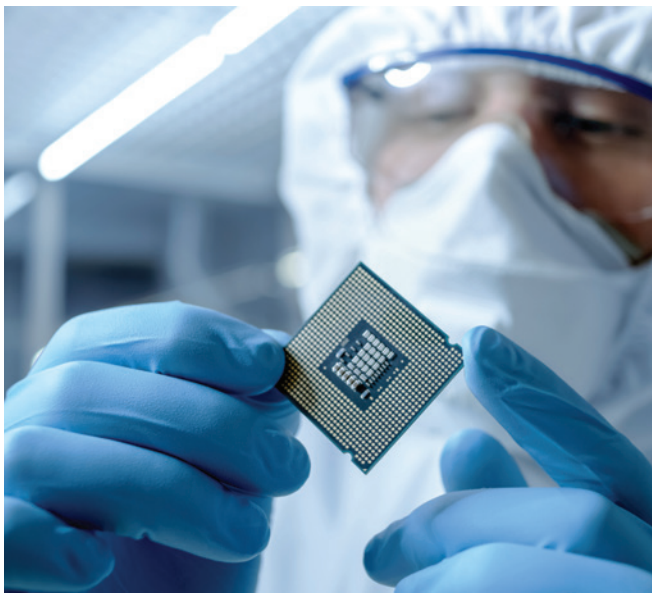

undermin the global economy; rather, they should reduce dependence on other states that are willing to weaponise interdependence and market share for strategic materials and products such as semiconductors, batteries, and rare earth metals.

Supply chain security is essential not only to the defence of economic interests, but also to the promotion of economic interests. There are ample reasons why these strategic materials and products matter in the 21st century economy. Advanced semiconductors are necessary for artificial intelligence, the key driver of the fourth industrial revolution. Moreover, rare earth metals are indispensable for various industries, including electric vehicles. The rapid digital growth of the digital economy today is driven by the proliferation of information and communications technology (ICT) devices, requiring rare earth materials for their microchips and integrated circuits. Due to the importance of these issues, the Quad Joint Leaders' Statement in May 2022 announced the formation of a semiconductor supply network. Moreover, at the Tokyo Summit in 2022, Quad leaders issued the Common Statement of Principles on Critical Technology Supply Chains, facilitating cooperation on critical technologies, including semiconductors.

However, it seems that semiconductors are one of the few areas where Quad members share converging interests as they are the foundation of almost all cutting edge technologies. Since there are limited areas of cooperation, the Quad can identify strategic products and materials of importance by promoting investments, joint projects, and joint research initiatives between industry stakeholders and academia.

At the same time, the Quad members should not completely enclose supply chain networks for strategic commodities. The concept of supply chain security is strongly defensive in nature, and it can be disguised as protectionist trade measures. For example, the denial of market access for products made in a particular nation to protect industries and infrastructures may violate the "non-discrimination principle," which prohibits WTO members from discriminating between their trading partners under the WTO Agreement.

In addition, strengthening supply chain resilience may conflict with provisions regarding state subsidies in the WTO Agreement on Subsidies and Countervailing Measures, in which state subsidies support less competitive home industries in order to strengthen them. Therefore, when countries consider implementing supply chain security measures, it is vital to ensure that such actions do not distort market efficiency beyond necessity. Although there is currently no Quad-wide coordination

mechanism to promote open and resilient supply chains, the Quad members can leverage the existing Supply Chain Resilience Initiative (SCRI) among Australia, India and Japan. The SCRI should be incorporated into the Quad to develop supply chain principles for the Indo-Pacific region.

Digital public goods

As per the World Economic Forum report, more than 60 percent of global GDP relied on digital technologies in 2022. The major drivers of this digital growth are big technology corporations that have developed innovative platforms to provide products and services to billions of users worldwide. The combined market capital of big technology corporations (Apple, Microsoft, Amazon and Alphabet) is USD 5.8 trillion. However, there are issues with the platforms: monopolisation of data, unreasonable gatekeeping powers, lack of interoperability, the opaqueness of algorithms and data security. Due to these developments in the technology ecosystem, the Quad's working group on critical and emerging technologies aims to focus on technical standards, 5G deployment and semiconductor supply chains to build competitive, resilient and equitable digital economies.

On top of these concerns for the Quad, the security risks are manifold if these platforms fall under the control of authoritarian regimes, especially the cases of TikTok and Huawei, where there are concerns that Chinese authorities have access to users' data. The catch-22 is balancing economic growth and data security. The task of regulation becomes messy due to the involvement of state-owned technology platforms where the geo-political interests of nation-states overpower the underlying economics. In recent times, there have been instances where technology companies have weaponised their monopolising powers over data to pursue the geopolitical interests of their domicile states. In the process, they performed sovereign functions, making other states suspicious of their actions.

The telecommunications and internet industry in the late 1990s and early 2000s faced similar challenges. To resolve them, the European policymakers nudged the global telecommunications industry to come up with the Global System for Mobile Communication (GSM) Association where all telecom players agreed to a common set of software architecture standards. In the early days of mobile telephony, users couldn't make phone calls amongst different operators. With GSM, users can make and receive calls to and from any telecommunications operator in the world as the underlying software architecture is open source not owned by a private corporation or a public owned enterprise. Similarly, the internet protocol HTTP is open source, as are the email protocols - SMTP, IMAP and POP3 - which ensure that users of "email service A" can communicate with the user of "email service B" as the underlying protocols are not owned by a private corporation.

Indian policymakers have followed this principle of open source software to challenge the monopoly of platforms and democratise digital payments by making the underlying technology open source with collective ownership of the private-public sector. The case in point is the Unified Payment Interface (UPI) in India, where the peer-to-peer payment technology has been made open source and the merchant discount rate has been abolished from payments. In December 2022 alone, UPI has clocked more than 7 billion transactions worth USD $155 billion. This public technical infrastructure ensures that the underlying transaction data is not monopolised by one corporation or platform but is available as a public good with privacy by design and law. To further development of digital public goods and technical standards, the Quad states can collaborate in forums like the Digital Public Goods Alliance, the Global Partnership of Artificial Intelligence, the Australia-India Cyber and Critical Technology Partnership (AICCTP) and Japan-India ICT Joint Working Group. There should be coordination mechanisms amongst these fora under aegis of the Quad's working group on critical and emerging technologies.

Fostering responsible commercial space

Space, and its growingly central role in national security and economic prosperity, is a domain where coordination between Quad countries could yield substantive dividends. In September 2021, space found its way onto the Quad agenda for the first time and has since been reiterated by the May 2022 Quad summit as an area of joint focus. Specifically, the Quad set a target to cooperate on improving public access to satellite data on climate change, disaster preparedness and ocean resources.

As the respective space industries of the Quad countries mature, and the market for satellite manufacturing, launch and orbital services continues to grow and diversify, Quad-based space companies will increasingly come into contact with each other, either as competitors or collaborators. The India-based aerospace start-up Skyroot, for example, hopes to undercut the launch costs of established American companies such as Virgin Orbit and Rocket Lab, and is chasing after SpaceX's reusable rocket technology. This competition is not a bad thing, but there is a window of opportunity for cooperation that should not be missed; namely, placing sustainable and responsible space stewardship at the core of a joint Quad space agenda. Doing so would not only serve the interests of the Quad members by protecting a domain vital to each member's national interests, but would also demonstrate, in a relatively benign way, the Quad's commitment to preserving access to a shared commons. Such a move would best leverage the growing role that the private sector has in space in each of the Quad partners.

Beyond clear examples such as SpaceX and United Launch Alliance in the United States, this shift is also apparent across the other Quad countries. For example, The Indian National Space Promotion and Authorization Center was established in June 2020 'to promote, enable, authorise and supervise private enterprises and start-ups to undertake space activities'. This priority was reiterated in November 2022 by the Indian Space Research commercial space as 'a leading contributor to India's economic growth story' that is replicating

earlier successes in India's world-leading IT sector. The Australian Space Agency, which was inaugurated in 2018, has a similar mandate to promote the development of a domestic commercial space industry and position Australian companies as regional leaders in space services delivery. While Japan's space industry is still primarily geared towards servicing government contracts (around 90% of demand for space infrastructure is from the government), similar trends are underway as well. Japan also established the Japan Aerospace Exploration Agency (JAXA) Business Development and Industrial Relations Department in 2016 to facilitate knowledge transfer from the national space agency towards private firms. This shift towards new space, also known as Space 2.0, where space-based capabilities are not held exclusively by governments, will define the domain in the coming years, if not decades. A Quad space agenda that doesn't recognise and include this shift in its ambitions will therefore be incomplete.

This transformation means that responsible space behaviour needs to extend beyond Quad partner governments and refrain from acts that degrade our common orbital environment such as testing kinetic anti-Satellite weaponry. Frameworks already exist to extend the notion of space sustainability to the private sector, such as the World Economic Forum's Space Sustainability Rating launched in 2021, which considers factors such as debris mitigation, pre-launch plans for satellite decommissioning, and collision-prevention data-sharing. With both established and emerging commercial space powers, the Quad is one of the best placed international fora to promote these norms. In a broader context of growing militarisation of space, promoting this agenda of sustainable space will require balancing the genuine economic and national security concerns of the Quad countries with the long-term collective benefits. But as a clear demonstration of the Quad's commitment to the ideal of free and open access to our shared resources, it would be worth it.

Recommendations

Out of this paper, some key recommendations of the Quad's future direction clearly emerge. Namely, that the Quad should:

1. Identify opportunities for the Quad countries to collaborate on securing access to critical technologies and strategic commodities.

2. Promote the development of open source and interoperable public digital goods, and encourage mutual market access for technology companies.

3. Ensure the development of open source and interoperable public rails in digital commons like identity, payment systems, e-commerce, health and social security to promote innovation with healthy competition amongst technology platforms while giving back control of data use to citizens.

4. Expand its space agenda to include the sustainable and responsible usage of space by both private and government actors.

Conclusion

Looking ahead, it goes without saying that the Indo-Pacific chessboard is in a constant state of flux with geopolitical uncertainties, supply chain chokepoints, and an increasingly crowded minilateral architecture. The Quad countries have been drawn closer together by their shared interest in fostering a rules-based order in the Indo-Pacific, and extending this to include geoeconomics and the equitable access to public goods, both digital and orbital, would be a positive step for the Quad to take. Importantly, the stakes for the Quad cannot be any greater. The potential to realise the recommendations outlined in this piece can only be actualised if each of the countries capitalise on the strengths of stakeholders representing various sectors including local governments, the private sector, non-profit organisations, and higher education. Only then can we give the Quad its best chance to safeguard each country's core interests and ensure that geoeconomics, and the digital and space domains are featured more prominently in future Quad initiatives.

Mainstreaming Human Security Through the Quad

Afeeya Akhand, Aditi Mukund, Lily Schlieman, and Mana Takahashi

Covering nearly 250 million square kilometres, the Indo-Pacific is a region fundamentally shaped by its maritime geography. Consisting of thousands of islands and around 40 countries with 60% of the world's population, the region is culturally, economically, and geopolitically complex and diverse.

The Quad states are separated by tens of thousands of kilometres but present themselves as united by a shared commitment to a secure and prosperous Indo-Pacific. Within the Indo-Pacific, the security landscape has traditionally been characterised by hard security narratives, but new and emerging challenges point towards the need for Quad countries to reframe what security means. The greatest threats to the Indo-Pacific and the Quad countries include a wide gamut of human security issues, from climate change and environmental degradation to food, health and gender. For a truly secure and prosperous Indo-Pacific to materialise, the Quad must expand its vision to encompass human security in all its forms.

The varied dimensions of human security are complex with many areas of overlap. Human security challenges have the potential to destroy entire communities and transcend international borders. Impacts of climate change on the oceans from sea level rise, increased volume of and more severe storms and declining fish stocks threaten the human security of the Indo-Pacific, particularly in small island developing states.

In coastal communities throughout the region, the frequency of severe storms and sea level rise threatens livelihoods and drives migration. By 2050, the United Nations estimates that there will be as many as 89 million climate refugees in the Indo-Pacific, most of whom will originate from Southeast Asia and the Pacific. Displacement and economic degradation leave climate change refugees, as well as women in particular, vulnerable to interpersonal and community violence.

Climate change will also exacerbate existing maritime boundary disputes. Shifting coastlines may reduce the size of the Exclusive Economic Zone of coastal and island states, impacting their access to and control over sovereign resources like fish stocks and undersea minerals. The Indo-Pacific is the largest producer of fish, representing over 50% of total global capture production in 2017. Illegal, unreported and unregulated (IUU) fishing undermines sustainable fisheries management and threatens the livelihoods and food security of fishing communities and the global seafood supply chain.

Notably, the Quad originated from the human-maritime security nexus in the aftermath of the 2004 Indian Ocean earthquake and tsunami through the collective humanitarian response of the Quad states. a. With the intrinsic connections between human security and the maritime space, it is a natural and necessary expansion to include an explicit human security focus in the Quad's future security operations including in the maritime domain with respect to humanitarian aid and disaster relief (HADR). The Quad's HADR Mechanism and Guidelines for the Quad Partnership on HADR in the Indo-Pacific are existing initiatives which privilege human security.

The depth and expanse of human security issues in the Quad

Since 2017, the Quad has made references and commitments to ensuring human security in joint leaders' statements. Simultaneously, each Quad state has placed human security as a high priority in their respective foreign policies. The Quad has the mandate and incentive to continue foregrounding human security initiatives on its agendas and to initiate consistent dialogue.

An initial point of entry for the Quad to discuss issues of human security is the commitment to a free, open, and inclusive Indo-Pacific. A key component of achieving a free, open and prosperous Indo-Pacific is the delivery of public goods. Public goods gained relevance during the COVID-19 pandemic in which the Quad collectively delivered around 257 million vaccine doses to Indo-Pacific countries, which was considered well below the Quad's capacity in comparison to China's vaccine diplomacy. Building on this momentum, the Quad announced multiple initiatives including a STEM research fellowship, the IPMDA, training programs for humanitarian assistance, and the Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP).

Regarding gender security, the Quad agreed to promote inclusion by advancing gender equality and women's empowerment within HADR efforts in September 2022. While serving as actionable steps towards mainstreaming gender, these gender-related efforts must be complemented by improved integration of a gender lens into economic, environmental, and maritime security as well as by incorporating enhanced gender representation within Quad decision-making itself.

The announcement of the IPMDA at the 2022 Quad Leaders' Tokyo Summit represents a new era of coordinated maritime security cooperation between the four Quad states with partner nations. The IPMDA is a harmonisation of previously siloed activities, which

can provide a blueprint for future Quad initiatives that centre human security. The IPMDA will build a wider and more accurate understanding of the maritime security environment. The accuracy and widespread integration also present opportunities to be applied to disaster relief, climate change response, and broader regional human security. The IPMDA can provide the data and information needed to, reveal the locations and behaviours of bad actors engaged in IUU fishing, trafficking, and other crimes. As climate change continues to threaten small island states and coastal communities, the IPMDA could provide up-to-date data and information on sea level rise and severe weather events, allowing for targeted domestic, bilateral, or multilateral responses for adaptation and mitigation.

At this juncture, it is worth reframing human security as a public good and one that the Quad can assure the Indo-Pacific region. Presenting collective human security as an ideal and unanimous aspiration for the Indo-Pacific will help the Quad consolidate its hard security strategic narrative that focuses on the importance of military cooperation and interoperability. The essence of human security - ensuring human rights and protecting people from threats - can be made available to the large and diverse population of the Indo-Pacific region through various instruments that are at the Quad's disposal.

In the long term, the Quad must prioritise human security if it wants more proactive buy-in from other states in the Indo-Pacific, and from regional groupings (specifically ASEAN and the Pacific Islands). Human security is central to the Quad, and must not be framed as antithetical to it's broader strategic ambitions, but rather as a way to strengthen them. Different aspects of human security, in fact, can exacerbate hard security challenges. For example, climate change can threaten maritime military infrastructure, endangered coastal ecosystems compromise food security, and gender inequality can hamper economic security and growth. The full extent of these impacts is still being uncovered, and it is in the Quad's best interests to champion a human security framework in preparation for the Indo-Pacific's future.

The ever-changing specificities of the Indo-Pacific should therefore urge Quad policymakers and scholars to push the boundaries of existing conceptualisations to security. The Quad must be at the forefront of this endeavour to reshape regional definitions of security.

Mainstreaming human security

The first recommendation for the Quad is to mainstream human security within existing agenda items and activities. The Quad's climate response and engagement on gender-related issues are two such areas in which the human security perspective can be better integrated.

Human security can be mainstreamed with respect to the Quad's response to climate change, such as through the Climate and Information Service Taskforce and IPMDA. Such mechanisms are aimed at responding to the increased incidence of climate-induced natural disasters by improving critical climate information-sharing. Not only should the Quad focus on mitigation of and adaptation through data collation on disasters, but the impact of climate-induced disasters on citizens through climate-induced migration should be better understood. To increase understanding about the impact of displacement on citizens, robust data on the nature and prevalence of forced displacement needs to be collated. This data will then enable the Quad to work with fellow Indo-Pacific countries to proactively shape a regional action plan for mitigating and adapting to displacement.

Incorporating a gendered perspective within the Quad's operations and activities is another way for the Quad to foreground a human security perspective. Gender mainstreaming is integral due to the way in which policy decisions often have a different, and often more adverse, impact on women and girls. While the Quad has started to incorporate a gendered perspective into its policies relating to infrastructure projects and HADR, further action needs to be taken. To further elevate the Quad's engagement on gender inclusion, the Quad should ensure that gendered perspectives are actively represented within its decision-making processes. Accordingly, gender parity should be prioritised within Quad working groups and taskforces. Incorporating a gendered lens within decision-making will not only improve the ability of the Quad to create fit-for-purpose gender-related policies, but also will showcase the willingness of the Quad to address its own inadequacies with respect to gender disparities. Rather than virtue signalling, gender inclusion within decision-making demonstrates the Quad's commitment to acting as a model for the rest of the region to emulate when it comes to gender reform. In addition, Quad decision-making bodies should regularly consult with regional civil society organisations that focus on gender issues. Consultations will ensure that Quad policies impacting women and girls, such as existing initiatives relating to infrastructure projects and HADR, benefit from the grassroots perspective.

Collective aid initiatives for infrastructure

The second recommendation is for the Quad to design and implement collective aid projects as tangible and visible Quad products. More concretely, the Quad should commit to providing aid for infrastructure projects in the wider region, such as for the Pacific Island Countries (PICs) and small island states in the Indian Ocean Region (IOR).

As the Quad states are connected by the sea, the Quad's relationship and engagement in forward-looking cooperation with the Pacific region is geopolitically significant. Therefore, each country of the Quad should embrace closer ties with the Pacific and the IOR. Australia and Japan have a long-standing history of providing development assistance to and cooperating with the PICs. In fact, the PICs are the largest destination of Official Development Assistance from Australia in a decade. Japan also has hosted the Pacific Islands Leaders Meeting on development assistance every three years to enhance bilateral relations with the Pacific region. US

interest in the region is increasing, where US President Biden hosted the first US-Pacific Islands Summit in September 2022.

While there is a different context other than three states in terms of historical, colonial, and geographical relationships, India too has been realigning its foreign policy to include the PICs by establishing the Forum for India and Pacific Islands Cooperation in 2014. Furthermore, Indian Prime Minister Modi is scheduled to visit Papua New Guinea in the first half of 2023, which will be the first-ever visit of an Indian Prime Minister to the country. In this context, the Quad's engagement in collective projects in the region would be beneficial by contributing to strengthened regional cooperation and ensuring human security. At the same time, it is essential that such aid programs are genuinely meaningful and are designed for the region's demands and needs.

Strengthening infrastructure is another area of focus and cooperation for the Quad states. Looking back to 2004, the Quad originally responded to the Indian Ocean earthquake and tsunami in line with multilateral HADR operations through "tsunami aid". At the fourth Quad meeting in May 2022, the Quad states launched the Quad Infrastructure Coordination Group to respond to regional demands for infrastructure. Additionally, the issue of infrastructure for climate change featured high on the list of priorities under the Q-CHAMP. The Quad is also in a position to look towards existing expertise and mechanisms to initiate tangible outcomes. For example, the 2022 Quad Joint Leaders' Statement mentioned the Coalition for Disaster Resilient Infrastructure (CDRI). Initiated by the Indian government in 2019, the CDRI is a partnership of stakeholders aimed at promoting the resilience of infrastructure systems to climate and disaster risks. Since all the Quad states are members of the CDRI, the CDRI can be leveraged as a resource and can increase the achievability of Quad initiatives.

The centrality of human security challenges and their various dimensions will shape the Indo-Pacific in the years and decades to come. For the Quad states, it is pertinent to redefine the scope of cooperation and tangible activities by expanding the area of coverage to human and environmental security issues. In this context, implementing and mainstreaming collective initiatives for human security is essential for enhancing the Quad's presence and its value in the Indo-Pacific region.

Hon Richard Marles MP (Deputy Prime Minister and Minister for Defence) and Her Excellency Rachael Moore (Australian High Commissioner to Tonga) visit tsunami affect areas in Tonga.

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Mainstreaming Human Security Through the Quad

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