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TWO DECADES  
OF THE QUAD:  
DIPLOMACY &  
COOPERATION IN  
THE INDO-PACIFIC

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Over the past two decades, the Quad, formerly known as the Quadrilateral Security Dialogue, has emerged as a significant strategic grouping conducting security, diplomatic, and public goods cooperation among its members and within the Indo-Pacific region. Comprising Australia, India, Japan, and the United States, the Quad has evolved from a diplomatic initiative into a multifaceted framework fostering cooperation on issues ranging from maritime security to economic resilience. As the Quad marks its 20<sup>th</sup> anniversary, this report reflects on its journey, assesses its accomplishments, and contemplates its future trajectory amidst the dynamic geopolitical challenges facing the region. This report aims to provide a comprehensive analysis of the Quad's evolution, exploring its diplomatic endeavors, collaborative efforts, and the implications of its strategic engagements on regional stability and global order.

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## GENERAL TIMELINE OF EVENTS

2004	December 26	Australia, India, Japan, and the United States form a coalition to coordinate aid and streamline assistance following the Indian Ocean Tsunami, which killed 228,000 people across 14 countries in the Indo-Pacific. <sup>1</sup>
2007	May 25	Quad senior officials meet for the first time on the sidelines of the ASEAN Regional Forum in Manila, the Philippines.
	August 22	Prime Minister of Japan, Shinzo Abe's "Confluence of the Two Seas" speech provides a foundation for the Quad as an "open and transparent" network that "will allow people, goods, capital and knowledge to flow freely." <sup>2</sup>
	September 7	Australia, Japan, and Singapore participate in the Exercise Malabar, previously a bilateral naval exercise between the United States and India, sparking protest from China.
2008	February 5	Australia assures China that it will withdraw from the Quad.
2012	December 27	Prime Minister Shinzo Abe calls for a "democratic security diamond" whereby "Australia, India, Japan, and the U.S. state of Hawai'i form a diamond to safeguard the maritime commons stretching from the Indian Ocean region to the western Pacific." <sup>3</sup>
2015	October 12	Japan becomes a permanent member of Exercise Malabar.
2017	November 12	In the first senior-level meeting of the renewed Quad, officials from all four countries meet on the sidelines of the ASEAN Summit in Manila, the Philippines.
2018	June 7	Quad senior officials meet for a second time on the margins of the ASEAN Senior Officials' Meeting in Singapore.
	November 15	The third Quad Senior Officials' Meeting occurs at the East Asia Summit in Singapore.
2019	May 31	The Quad holds its first foreign ministerial-level meeting on the sidelines of the United Nations General Assembly in New York City, the United States.
2020	November 2	Australia rejoins Exercise Malabar.
2021	March 12	The first Quad Leaders' Summit is held virtually and the joint statement <i>The Spirit of the Quad</i> is released.
	September 24	The second Quad Leaders' Summit is held in-person in Washington, D.C., the United States.
2022	March 4	The third Quad Leaders' Summit is held virtually to discuss the conflict in Ukraine and its impact on the Indo-Pacific region.
	May 24	The fourth Quad Leaders' Summit takes place in Tokyo, Japan as a standalone meeting. This is the second in-person Quad Leaders' Summit.
2023	March 3	The Quad Working Group on Counterterrorism is announced at the sixth Quad Foreign Ministers' meeting in New Delhi, India.
	May 20	The fifth Quad Leaders' Summit takes place in Hiroshima, Japan on the sidelines of the Group of Seven Summit.

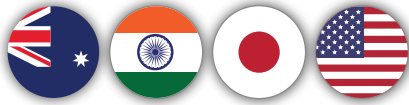
1. "JetStream Max: 2004 Indian Ocean Tsunami," *National Oceanic and Atmospheric Administration, U.S. Department of Commerce*, June 12, 2023, [www.noaa.gov/jetstream/2004tsu\\_max](http://www.noaa.gov/jetstream/2004tsu_max)

2. Shinzo Abe, "Confluence of the Two Seas" Speech by H.E. Mr. Shinzo Abe, Prime Minister of Japan at the Parliament of the Republic of India," *Ministry of Foreign Affairs of Japan*, August 22, 2007

3. Shinzo Abe, "Asia's Democratic Security Diamond," *Project Syndicate*, December 27, 2012, <https://www.project-syndicate.org/magazine/a-strategic-alliance-for-japan-and-india-by-shinzo-abe>

TIMELINE: GENESIS AND EVOLUTION

**2004**



**FORMATION OF THE QUAD**

The Quad is formed by Australia, India, Japan, and the United States, to coordinate relief efforts after the Indian Ocean Tsunami.

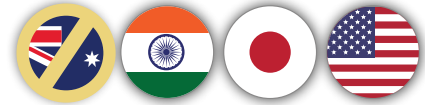
**2007**



**TRANSFORMATION INTO A STRATEGIC DIALOGUE**

The first Quad officials' meeting takes place and focuses on shared interests in the Indo-Pacific region.

**2008-2012**



**DISSOLUTION OF THE QUAD**

Australia withdraws from the Quad over concerns of antagonizing China, however Prime Minister Shinzo Abe of Japan later calls for a revival of the partnership.

**2017-2024**



**REVIVAL OF THE QUAD**

In 2017, the Quad is revived and expands its focus to include new policy areas.

**EXPANSION OF COOPERATION**

The Quad now includes joint military exercises, six working groups, and an investors network, among other initiatives.

**2021-2024**



**LEADERS' SUMMITS CHART THE PATH FORWARD**

Annual Quad Leaders' Summits have provided high level guidance through joint statements on shared goals and principles.

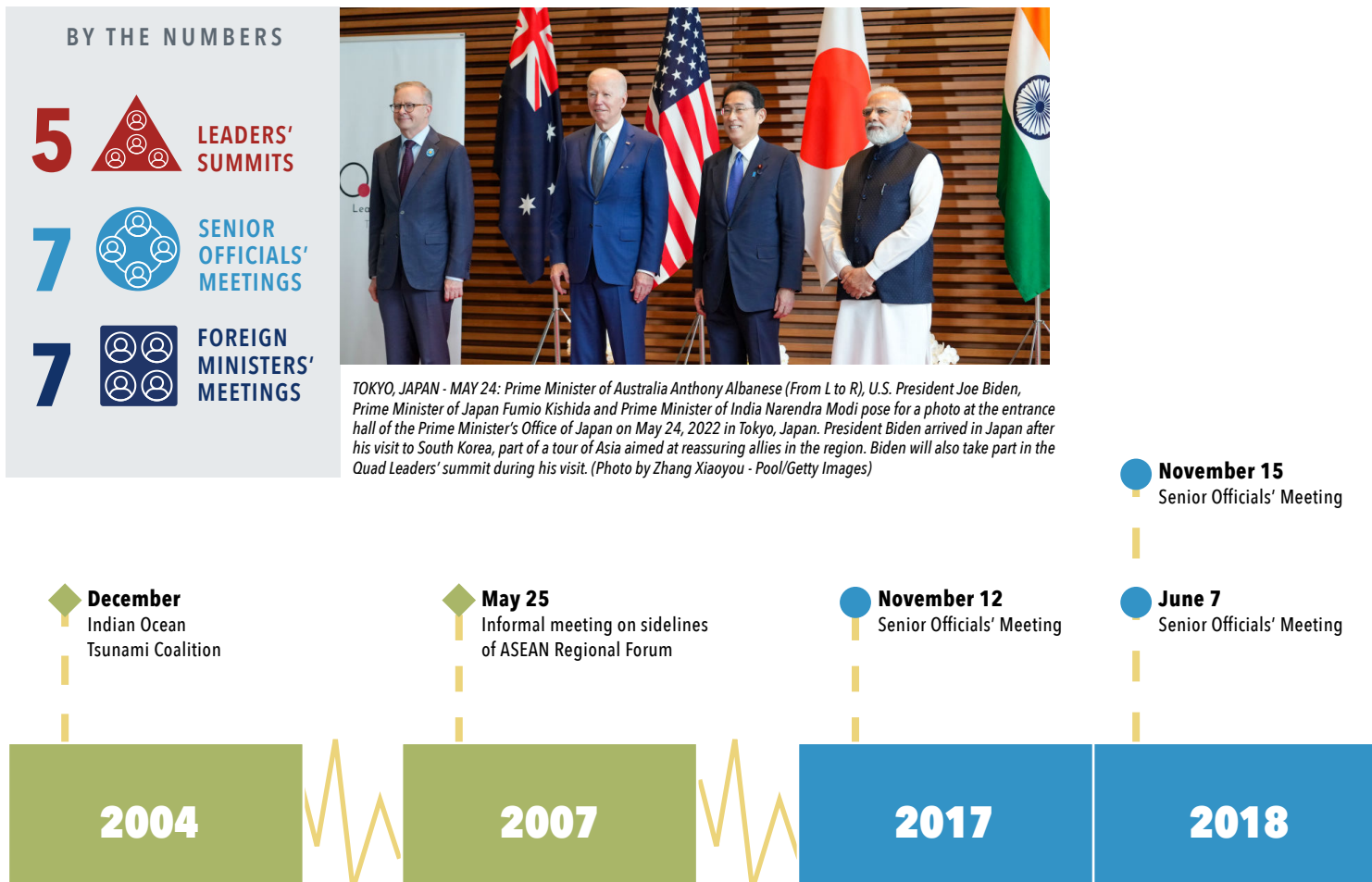
# Introduction

**Quad countries are home to a combined 1.9 billion people—or 24% of the world’s population—and represent 35% of the world’s GDP and 18% of global trade<sup>4</sup>**

The Quad, initially known as the Quadrilateral Security Dialogue, is a strategic diplomatic partnership composed of Australia, India, Japan, and the United States. The group’s origins can be traced back to December 2004 when these four countries first came together as an ad-hoc grouping to provide humanitarian aid and assistance to countries affected by the Indian Ocean Tsunami. Despite the end of the

humanitarian relief operation in January 2005, a push for a more formal partnership continued. In 2007, the group held its inaugural, albeit informal first meeting on the sidelines of the ASEAN Regional Forum in Manila, the Philippines. However, the initial iteration of the Quad was short-lived, as concerns about the groups impact on diplomatic relations—particularly with China—led to its informal dissolution in 2008.

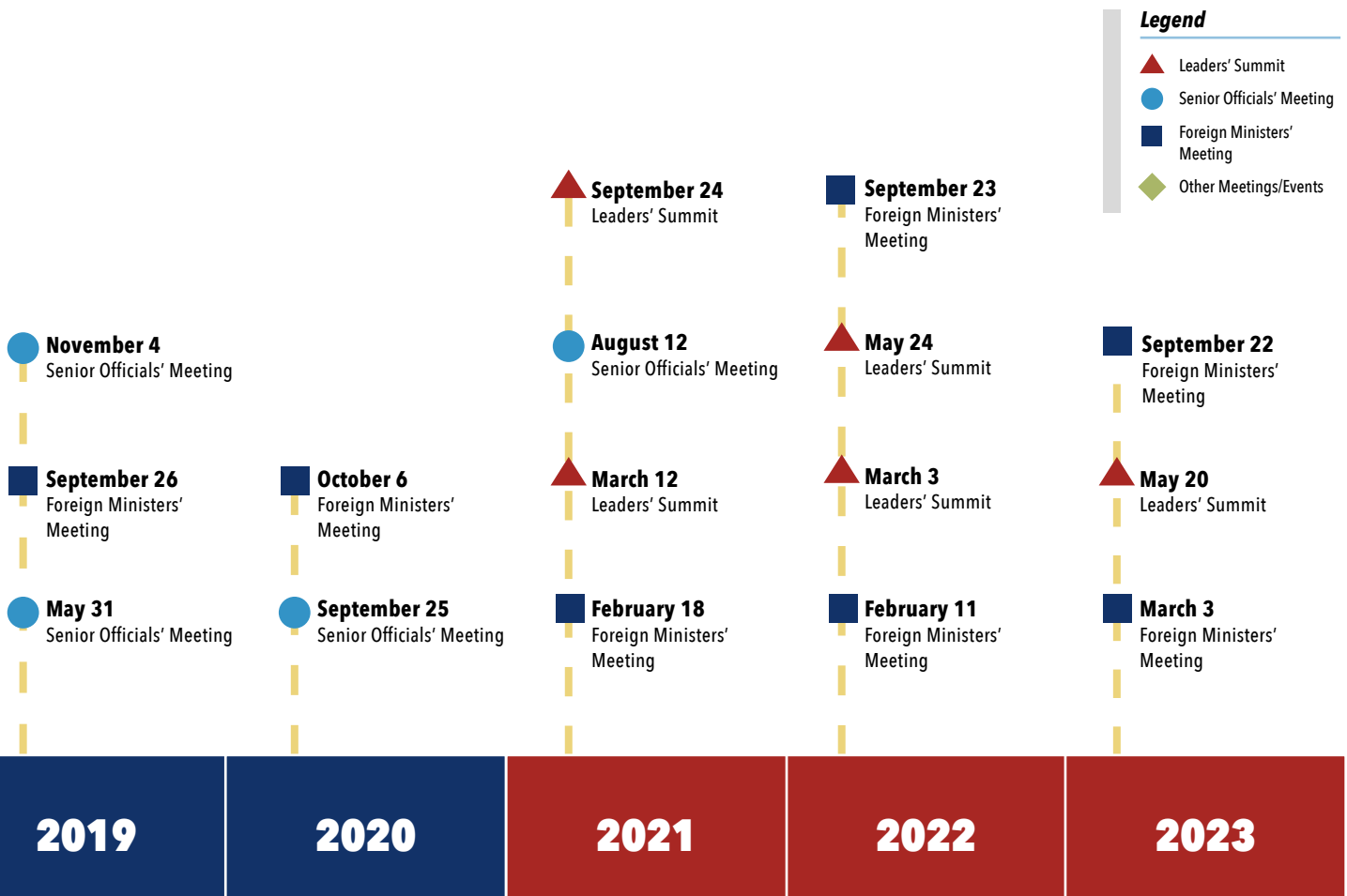
## TIMELINE OF SENIOR OFFICIALS’ MEETINGS, FOREIGN MINISTERS’ MEETINGS, AND LEADERS’ SUMMITS



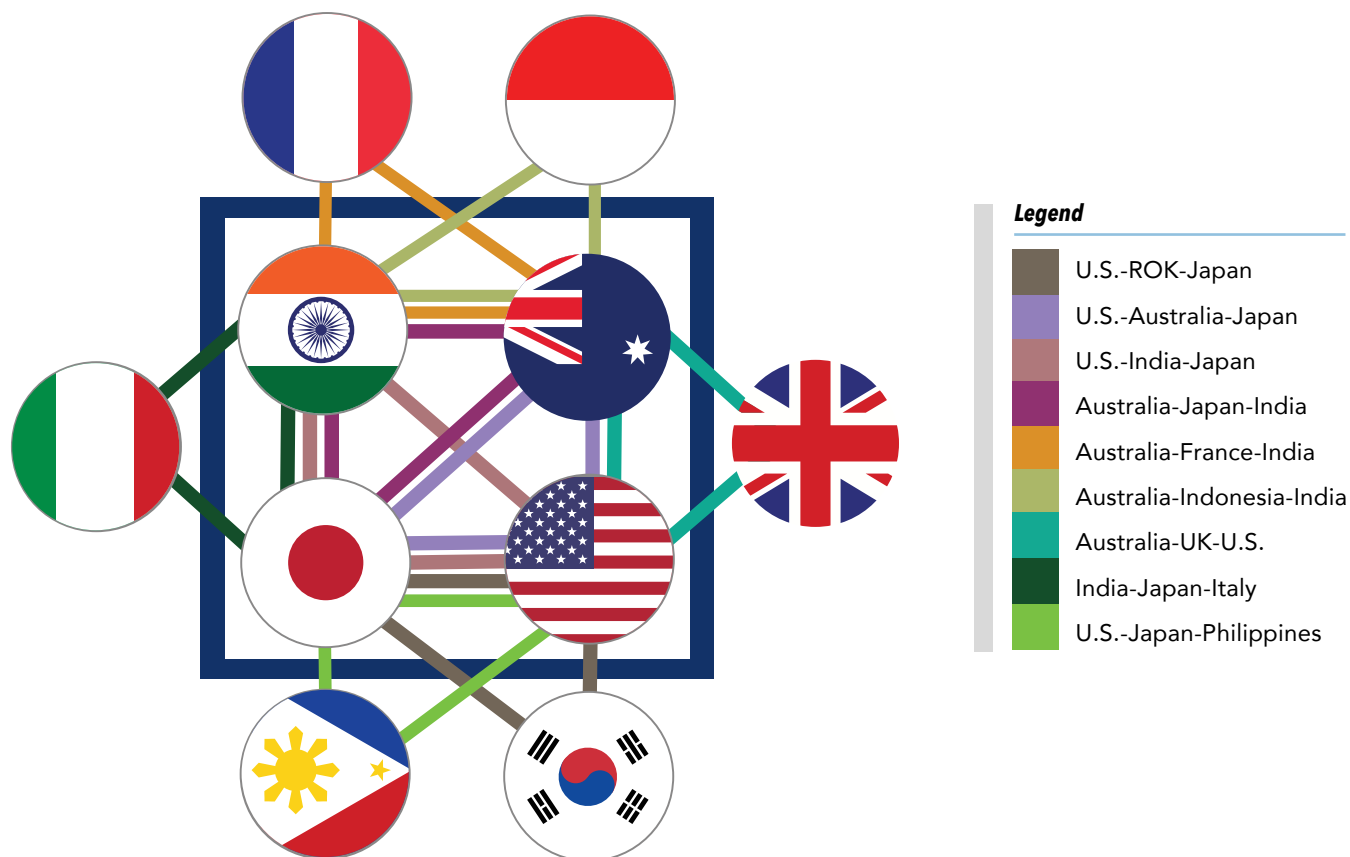
4. "World Bank Open Data," World Bank, 2022, <https://data.worldbank.org>

The Quad regained momentum in 2017, driven by shared concerns regarding the assertiveness of China in the Indo-Pacific region, the need to further promote cooperation and strategic consultations between its members, and a desire to uphold peace and stability in the Indo-Pacific. Senior officials from the four countries met on the sidelines of the 2017 East Asia Summit in Manila, signaling a renewed interest in collaborative efforts. Over the next few years, the Quad focused on policy coordination and the provision of public goods in the Indo-Pacific, both bilaterally and through regional institutions. In the face of the global COVID-19 pandemic

beginning in early 2020, the Quad gained further relevance as the grouping shifted its focus to vaccine diplomacy, health security, and economic recovery, evolving from a senior officials' dialogue to leader-level summits. Since 2019, Quad foreign ministers have met seven times and the Quad Leaders have met five times. Although there have been no stand-alone meetings of Quad defense ministers, the Raisina Dialogue, which is held annually in New Delhi, India, has been a venue for panels of Quad naval chiefs to meet and discuss.



## QUAD MEMBER PARTICIPATION IN TRILATERAL PARTNERSHIPS



Source: Tanvi Madan, *The Brookings Institution*. Retrieved from: <https://www.brookings.edu/articles/what-you-need-to-know-about-the-quad-in-charts>

Since regrouping in 2017, the Quad has announced the creation of six working groups which focus on a variety of policies and initiatives. During the inaugural Leaders' Summit held virtually in March 2021, the group announced a Quad Vaccine Partnership—later renamed the Quad Health Security Partnership—alongside the establishment of a Critical and Emerging Technologies Working Group and a Climate Working Group.<sup>5</sup> A Space Working Group was established later that year during the first in-person Leaders' Summit held in Washington, D.C., the United States.<sup>6</sup> As Quad activities continue to evolve beyond traditional security concerns, the grouping now includes progressive partnerships such as the Quad Cybersecurity Partnership, the Quad Partnership for Cable Connectivity and Resilience, the Indo-Pacific Partnership for Maritime Domain Awareness, and the Quad Partnership on Humanitarian Assistance and Disaster Relief.

As the Quad strengthens its internal mechanisms, it simultaneously deepens its ties with Association of Southeast Asian Nations (ASEAN) and other regional bodies, aligning its goals with broader regional strategies. As ASEAN Dialogue Partners, the Quad countries are committed supporters of ASEAN centrality and ASEAN-led regional architecture. Quad countries have also made strides in strengthening cooperation with the Pacific Islands Forum—of which Australia is a member—aligning Quad priorities with Pacific initiatives such as the *2050 Strategy for the Blue Pacific Continent*.<sup>7</sup> In the Indian Ocean, the Quad seeks to support the regional leadership of the Indian Ocean Rim Association, of which India and Australia are both members. In 2023, Quad countries took on leadership roles including Japan's G7 presidency, India's G20 presidency, the United States' hosting of APEC, and Australia's bid to co-host the United Nations International Panel on Climate Change COP31 in 2026.

5. "Fact Sheet: Quad Summit," *The White House*, March 12, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/12/fact-sheet-quad-summit/>

6. "Fact Sheet: Quad Leaders' Summit," *The White House*, September 24, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/24/fact-sheet-quad-leaders-summit/>

7. Kyoko Imai and Parker Novak, "Bolstering cooperation among Quad and Pacific Island countries," *Atlantic Council*, March 29, 2024, <https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/bolstering-cooperation-among-quad-and-pacific-island-countries/>



# Leader-Level Working Groups

The rebirth of the Quad has led to a significant broadening of the partnership's scope. Moving beyond traditional security concerns, the Quad has transformed from a budding security dialogue into a multifaceted partnership with far-reaching goals through the creation of six leader-level working groups. Through leveraging the strengths of each country, the Quad can deliver greater benefits throughout the Indo-Pacific region, which underscores the group's commitment to addressing complex challenges collaboratively and forging a path towards a more interconnected and resilient future. The Quad's working groups and initiatives are informed by close consultation with its partners in the region, where health security, climate resilience, and infrastructure development are top priorities.

In 2021, President Joseph Biden hosted a virtual and in-person Quad Leaders' Summit, marking a milestone for the group which unveiled several new initiatives. Along with these initiatives came the establishment of six leader-level working groups,

focused on: health security; climate change and clean energy transition; critical and emerging technologies (CET); infrastructure and connectivity; space cooperation; and cybersecurity. Additional working groups and initiatives have also been established at the ministerial-level, such as the Quad Working Group on Counterterrorism.

These working groups highlight some of the Quad's main priorities and provide an additional avenue for focused dialogues, reports, and joint activities. Some highlighted outcomes from the Quad's working groups includes an Open RAN Security Report from the CET Working group, the Earth Observation data website from the Space Working Group, and the Quad Cyber Challenge from the Quad Senior Cyber Group.<sup>8</sup> As the group aims to build collective capacity and cement habits of cooperation across governments, the Quad leverages its members' comparative advantages to jointly address the region's needs and provide public goods.

Working Group	Established	Key Milestones
 <b>The Quad Health Security Partnership</b>	March 2021	<p><b>2021:</b> The Quad Vaccine Partnership is established to deliver COVID-19 vaccines globally</p> <p><b>2023:</b> The Quad Vaccine Partnership evolves into the Quad Health Security Partnership</p>
 <b>The Climate Working Group</b>	March 2021	<p><b>2022:</b> The Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP) is adopted</p> <p><b>2022:</b> The Quad participates in the Sydney Energy Forum in Australia</p> <p><b>2023:</b> The Statement of Principles on Clean Energy Supply Chains in the Indo-Pacific is issued</p>
 <b>The Critical and Emerging Technology Working Group</b>	March 2021	<p><b>2023:</b> A partnership with Palau to deploy an Open Radio Access Network (Open RAN) is announced</p> <p><b>2023:</b> The Quad Principles on Critical and Emerging Technology Standards are published</p>
 <b>The Space Working Group</b>	September 2021	<p><b>2022:</b> An Extreme Precipitation Steering Committee is announced and hosts two workshops</p> <p><b>2022:</b> The Quad Satellite Data Portal is launched</p>
 <b>The Quad Infrastructure Coordination Group</b>	September 2021	<p><b>2023:</b> The Quad Infrastructure Fellowships Program is announced</p> <p><b>2023:</b> The Quad Partnership for Cable Connectivity and Resilience is launched</p>
 <b>The Quad Senior Cyber Group</b>	September 2021	<p><b>2023:</b> The Quad Cyber Challenge is launched</p> <p><b>2023:</b> The Quad Joint Principles for Secure Software are released</p>

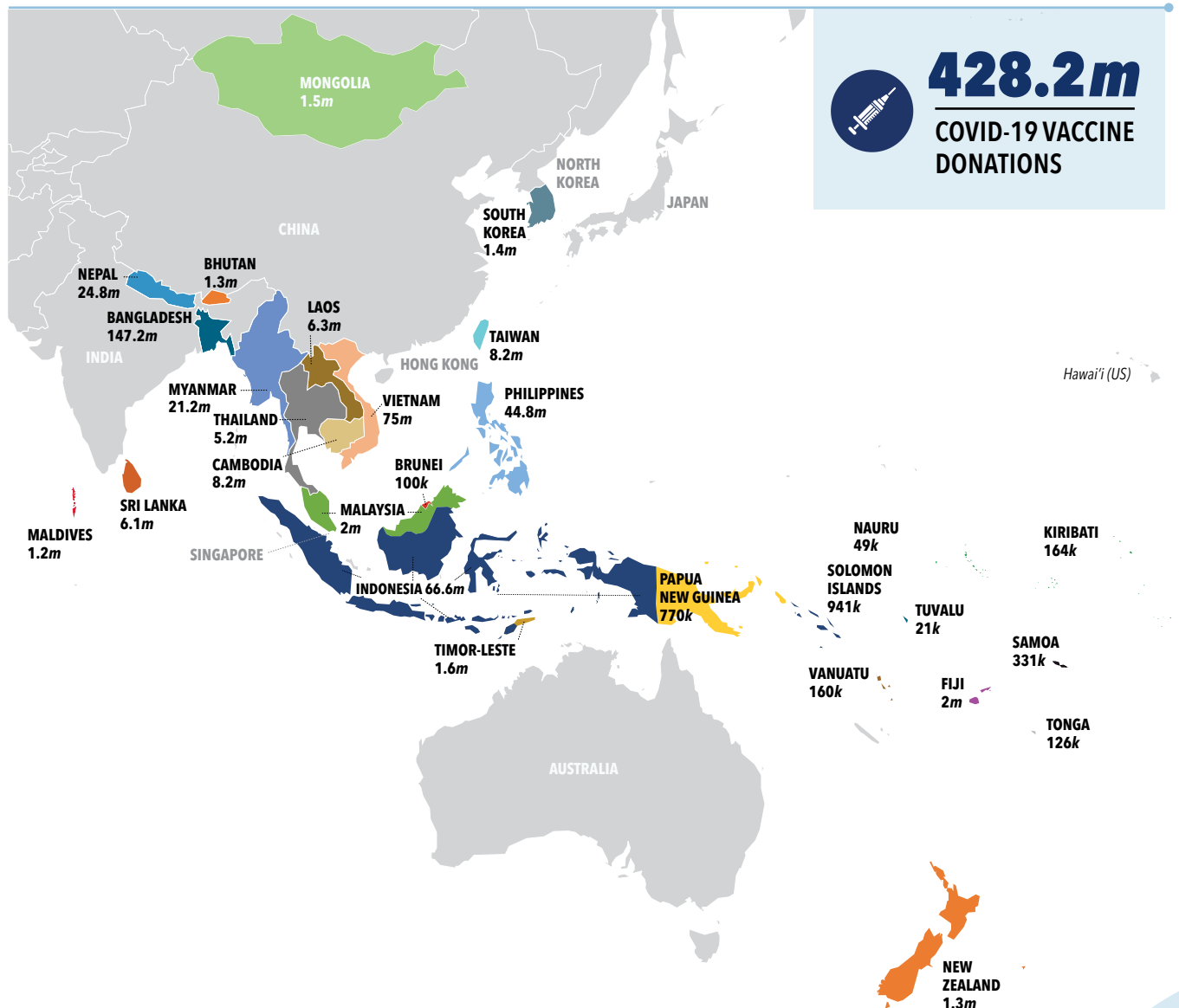
8. "Quad Working Groups," Australian Government Department of the Prime Minister and Cabinet, accessed April 12, 2024, <https://www.pmc.gov.au/quad-2023/quad-working-groups>

# The Quad Health Security Partnership

Health security stands at the forefront of the Quad's collective agenda. Prompted by the outbreak of the COVID-19 pandemic, Quad countries embarked on a series of initiatives to bolster their joint capacity for response. Beginning in March 2021, Quad Leaders met virtually for the first time alongside three new partners—South Korea, Vietnam, and New Zealand—informally dubbed the Quad-Plus. This meeting established a range of new initiatives, including the Quad Vaccine Partnership and the senior-level Quad Vaccine Experts Group. These initiatives aimed to

utilize the financial backing of Japan, the vaccine-manufacturing heft of India, vaccines developed in the United States, and the last-leg delivery capacity of Australia to deliver 1.2 billion vaccine doses to Southeast Asia as well as the full vaccine coverage for nine Pacific Island countries and Timor-Leste by the end of 2022.<sup>9</sup> Regrettably, domestic outbreaks of COVID-19 and the Quad's choice of vaccine caused several delays which led to the partnership falling short of its original donation goals. Despite these setbacks, Quad partners delivered more

## QUAD MEMBERS COMBINED COVID-19 VACCINE DONATIONS TO THE INDO-PACIFIC\*



Sources: Australian Department of Foreign Affairs and Trade (May 2023); Indian Ministry of External Affairs (June 2023); Japanese Ministry of Foreign Affairs (April 2023); U.S. Department of State (February 2024)  
\*Note: This graphic includes vaccines donated bilaterally and through the COVAX Facility

9. "Fact Sheet: Quad Summit," *The White House*, March 12, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/12/fact-sheet-quad-summit/>

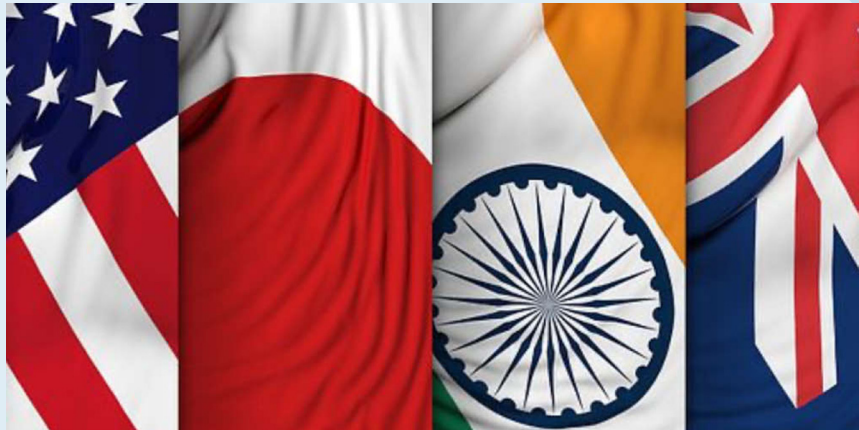
than 400 million vaccine doses to Indo-Pacific countries and nearly 800 million doses globally in 2021 and 2022, both bilaterally and through the COVAX partnership.<sup>10</sup> India was the only country to distribute vaccines under the auspices of the Quad. The inaugural delivery of 325,000 doses was delivered to Cambodia in April 2022.<sup>11</sup> Quad member countries have contributed \$5.6 billion to the COVAX Advance Market Commitment to increase vaccine supply to low- and middle-income countries.<sup>12</sup>

The May 2023 Quad Leaders's Joint Statement announced the evolution of the Quad Vaccine Partnership into a broader Quad Health Security Partnership as disruptions from the COVID-19

pandemic began to subside. Quad member countries have contributed \$534 million to the Coalition for Epidemic Preparedness Innovations, which helps finance research into developing new vaccines to combat emerging infectious diseases.<sup>13</sup> Other new initiatives of the working group include the development of the health workforce, disease surveillance, and the expansion of electronic health information systems. New activities also include a Quad Pandemic Preparedness Exercise, which uses electronic health information systems to practice coordinating responses in the face of a future outbreak.

## SELECTED STORY

On April 21, 2022, Thailand received the second delivery of COVID-19 vaccines under the Quad Vaccine Partnership with the first delivery of vaccines being made to Cambodia less than two weeks prior. Ambassador of India, H.E. Suchitra Durai, Ambassador of Australia, H.E. Allan McKinnon, Ambassador of Japan, H.E. Nashida Kazuya and the Chargé d'Affaires of the United States, H.E. Mr. James Wayman jointly delivered 200,000 doses of Made-in-India Covovax vaccines to Thailand. Quad countries have provided Thailand with 5.2 million COVID-19 vaccine doses both bilaterally and through



the COVAX Facility.<sup>14</sup> Additionally, Australia has provided Thailand with delivery coordination and support, India has provided additional medicines and equipment, Japan has provided oxygen concentrators and last mile support, and the United States has provided assistance with contact tracing and data management.

10. "Quad Leaders' Joint Statement," *The White House*, May 20, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-joint-statement/>

11. "Past and Future Health Cooperation: The Quad," *Think Global Health*, accessed April 14, 2024, <https://www.thinkglobalhealth.org/article/past-and-future-health-cooperation-quad>

12. "Health Security," *Australian Government Department of the Prime Minister and Cabinet*, accessed April 12, 2024, <https://www.pmc.gov.au/resources/quad-leaders-summit-2023/health-security>

13. "Quad Joint Leaders' Statement," *Australian Government Prime Minister of Australia*, May 24, 2022, <https://www.pm.gov.au/media/quad-joint-leaders-statement>

14. "Vaccine Handover to Thailand Under the Quad Vaccine Partnership," U.S. Embassy & Consulate in Thailand, accessed May 10, 2024, <https://th.usembassy.gov/vaccine-handover-to-thailand-under-the-quad-vaccine-partnership/>

# The Climate Working Group

The Quad is committed to addressing and mitigating climate change, strengthening climate resilience, and supporting regional partners with their clean energy transition. The Quad recognizes the unique threat of climate change and natural disasters, specifically for Pacific Island countries, and emphasizes the need for just and sustainable clean energy transitions. In March 2021, the Quad Climate Working Group was launched to coordinate efforts on emissions reduction, capacity-building, and climate finance.<sup>15</sup> At the 2021 Quad Leaders' Summit, Quad Leaders agreed on their climate priorities, which included forming a green-shipping network, reducing costs in the value chain, expanding the production of clean hydrogen, minimizing methane emissions, and enhancing climate preparedness through improved information sharing and disaster-resilient infrastructure.

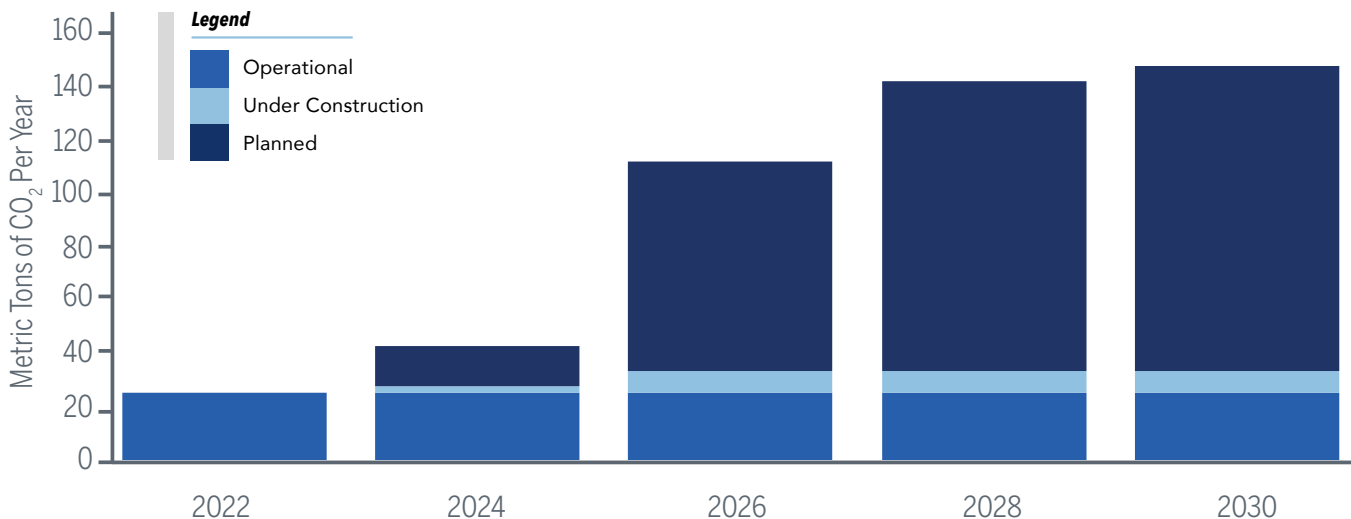
To deliver their climate agenda, at the 2022 Quad Leaders' Summit in Tokyo, the Quad countries jointly launched the Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP).<sup>16</sup> Q-CHAMP builds upon the ongoing activities of the Quad Climate Working Group, with a focus on the group's three pillars: climate ambition, clean energy, and adaptation and resilience. Q-CHAMP has also expanded into new areas such as climate-smart agriculture, carbon recycling, and knowledge sharing on subnational climate actions.

## SELECTED STORY

### JAPAN AND AUSTRALIA COLLABORATION ON CLEAN HYDROGEN

In 2021, under the Japan-Australia Partnership on Decarbonization through Technology, the two Quad countries committed to jointly support initiatives and collaborate on technology R&D, driving regional transitions to net-zero emissions. Through the world's first Hydrogen Energy Supply Chain (HESC) Project, Australia successfully delivered the first shipment of liquified hydrogen to Japan via the *Suiso Frontier*, the world's first liquid hydrogen carrier. The ship arrived in Kobe, Japan from the Port of Hastings in Australia in February 2022. The liquified hydrogen was derived from hydrogen gas produced at a newly constructed plant in Latrobe Valley, Australia, marking a fully integrated hydrogen supply chain from source to destination.<sup>17</sup> The HESC Project could potentially reduce global CO<sub>2</sub> emissions by 1.8 million tons per year.

## QUAD COUNTRIES' PROJECTED CUMULATIVE CARBON CAPTURE CAPACITY



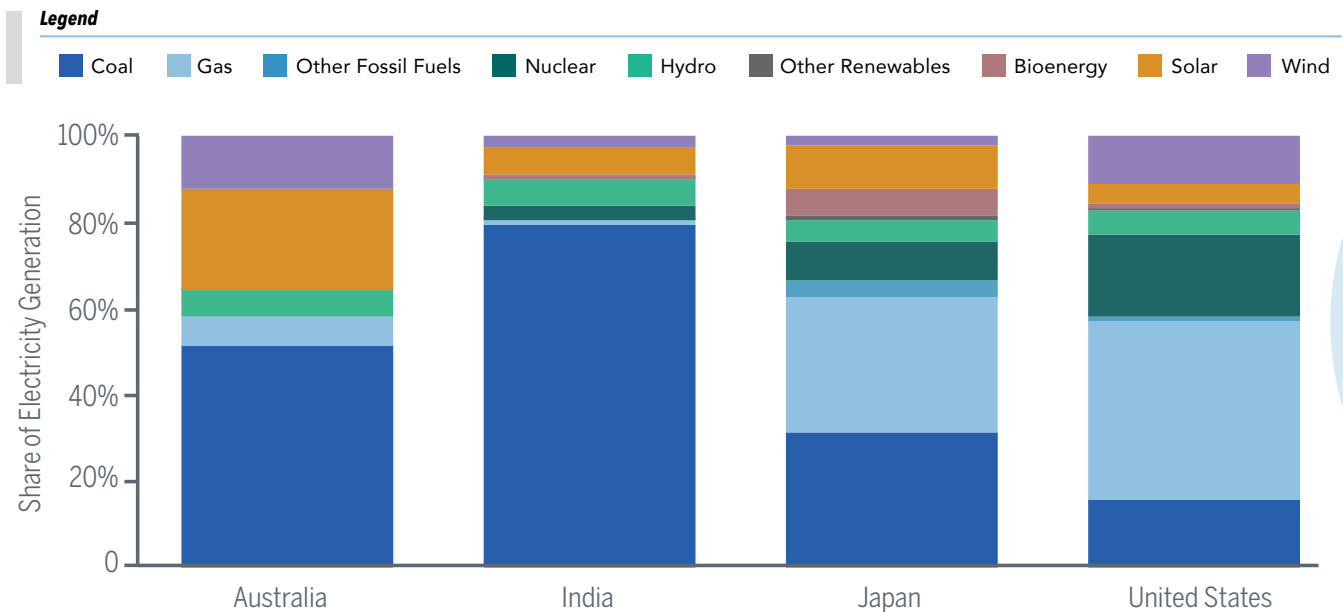
Source: International Energy Agency (IEA), CCUS Projects Explorer, March 2023

15. "Fact Sheet: Quad Summit," *The White House*, March 12, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/12/fact-sheet-quad-summit/>

16. "Quad Cooperation in Climate Change and Launch of the Quad Adaptation and Mitigation Package (Q-CHAMP)," *Ministry of Foreign Affairs of Japan*, 2022, <https://www.mofa.go.jp/files/100348057.pdf>

17. "The World-First Hydrogen Energy Supply Chain (HESC) Project," *Hydrogen Energy Supply Chain Project (HESC)*, accessed April 12, 2024, <https://www.hydrogenenergysupplychain.com/>

## SHARE OF TOTAL ELECTRICITY GENERATION BY SOURCE



Source: Ember Electricity Data Explorer, November 2023 data

The Quad has recognized the crucial role of supply chains to support a clean energy transition and energy security. Secure, resilient, and sustainable clean energy supply chains require not only diversifying source markets for clean energy technologies and inputs, but also reducing emissions that result from mining, bulk materials production, and technology manufacturing.<sup>18</sup> Beyond clean energy generation, a comprehensive clean energy transition also requires investment into energy storage, transport systems, and energy efficiency. The International Energy Agency estimates global annual clean energy investments need to reach around \$4.5 trillion by 2030 to reach net-zero emissions by 2050, up from \$1.74 trillion in 2023.<sup>19</sup> The Indo-Pacific accounted for \$824 billion of this global clean energy investment in 2023, more than any other region.

On the sidelines of the Sydney Energy Forum in July 2022, U.S. Secretary of Energy Jennifer Granholm met with Quad energy ministers for the first time to affirm their shared commitment to advancing the region's clean energy transition.<sup>20</sup> The United States has called for a similar meeting among Quad transportation ministers to discuss policy recommendations for the establishment of low or

zero-emission "green shipping corridors" by 2025-2030. The Quad has emphasized clean hydrogen and clean ammonia as zero-emission fuels with significant potential. In July 2022, India's Ministry of New and Renewable Energy organized a Quad Workshop on Regulations, Codes, and Standards for Clean Hydrogen for government and industry stakeholders from all four countries under the Quad Clean Hydrogen Strategic Initiative.<sup>21</sup>

At the 2023 Quad Leaders' Summit, the Statement of Principles on Clean Energy Supply Chains in the Indo-Pacific was released. The six principles outlined are: 1) diversifying clean energy supply chains, 2) supporting clean energy workforce needs, 3) exploring interoperability in technical standards, 4) cooperating on developing Environmental, Social, and Governance practices, 5) encouraging public and private investment and collaboration in clean energy R&D, and 6) incentivizing companies to develop decarbonization solutions.<sup>22</sup> To support the implementation of these principles, the Quad Clean Energy Supply Chain Diversification Program will fund research and feasibility studies on solar photovoltaics, electrolyzers, and batteries.<sup>23</sup> The Australian government has already pledged \$50 million to support studies under this initiative.<sup>24</sup>

18. "Energy Technology Perspectives 2023," *International Energy Agency*, January 2023, <https://iea.blob.core.windows.net/assets/a86b480e-2b03-4e25-bae1-da1395e0b620/EnergyTechnologyPerspectives2023.pdf>

19. "World Energy Investment 2023," *International Energy Agency*, May 2023, <https://iea.blob.core.windows.net/assets/8834d3af-af60-4df0-9643-72e2684f7221/WorldEnergyInvestment2023.pdf>

20. "DOE Participates in First-Ever Meeting of Quad Energy Ministers," *U.S. Department of Energy*, July 13, 2022, [www.energy.gov/articles/doe-participates-first-ever-meeting-quad-energy-ministers](http://www.energy.gov/articles/doe-participates-first-ever-meeting-quad-energy-ministers)

21. "MNRE Organises Quad Workshop on Clean Hydrogen," *Indian Ministry of New and Renewable Energy*, July 28, 2022, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1846354>

22. "Quad Statement of Principles on Clean Energy Supply Chains in the Indo-Pacific," *Australian Government Department of the Prime Minister and Cabinet*, accessed April 12, 2024, <https://www.pmc.gov.au/resources/quad-statement-principles-clean-energy-supply-chains-indo-pacific>

23. "Climate," *Australian Government Department of the Prime Minister and Cabinet*, accessed April 12, 2024, <https://www.pmc.gov.au/resources/quad-leaders-summit-2023/climate>

24. "\$50 Million to Boost Clean Energy Supply Chains in the Indo-Pacific," *Australia Minister for Climate Change and Energy*, July 22, 2023. Retrieved from: <https://minister.dcccew.gov.au/bowen/media-releases/50-million-boost-clean-energy-supply-chains-indo-pacific>

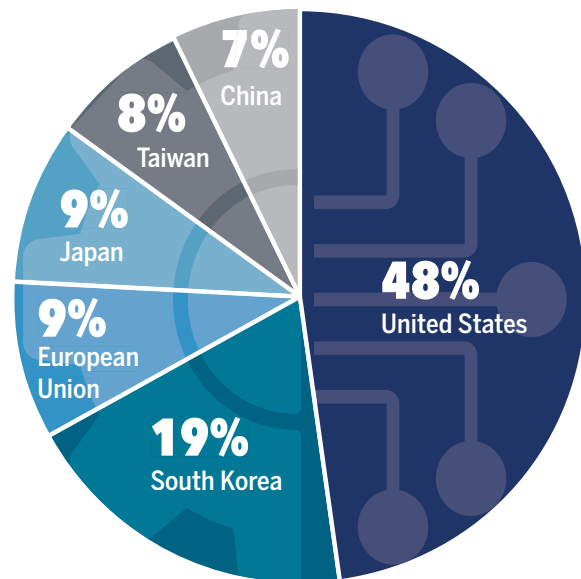
# The Critical and Emerging Technology Working Group

Critical and emerging technologies such as artificial intelligence (AI), quantum computing, autonomous systems, and biotechnologies present new opportunities for growth despite surrounding security challenges and implementation complexities. Since 2021, Quad members have been working together to encourage innovation and development of emerging technologies while prioritizing national security.<sup>25</sup> All four Quad countries have passed laws or released national strategies focused on addressing the impacts of emerging technologies. Released in 2023, the Quad's Principles on Critical and Emerging Technology Standards outline their common vision for an industry-led, multi-stakeholder approach to developing international technology standards that are underpinned by the values of transparency, security, and interoperability. The Quad International Standards Cooperation Network provides a platform for the partners to increase situational awareness, coordination, and influence in international standards development.

The Quad's Critical and Emerging Technology (CET) Working Group allows the four countries to work jointly to promote and protect global technology markets, set technical standards, promote 5G networks, and coordinate horizon scanning.<sup>26</sup> During the Quad Leaders' Summit in September 2021, Quad Leaders took important steps to launch two initiatives. First, a Semiconductor Supply Chain Initiative which supports diversifying technology supply chains, and second, a Track 1.5 dialogue focused on 5G deployment and diversification.<sup>27</sup> Since the launching of these initiatives, the Quad has mapped out global supply chains for semiconductors to underscore vulnerabilities.<sup>28</sup> Additionally, the 5G Track 1.5 industry dialogue resulted in a Memorandum of Cooperation on 5G Supplier Diversification and Open RAN and technician exchanges among the four countries.

To bring together Quad governments, technology companies, and investors, the Quad held its inaugural Technology Business and Investment Forum in Sydney, Australia in 2022. The United States hosted the second forum in San Francisco on the sidelines of the Asia-Pacific Economic Cooperation Summit

## GLOBAL MARKET SHARE OF SEMICONDUCTORS IN 2022



Source: Semiconductor Industry Association (SIA), Factbook 2023, May 2023, accessed April 16, 2024, Note: Data from 2022, except China market share percentage based on 2021.

in November 2023. Given the success of these dialogues, in 2022, the Quad established a Quad Investors Network (QUIN) to strengthen engagement with the private sector and expand access to capital investment in these technologies. In 2023, Quad members utilized the forum to strengthen connectivity with the Pacific Island countries, deepen engagement with the private sector, and start discussions on leveraging how they can leverage AI for agriculture in the Indo-Pacific.<sup>29</sup>

The 2023 Quad Leaders' Summit saw major developments in transitioning the work of the CET Working Group to implementation in the Indo-Pacific. This includes a partnership with the Pacific Island country of Palau to modernize the country's national mobile network by operationalizing an Open RAN.

25. "Fact Sheet: Quad Leaders' Summit," *The White House*, September 24, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/24/fact-sheet-quad-leaders-summit>

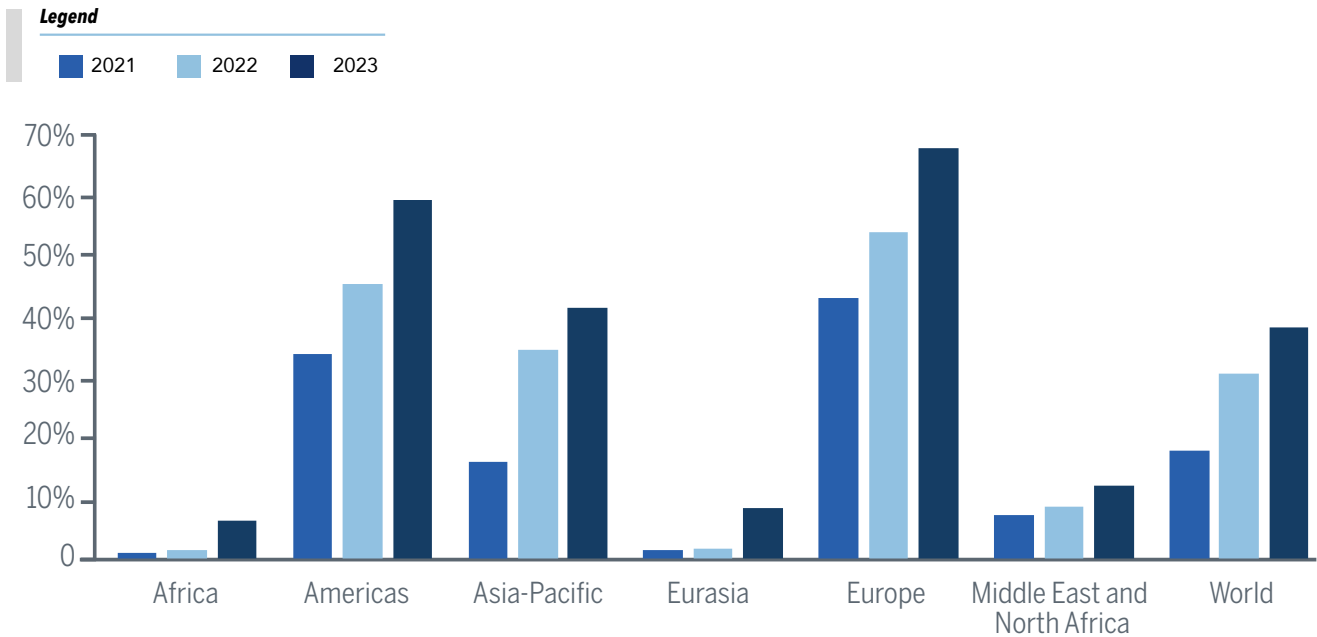
26. "Quad Working Groups," *Australian Government Department of the Prime Minister and Cabinet*, accessed April 12, 2024, <https://www.pmc.gov.au/quad-2023/quad-working-groups>

27. "Fact Sheet: Quad Leaders' Summit," *The White House*, September 24, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/24/fact-sheet-quad-leaders-summit>

28. "Fact Sheet Quad Leaders' Tokyo Summit 2022," *The White House*, May 23, 2022, [www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022](https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022)

29. "Quad Leaders' Summit Fact Sheet," *The White House*, May 20, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-summit-fact-sheet>

## SHARE OF POPULATION COVERED BY 5G MOBILE NETWORK TECHNOLOGY



Source: ITU World Telecommunication/ICT Indicators Database, November 2023, Facts and Figures 2023

The deployment of Open RAN technology will create a more secure, resilient, and affordable network for Palauans. To develop this network, the U.S. Trade and Development Agency will provide a grant while the Australian government will support the project's technical needs.<sup>30</sup> The Quad's CET Working Group has also published an Open RAN Security Report,

which includes a risk-based assessment of Open RAN technology that emphasizes its capacity to be as secure as traditional RAN. Science agencies from all four Quad countries will also work together to encourage the usage of AI in the agricultural sector. AI can help farmers in the Indo-Pacific increase crop yields and aid their decision-making to reduce waste.

## INVESTMENT IN AI COMPANIES BETWEEN QUAD COUNTRIES FROM 2010 TO 2021

		TARGET COUNTRY			
		Australia	India	Japan	United States
INVESTOR COUNTRY	Australia		\$12m	\$0	\$5.7b
	India	\$28m		\$15m	\$4.4b
	Japan	\$79m	\$198m		\$14.6b
	United States	\$869m	\$20.6b	\$904m	

Source: Georgetown University, Center for Security and Emerging Technology, Quad AI: Assessing AI-related Collaboration between the United States, Australia, India, and Japan, May 2022 Issue Brief

30. "Quad Leaders' Summit Fact Sheet," The White House, May 20, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-summit-fact-sheet>

# The Space Working Group

The Quad countries are global leaders in the public and private space sectors, and have made significant strides in their respective space programs. To increase coordination and information sharing, Quad Leaders established the Space Cooperation Working Group at the first in-person Leaders' Summit in September 2021. Through this group, Quad members share Earth observation satellite data, which enables Quad countries to monitor climate change, improve disaster response and preparedness, and observe the sustainable use of oceans and marine resources.<sup>31</sup> As part of the working group, the Quad has successfully mapped each country's capabilities and launched the Earth Observation data website.

Quad countries have a substantial history of collaboration in the space domain. Australia, Japan, and the United States have cooperated closely on space defense and security since the inception of the Japan-U.S.-Australia Space Security Dialogue in 2011.<sup>32</sup> Australia and Japan have regularly participated in the Schriever Wargame and the Global Sentinel tabletop exercise hosted annually by the United States. During Global Sentinel 2024, space operators from Australia and Japan engaged in the exercise alongside participants from 25 partner nations, with representatives from India attending as observers.<sup>33</sup>

The invasion of Ukraine in 2022 highlighted the importance of space capabilities in international conflicts, as satellite imagery played a decisive role in preventing the fall of Kyiv. This importance was reflected in the 2022 Quad Leaders' Summit with the implementation of the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA), which utilizes innovative technology such as commercial satellite radio frequency data collection.<sup>34</sup> The Working Group aims to work with partners in the Indo-Pacific in the areas of disaster response and the fight against illegal fishing and other illicit maritime activities.<sup>35</sup> The IPMDA reached its pilot phase in 2023 and is now providing near-real-time maritime domain data to maritime agencies in Southeast Asia and the Pacific with plans to continue expanding coverage to partners in the Indian Ocean region.<sup>36</sup> In 2023, Quad Leaders announced additional expansions of the Space Cooperation Working Group, including the strengthening of commercial space cooperation.

The private space sector is a growing industry. In 2022, the global space economy was worth an estimated \$546 billion with commercial revenue making up 78 percent of the entire sector.<sup>37</sup> Given the importance of the commercial space sector, the Quad has committed to strengthening cooperation via a commercial space business forum.<sup>38</sup> Through this cooperation, the Quad hopes to further their



U.S. Space Force Lt. Gen Douglas A. Schiess, commander, U.S. Space Forces - Space and Combined Joint Force Space Component Commander, provides closing remarks to Global Sentinel participants during Global Sentinel 2024 at Vandenberg Space Force Base, Calif., Feb. 16, 2024. USSPACECOM (Photo Source: U.S. Space Force photo by Tech. Sgt. Luke Kitterman)  
Disclaimer: The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.

31. "Quad Satellite Data Portal," *Ministry of Foreign Affairs of Japan*, accessed April 12, 2024, [https://www.mofa.go.jp/fp/msp/page22e\\_000983.html](https://www.mofa.go.jp/fp/msp/page22e_000983.html)  
32. Hidetaka Yoshimatsu, "Japan's International Engagements in Outer Space," *Australian Institute of International Affairs*, June 15, 2021, <https://www.internationalaffairs.org.au/australianoutlook/japans-international-engagements-in-outer-space/>  
33. Joseph Clark, "U.S., Partner Nations Strengthen Space Interoperability During Global Sentinel," *U.S. Department of Defense*, February 20, 2024, <https://www.defense.gov/News/News-Stories/Article/Article/3681057/us-partner-nations-strengthen-space-interoperability-during-global-sentinel/>  
34. "Indo-Pacific Partnership for Maritime Domain Awareness," *Australian Government Department for the Prime Minister and Cabinet*, accessed April 12, 2024, <https://www.pmc.gov.au/resources/quad-leaders-summit-2023/indo-pacific-partnership-maritime-domain-awareness>  
35. "Quad Joint Leaders' Statement," *The White House*, May 24, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/24/quad-joint-leaders-statement/>  
36. "Quad Leaders' Joint Statement," *The White House*, May 20, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-joint-statement/>  
37. "Space Foundation Releases The Space Report 2023 Q2, Showing Annual Growth of Global Space Economy to \$546B," *Space Foundation*, July 25, 2023, <https://www.spacefoundation.org/2023/07/25/the-space-report-2023-q2/>  
38. "Quad Working Groups," *Australian Government Department of the Prime Minister and Cabinet*, accessed April 12, 2024, <https://www.pmc.gov.au/quad-2023/quad-working-groups/>



respective space programs, support high paying jobs in the space sector, enhance resilience of space supply chains, and lead the Indo-Pacific region in setting responsible standards.<sup>39</sup> The Quad will also look to increase safety and awareness in the space environment by sharing satellite operator data and developing standards for space safety to help avoid collisions.

Quad members are also leaders in space exploration, with the United States being the first nation to land a man on the moon, and India and Japan being the 4<sup>th</sup> and 5<sup>th</sup> nations respectively to successfully land a module on the moon's surface.<sup>40</sup> In 2020, the United States National Aeronautics and Space

Administration (NASA) established the Artemis Accords; a non-binding multilateral agreement between the United States and foreign governments looking to participate in its Artemis Program. The program aims to return humans to the Moon by 2025 with the goal of eventually expanding space exploration to Mars and beyond.<sup>41</sup> Australia and Japan were a part of the original six signatories of the Accords and India became the 27<sup>th</sup> signatory in 2023.<sup>42</sup> The Accords promote interoperability of systems, providing emergency assistance, registering and disposing of space debris, sharing scientific data, preserving historical sites, and avoiding conflict.

## SPACE COOPERATION AGREEMENTS AMONG QUAD MEMBERS

Agreement	Date Established	Parties Involved
The LUPLEX Project Implementation Arrangement	December 2017	Japan Aerospace Exploration Agency Indian Space Research Organisation
Artemis Accords	October 2020	Australia United States
Artemis Accords	October 2020	Japan United States
Memorandum of Understanding	February 2021	Australian Space Agency Indian Space Research Organization
The Framework Agreement for Cooperation in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, for Peaceful Purposes	January 2023	Japan United States
Memorandum of Understanding	April 2023	Australian Space Agency Japan Aerospace Exploration Agency
Artemis Accords	June 2023	United States India
Cooperative Research and Development Agreement	October 2023	U.S. Space Force 114 AI Innovation (India) 3rdiTech (India)
U.S.-Australia Technology Safeguards Agreement	October 2023	Australia United States

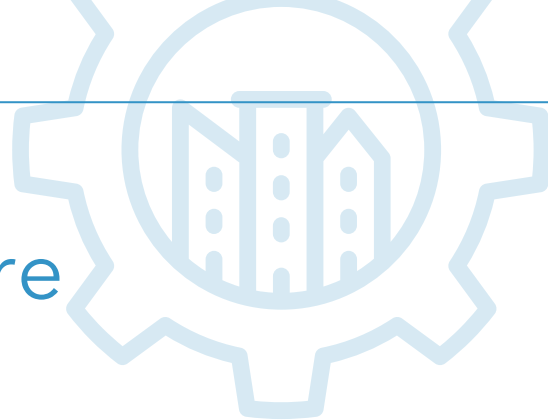
39. "Quad Leaders Announce Commercial Space Cooperation," *Office of Space Commerce*, May 20, 2023, <https://www.space.commerce.gov/quad-leaders-announce-commercial-space-cooperation/>

40. Nicholas Takahashi, "Following Russia and India Lunar Missions, Japan Is Next Country to Shoot for the Moon," *Bloomberg*, August 24, 2023, <https://www.bloomberg.com/news/articles/2023-08-24/after-russia-s-luna-25-and-india-s-chandrayaan-3-japan-is-next-to-aim-for-moon?embedded-checkout=true>

41. Robert Lea, "Artemis Accords: What are they & which countries are involved?" *Space.com*, December 4, 2023, <https://www.space.com/artemis-accords-explained>

42. Claire A. O'Shea, "NASA Welcomes India as 27th Artemis Accords Signatory," *NASA*, June 23, 2023, <https://www.nasa.gov/news-release/nasa-welcomes-india-as-27th-artemis-accords-signatory/>

# The Quad Infrastructure Coordination Group



With the rapid growth and development of the Indo-Pacific region, demand for quality infrastructure is outpacing annual investment, resulting in an infrastructure financing gap. The region's infrastructure needs span multiple sectors, including transport, power, telecommunications, water supply, and sanitation. The COVID-19 pandemic accelerated the region's push for greater digital connectivity and integration into global value chains. Simultaneously, external funding and investment in the region's infrastructure has slowed.<sup>43</sup> The Asian Development Bank estimates Asian countries need to invest \$1.7 trillion per year to maintain the region's growth and address climate change.<sup>44</sup> Over the last decade, this estimate has more than doubled. The Indo-Pacific currently invests approximately \$881 billion in infrastructure, but this number drops to just \$195 billion when excluding China's investments.

Between 2015 and 2021, the four Quad countries have collectively provided over \$48 billion in infrastructure financing to the Indo-Pacific.<sup>45</sup> Under the Trilateral Partnership for Infrastructure Investment in the Indo-Pacific (TIP), first established in 2018 and renewed in 2022, the United States, Australia, and Japan are cooperating to mobilize private sector capital to support infrastructure projects and digital connectivity in the Indo-Pacific.<sup>46</sup> TIP projects underway include two undersea cable projects in Palau and East Micronesia and a project to improve the performance and affordability of telecommunications in the Pacific by financing an Australian telecommunications company's acquisition of Digicel Pacific.<sup>47</sup>

## TRILATERAL INFRASTRUCTURE PARTNERSHIP'S UNDERSEA CABLE PROJECTS

	Palau Cable 2	East Micronesia Cable
<b>Date Initiated</b>	October 2020	December 2021
<b>Industry Partners and Suppliers</b>	NEC Corporation; Belau Submarine Cable Corporation	NEC Corporation; Belau Submarine Cable Corporation
<b>TIP Joint Financing Total</b>	\$22.6m	\$95m
<b>Status</b>	Ongoing	Ongoing
<b>Description</b>	68mi (110km) subsea cable that will connect Palau to an existing U.S.-Singapore cable (ECHO)	1,400mi (2,250km) subsea cable that will connect Micronesia, Nauru, and Kiribati with the existing Guam-Marshall Islands HANTRU-1 cable

Sources: U.S. Department of State, Japan Bank for International Cooperation (JBIC), The White House, and the Australian Infrastructure Financing Facility for the Pacific (AIFFP)

43. Owen Murphy, Daniel F. Runde, and Conor M. Savoy, "Post-pandemic Infrastructure and Digital Connectivity in the Indo-Pacific," *Center for Strategic and International Studies*. November 2, 2020, <https://www.csis.org/analysis/post-pandemic-infrastructure-and-digital-connectivity-indo-pacific>

44. "Meeting Asia's Infrastructure Needs," *Asian Development Bank*, 2017, <https://www.adb.org/sites/default/files/publication/227496/special-report-infrastructure.pdf>

45. "Marking One Year Since the Release of the Administration's Indo-Pacific Strategy," *U.S. Department of State*, accessed April 16, 2024, <https://www.state.gov/mark-one-year-since-the-release-of-the-administrations-indo-pacific-strategy/>

46. "Joint Statement of the Governments of Australia, Japan, and the United States of America on the Trilateral Partnership for Infrastructure Investment in the Indo-Pacific," *Japan Ministry of Foreign Affairs*, 2018, <https://www.mofa.go.jp/mofaj/files/000420368.pdf>

47. "United States-Australia-Japan Joint Statement on Cooperation on Telecommunications Financing," *The White House*, November 15, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/15/united-states-australia-japan-joint-statement-on-cooperation-on-telecommunications-financing/>

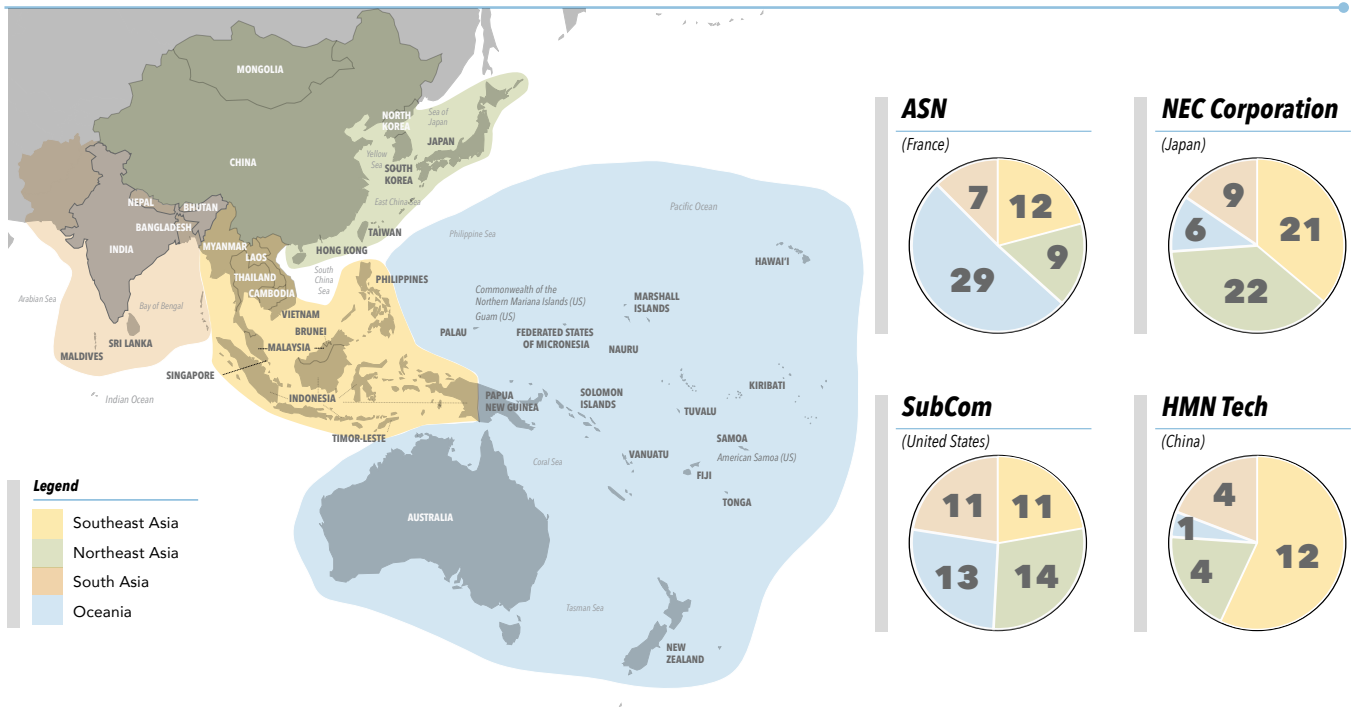
The Quad views infrastructure as critical to the prosperity of the Indo-Pacific. Infrastructure development is central to Quad cooperation given its importance in advancing other Quad initiatives including climate resilience, clean energy, and critical and emerging technologies. In 2022, the Quad Infrastructure Coordination Group was established to convene the relevant development-financing agencies to coordinate investments. In the 2022 Joint Leaders' Statement, Quad Leaders set a goal of extending over \$50 billion in infrastructure assistance to the region over five years.<sup>48</sup> The Quad is also taking measures to avoid creating debt burdens akin to those resulting from China's Belt and Road Initiative by emphasizing debt sustainability and transparency with its regional partners. It has also launched a Quad Debt Management Resource Portal to provide capacity-building assistance.

In 2023, the Quad launched two major initiatives to address infrastructure priorities. The Quad Infrastructure Fellowship will provide over 1,800 scholarships, work exchanges, and other executive program offerings to government officials and infrastructure practitioners in the region to teach best

practices for infrastructure design, delivery, and management.<sup>49</sup> The Quad Partnership for Cable Connectivity and Resilience seeks to improve regional internet connectivity by coordinating assistance for the building of secure undersea cables. Undersea cables are a promising outlet for cooperation as companies from the United States and Japan are top suppliers of subsea cables. In 2021, four cable suppliers, including U.S.-based SubCom and Japan-based NEC Corporation, made up 98% of the cable market system. In total, China's HMN Tech has supplied 17 completed and ongoing subsea cable projects with at least one landing point in the Indo-Pacific, while SubCom supplied 33, NEC Corporation supplied 43, and France's ASN supplied 47 projects.<sup>50</sup> Australia has been a trailblazer for developing undersea cable security regulations and India is proliferating its own subsea cable landing stations.<sup>51</sup> Australia and the United States have both launched programs under this partnership to provide technical assistance and capacity-building for undersea cable projects.



NUMBER OF COMPLETED & IN PROGRESS SUBSEA CABLES WITH LANDING POINTS IN THE INDO-PACIFIC\*



\*Note: This graphic double counts cable projects with landing points in multiple Indo-Pacific subregions  
 Source: TeleGeography Submarine Cable Map, Pioneer Consulting, accessed April 16, 2024, <https://www.submarinecablemap.com/>

48. "Quad Joint Leaders' Statement," *The White House*, May 24, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/24/quad-joint-leaders-statement>  
 49. "Quad Leaders' Summit Fact Sheet," *The White House*, May 20, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-summit-fact-sheet/>  
 50. "Suppliers of Undersea Telecommunications Systems," *Pioneer Consulting*, 2021, [https://www.pioneerconsulting.com/wp-content/uploads/2022/05/Pioneer\\_Suppliers\\_Report\\_Executive\\_Summary\\_Download.pdf](https://www.pioneerconsulting.com/wp-content/uploads/2022/05/Pioneer_Suppliers_Report_Executive_Summary_Download.pdf)  
 51. Andrew Adams, Lisa Curtis, Joshua Fitt, Jacob Stokes, "Operationalizing the Quad," *Center for a New American Security*, June 30, 2022, [https://s3.amazonaws.com/files.cnas.org/CNAS+Report-IPS-Quad\\_Final.pdf](https://s3.amazonaws.com/files.cnas.org/CNAS+Report-IPS-Quad_Final.pdf)

# The Quad Senior Cyber Group

Today, greater interconnectivity facilitated by internet computer advancements has generated opportunities for people across the globe to connect, build, learn, and prosper. These advancements have facilitated the growth and increased integration of the Quad economies; however, this has led to an increase in threats posed by state and non-state sponsored cyber criminals. In 2020, cybercrime resulted in \$1 trillion in losses and damages across the global economy.<sup>52</sup> In 2022, all four Quad countries were in the top 20 of international cyber victims.<sup>53</sup> Quad members have recognized the growing importance of cybersecurity and have subsequently begun working through the Quad to strengthen their cybersecurity infrastructure.

In 2022, Quad members established the Quad Cybersecurity Partnership which takes a multi-pronged approach in responding to cyber threats. The partnership is divided into four sectors with each member taking the lead on an individual sector to address cyber vulnerabilities.<sup>54</sup> The sectors focused on critical infrastructure protection, supply-chain resilience, workforce development, and software security standards. To build broader cybersecurity awareness in the region, the Quad established a Cybersecurity Day campaign for countries across the Indo-Pacific with the goal of building cybersecurity literacy and bringing awareness to threats facing local governments, businesses, and health care facilities.<sup>55</sup> Approximately 85,000 people participated in the cyber challenge across the region in 2023.<sup>56</sup>

Quad Initiative	Description
Machine Learning in Cybersecurity	The Quad is working together to leverage machine learning to enhance cybersecurity, specifically in the areas of Computer Emergency Response Teams and private sector threat information sharing.
Capacity Building	By sharing cyber resources through capacity building projects, the Quad is strengthening cybersecurity infrastructure in the Indo-Pacific. These efforts include the development of a catalogue of Quad countries' various capacity building courses on cybersecurity.
The Quad Cyber Challenge	The Quad Cyber Challenge was launched to promote responsible cyber habits across the Indo-Pacific. The challenge encourages participants to take steps to improve their cybersecurity and awareness and to share cyber resources.
Supply Chain Security and Resilience for ICT* and OT** Systems of Critical Sectors	The Quad Senior Cyber Group has reaffirmed the need for reliable, secure, and resilient supply chains and is working to develop a framework for ensuring cybersecurity in supply chains of critical sectors.
Joint Principles	The Quad has developed a set of joint principles of common practices which include protecting critical infrastructure from cyber threats and the minimum cybersecurity practice standards for software security with the goal of guiding their development, use, and procurement of software.

\*ICT: Information and Communication Technology

\*\*OT: Operational Technology

52. James Andrew Lewis, Eugenia Lostri, and Zhanna L. Malekos Smith, "The Hidden Costs of Cybercrime," *The Center for Strategic & International Studies*, December 9, 2020, <https://www.csis.org/analysis/hidden-costs-cybercrime>

53. "Internet Crime Report 2022," *United States Federal Bureau of Investigation*, 2022, [https://www.ic3.gov/Media/PDF/AnnualReport/2022\\_IC3Report.pdf](https://www.ic3.gov/Media/PDF/AnnualReport/2022_IC3Report.pdf)

54. "Fact Sheet: Quad Leaders Tokyo Summit 2022," *The White House*, May 23, 2022, [www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022](http://www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022)

55. "Fact Sheet: Quad Leaders Tokyo Summit 2022," *The White House*, May 23, 2022, accessed April 16, 2024, [www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022/](http://www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022/)

56. "Quad Leaders' Summit Fact Sheet," *The White House*, May 20, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-summit-fact-sheet/>

During the Quad Leaders' Summit in 2023, leaders focused on establishing critical infrastructure principles and software security principles. The Quad places a great emphasis on improving security and preventing breaches in the software supply chain.<sup>57</sup> The Quad Leaders reaffirmed commitments to build policy frameworks and establish cybersecurity guidelines for the development and usage of software.<sup>58</sup> By following these guidelines, Quad countries can increase government collaboration while protecting local business and infrastructure.

The Quad has spurred bilateral engagements amongst the partners outside the official framework. Since 2021, there have been seven agreements, dialogues, and cooperation pacts between Quad members. The pacts look to improve software standards, develop cyber strategies, and jump-start the integration of next-generation technologies. Given the realities and threats facing the Quad, working together on cybersecurity, and addressing cybercrime across the region should remain an important part of the Quad partnership.

## BILATERAL CYBERSECURITY AGREEMENTS BETWEEN QUAD PARTNERS

Countries	Agreement	Date Signed
India & the United States	Memorandum of Understanding on Cybersecurity	July 19, 2011
The United States & India	Framework for the U.S.-India Cyber Relationship	August 30, 2016
Australia & India	Australian-India Cyber and Critical Technology Partnership	June 4, 2020
India & Japan	Memorandum of Understanding in the field of Cybersecurity	October 7, 2020
Australia & the United States	Cyber Training Capabilities Project Arrangement	November 3, 2020
Australia & the United States	Australia-U.S. CLOUD Act Agreement	December 15, 2021
Australia & Japan	Australia-Japan Joint Declaration on Security Cooperation*	October 22, 2022
Japan & the United States	Memorandum of Understanding on Cybersecurity	January 5, 2023
The United States & Australia	U.S.-Australia Technology Safeguards Agreement	October 26, 2023

\*Note: This is a broad declaration agreeing to bilaterally cooperate on regional security issues







57. "Quad Cybersecurity Partnership: Joint Principles for Secure Software," Australian Government Department of the Prime Minister and Cabinet, <https://www.pmc.gov.au/sites/default/files/resource/download/quad-joint-principles-secure-software.pdf>

58. "Australia-Japan Joint Declaration on Security Cooperation," Australian Government, Department of Foreign Affairs and Trade, October 22, 2022, <https://www.dfat.gov.au/countries/japan/australia-japan-joint-declaration-security-cooperation>

# Future Roadmap

The Quad's primary focus has revolved around maritime security, infrastructure development, and upholding a rules-based order. However, as geopolitical dynamics continue to evolve, a pressing need to reassess the partnership's scope and principal objectives has arisen. By expanding its focus beyond traditional security concerns, the Quad is demonstrating its commitment to addressing multifaceted challenges and promoting inclusive growth and development within the Indo-Pacific region. The exploration into new horizons will be essential to its evolution as a dynamic and forward-looking partnership.

This section delves into additional areas of interest for the Quad that are not addressed within existing leader-level working groups. Some topics, such as humanitarian assistance and disaster relief and maritime security, have been areas of cooperation since the Quad's inception, but coordination is narrower and irregular compared to areas with established working groups. Other policy areas, such as nuclear stability, have been mentioned in Leaders' Statements but lack broader coordination or collaboration by Quad members. This section will examine several key domains where the Quad could extend its focus, as well as some areas where the Quad is already active but lacks a formal leader-level working group.

Policy Area	Key Milestones
 <b>Maritime Security and Domain Awareness</b>	<p><b>2007:</b> Japan, Australia, and Singapore join India and the United States in Exercise Malabar</p> <p><b>2015:</b> Japan becomes a permanent member of Exercise Malabar</p> <p><b>2022:</b> The Quad launches the Indo-Pacific Partnership for Maritime Domain Awareness</p> <p><b>2020:</b> Australia begins participating annually in the Exercise Malabar alongside the United States, India, and Japan</p>
 <b>Counterterrorism</b>	<p><b>2023:</b> The ministerial-level Quad Counterterrorism Working Group is established</p>
 <b>Nuclear Stability</b>	<p><b>2021:</b> Calls for the denuclearization of North Korea are included in the March Leaders' Joint Statement</p>
 <b>Critical Minerals</b>	<p><b>2021:</b> The Quad establishes a Semiconductor Supply Chain Initiative at the Quad Leaders' Summit</p>
 <b>Sustainable, Transparent, and Fair Lending and Financing Practices</b>	<p><b>2023:</b> The Quad Investors Network formally launched in parallel with the Quad Leaders' meeting in Hiroshima in May</p> <p><b>2023:</b> The inaugural Quad Investment and Technology Dialogue takes place at the White House in October</p>
 <b>Humanitarian Assistance and Disaster Relief</b>	<p><b>2004:</b> Australia, India, Japan, and the United States form a coalition to coordinate aid following the Indian Ocean Tsunami</p> <p><b>2022:</b> The Quad Partnership on Humanitarian Assistance and Disaster Relief in the Indo-Pacific is established</p>



# Maritime Security and Domain Awareness

While the Quad is neither a military alliance nor a mutual defense agreement, maritime security cooperation is central to the partnership's mission of supporting a free and open Indo-Pacific region. At the heart of Quad naval cooperation is the Exercise Malabar. The annual exercise was first conducted in 1992 as a bilateral exercise between the United States and India. In 2007 the exercise was expanded for the first time to include Japan, Australia, and Singapore, before returning to predominantly a bilateral exercise between the United States and India. In 2015, Japan became a permanent member of the Exercise Malabar and Australia began participating again in 2020. Exercise Malabar has continued to increase in scope and size and has effectively become "synonymous with the Quad," despite not being an official Quad activity.<sup>59</sup> In recent years, the exercise has involved increasingly complex naval activities and integrated maritime operations, including anti-submarine warfare, maritime patrol and reconnaissance, and joint warfighting planning scenarios.<sup>60</sup> Recent iterations of Malabar have been conducted in the Philippine Sea, the Bay of Bengal, and off the coast of Japan. Australia hosted the exercise for the first time in 2023 off its east coast near Sydney.

The deepening of bilateral maritime security cooperation among Quad countries has also enhanced their collective defense strategy. Under their Enhanced Force Posture Cooperation, the United States and Australia agreed to rotations of U.S. Navy Maritime Patrol and Reconnaissance Aircraft in Australia to enhance regional maritime domain awareness.<sup>61</sup> Australia and Japan's Reciprocal Access Agreement entered into force in August 2023, facilitating mutual access to each other's bases and ports while expanding joint training opportunities.<sup>62</sup> India and Japan conduct an annual Maritime Partnership Exercise in the Indian Ocean and signed a Reciprocal Provision of Supplies and Services Agreement in 2020. The United States and India have increased information-sharing and mutual logistics support, and advanced the sophistication of their bilateral naval drills. In 2023, the largest U.S.-Australia bilateral defense exercise known as Talisman Sabre included participation from over 30,000 troops across 13 nations including Japan as well as several Pacific Island partners.<sup>63</sup> India was an observer to the exercise.



Flag Officer Commanding-in-Chief, Western Naval Command Vice Adm. Dinesh Tripathi; Commander, Australian Fleet, Rear Adm. Christopher Smith; Commander, U.S. 7th Fleet, Vice Adm. Karl Thomas; and Japan Maritime Self-Defense Force Commander-in-Chief Self-Defense Fleet Vice Adm. Saito Akira pose for a photo in Sydney, Australia, during Exercise Malabar 2023, August 10. (Photo Source: U.S. Navy photo by Mass Communication Specialist 1st Class Reymundo A. Villegas III)

Disclaimer: The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.

59. Tom Corben, Ashley Townshend, Blake Herzinger, Darshana M. Baruah, Dr. Tomohiko Satake, "Bolstering the Quad: The Case for a Collective Approach to Maritime Security," *The United States Studies Centre*, June 8, 2023, <https://www.usssc.edu.au/bolstering-the-quad-the-case-for-a-collective-approach-to-maritime-security>

60. Thomas Carothers and Frances Z. Brown, "Global Democratic Recession: Risk Factors, Consequences, and Responses," *Carnegie Endowment for International Peace*, December 15, 2020, <https://carnegieendowment.org/publications/90350>

61. "Joint Statement on Australia-U.S. Ministerial Consultations (AUSMIN) 2023," *U.S. Department of Defense*, July 29, 2023, <https://www.defense.gov/News/Releases/Release/Article/3476104/joint-statement-on-australia-us-ministerial-consultations-ausmin-2023/>

62. Thomas Wilkins, "Enhancing the 'Special Strategic Partnership': Australia and Japan Sign Reciprocal Access Agreement," *Sasakawa Peace Foundation*, February 21, 2022, [https://www.spf.org/iina/en/articles/thomas\\_04.html](https://www.spf.org/iina/en/articles/thomas_04.html)

63. Joseph Clark, "Talisman Sabre 23 Reflects U.S., Allies' Commitment to Indo-Pacific," *U.S. Department of Defense*, July 31, 2023, <https://www.defense.gov/News/News-Stories/Article/Article/3476514/talisman-sabre-23-reflects-us-allies-commitment-to-indo-pacific/>

## ANNUAL AND BIENNIAL NAVAL EXERCISES INVOLVING THREE OR MORE QUAD COUNTRIES



\*Note: Japan and the United States participated in the main drills of Exercise Cobra Gold. India joined the humanitarian assistance trainings and Australia joined the Command Post Exercise  
 \*\*Note: India participated as an observer in Exercise Talisman Sabre 2023 along with the Philippines, Singapore, and Thailand

In a region with highly contested waters, the Quad countries have emphasized maritime domain awareness as a fundamental requirement for peace, stability, and prosperity.<sup>64</sup> Launched in 2022, the Indo-Pacific Partnership for Maritime Domain Awareness is the Quad’s initiative to enhance their information-gathering capabilities on maritime activities by providing emerging technologies and training to regional partners in three critical regions: the Pacific Islands, Southeast Asia, and the Indian Ocean region.<sup>65</sup> This includes expanding support for existing regional fusion centers, which includes the

Information Fusion Center-Indian Ocean Region based in India, the Information Fusion Center based in Singapore, the Pacific Islands Forum Fisheries Agency based in the Solomon Islands, and the Pacific Fusion Center based in Vanuatu. By collecting commercially available satellite radio frequency data, Quad partners can access near real-time information to monitor activities in their maritime zones, such as: illegal, unreported, and unregulated fishing; unmonitored or dark shipping; climate events; humanitarian crises; offshore resources and marine conservation.

64. “Fact Sheet, Quad Leaders’ Tokyo Summit 2022,” *The White House*, May 23, 2022, [www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022](https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022)  
 65. “Fact Sheet, Quad Leaders’ Tokyo Summit 2022,” *The White House*, 22



# Counterterrorism

Terrorism represents a major security challenge for all Quad countries, as it threatens not just the safety of their citizens but also the stability of the Indo-Pacific region and the broader global security architecture. Terrorism is not confined by borders and the Quad countries recognize the need for a collective approach in countering these transnational threats. The four countries are members of the Global Counterterrorism Forum and the Financial Action Task Force, and counterterrorism rhetoric has been included in four out of five Quad Joint Leaders' Statements as a priority area for cooperation. The Quad welcomed focused discussions on counterterrorism policy in 2019 in Delhi when India hosted the group's first counterterrorism table-top exercise, followed by a Quad Counterterrorism Policy meeting and tabletop exercise hosted by Australia in 2022.<sup>66</sup> In March 2023, a ministerial-level Quad Counterterrorism Working Group was created during the Quad Foreign Ministers' Meeting, solidifying the group's commitments to countering terrorism and promoting regional security as part of their multilateral cooperation.

Shortly after its creation, the Quad Counterterrorism Working Group met in Anchorage, Alaska for a Consequence Management Exercise, which explored the capabilities and support the Working Group could offer partners in the event of a regional crisis.<sup>67</sup> The Working Group then met again in December 2023 for a multi-day exchange which included presentations and a tabletop exercise focused on Quad coordination in the event of an overwhelming terrorist incident in the Indo-Pacific region.<sup>68</sup> During the meeting, the Working Group exchanged

information on terrorism threats and the terrorists use of emerging technologies, in addition to developing regional coordination mechanisms. The discussions and exercises conducted by the Quad Counterterrorism Working Group highlight the need for comprehensive strategies that address not only the immediate threats but also the underlying factors contributing to radicalization and extremism in the Indo-Pacific.

The Quad Counterterrorism Working Group's focus on an adaptive approach, encompassing technological cooperation and regional partnerships, highlights the commitment of the Quad countries to address the multifaceted nature of the terrorism challenge in the Indo-Pacific region. Through such collaboration, the Quad seeks to not only respond to immediate threats but also to foster long-term stability and resilience against the evolving dynamics of terrorism and extremism. In an era when technology plays a pivotal role in facilitating extremist propaganda, communication, and recruitment, the Quad countries can explore collaborative efforts to enhance their cyber capabilities and counter the malicious use of digital platforms by terrorist organizations. This includes sharing best practices, intelligence, and expertise in countering online radicalization, ensuring that the Quad remains at the forefront of efforts to combat terrorism in the digital age. The focus on aid coordination, regional mechanisms, and emerging technologies underscores the Quad's commitment to adapting and evolving their strategies to stay ahead of the ever-changing nature of terrorism.



66. Tim Watts, "Quad Counterterrorism Tabletop Exercise," *Australian Department of Foreign Affairs and Trade*, accessed April 19, 2024, <https://ministers.dfat.gov.au/minister/tim-watts/media-release/quad-counterterrorism-tabletop-exercise>

67. "United States Hosts a Consequence Management Exercise under Quad Counterterrorism Working Group in Anchorage, Alaska," *U.S. Department of State*, July 10, 2023, <https://www.state.gov/united-states-hosts-a-consequence-management-exercise-under-quad-counterterrorism>

68. "United States Hosts Quad Counterterrorism Working Group in Honolulu, Hawaii," *U.S. Department of State*, accessed April 19, 2024, <https://www.state.gov/united-states-hosts-quad-counterterrorism-working-group-in-honolulu-hawaii/>

## QUAD COUNTERTERRORISM EXERCISE

### **New Delhi, India**

November 2019: India hosts the first counterterrorism exercise for Quad countries.

### **Anchorage, Alaska (U.S.)**

July 2023: The United States hosts a Consequence Management Exercise.

ALASKA

### **Honolulu, Hawai'i (U.S.)**

December 2023: The United States hosts the first meeting of the Quad Counterterrorism Working Group.

HAWAII

### **Sydney, Australia**

October 2022: Australia hosts a Quad Counterterrorism Policy meeting and tabletop exercise.



4

**JOINT  
COUNTERTERRORISM  
EXERCISES**

# Nuclear Stability

Security dilemmas in the Indo-Pacific region are increasing in complexity and the risk of nuclear escalation remains high as multiple nuclear-capable states continue to operate within major flashpoints such as the Taiwan Strait, South China Sea, Korean Peninsula, and Indian Ocean Region.<sup>69</sup> Contemporary geopolitical dynamics—such as U.S.-China competition—as well as structural shifts, including the U.S.' withdrawal from the Intermediate-Range Nuclear Forces Treaty, have added to the risks of nuclear escalation. Quad countries have collectively stressed the importance of a rules-based international order and adherence to non-proliferation norms, especially on the Korean Peninsula. However, these concerns have mainly been addressed broadly in joint statements. Overall, the Quad still lacks mechanisms to assess and respond to nuclear risks as a partnership.<sup>70</sup>

To date, the Quad has mainly focused on nuclear issues concerning the Korean Peninsula. While North Korea poses an immediate threat to South Korea, the Quad considers North Korea's actions be of global concern. Quad Leaders have acknowledged nuclear stability in the Korean Peninsula as a shared concern in their Joint Statements released in September 2021 and May 2022, where they also reaffirmed commitments to the complete denuclearization of the Korean Peninsula and condemned North Korea's destabilizing ballistic missile development and launches. Quad ministers addressed this issue again in September 2023 when representatives from Australia, Japan, India, and the United States urged all U.N. members not to trade weapons of any kind with North Korea.<sup>71</sup>

## YEAR WHEN STATES DECLARED NUCLEAR WEAPONS\*



UNITED STATES



RUSSIA



UNITED KINGDOM



FRANCE



CHINA



INDIA



PAKISTAN



NORTH KOREA

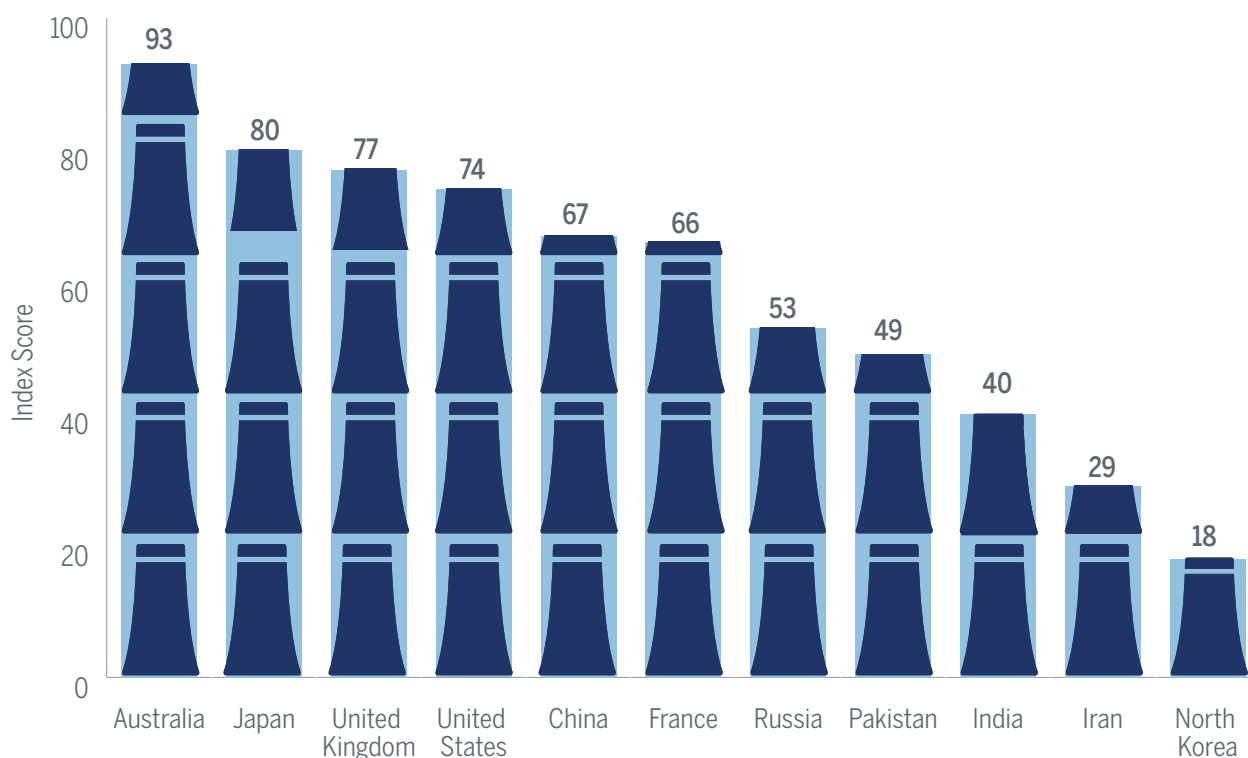
\*Note: Israel has neither confirmed nor denied possessing nuclear weapons  
Source: <https://www.britannica.com/topic/list-of-states-with-nuclear-weapons-2227841>

69. Ashley J. Tellis, "Indo-Pacific Missile Arsenals: Avoiding Spirals and Mitigating Escalation Risks," *Carnegie Endowment for International Peace*, October 31, 2023, <https://carnegieendowment.org/2023/10/31/indo-pacific-missile-arsenals-avoiding-spirals-and-mitigating-escalation-risks-pub-90772>

70. Manpreet Sethi, "Geo-M in the R-Quad: Nuclear Threats," *South Asian Voices*, February 20, 2024, <https://southasianvoices.org/geo-m-in-r-quad-nuclear-threats-02-20-2024/>

71. "Quad' ministers urge U.N. members not to trade arms with North Korea," *The Japan Times*, September 23, 2023, <https://www.japantimes.co.jp/news/2023/09/23/japan/politics/quad-un-foreign-ministers/>

## NUCLEAR SECURITY INDEX: SECURE MATERIALS\*

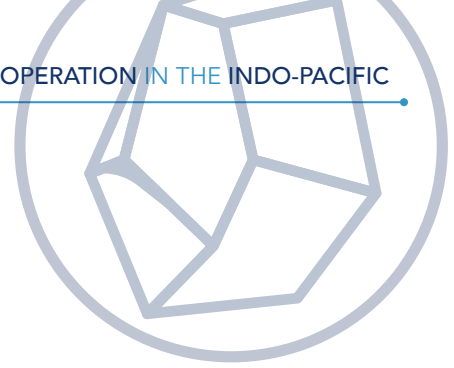


\*Note: The NTI Nuclear Security Index - Theft: Secure Materials is a ranking of countries' actions to secure nuclear materials against theft on a scale of 0 to 100, where 100 is the highest possible score. The index is based on five categories, including 1) quantities and sites, 2) security and control measures, 3) global norms, 4) domestic commitments and capacity, and 5) risk environment. The 22 countries included in the ranking possess 1 kilogram or more of weapons-useable nuclear materials. Source: National Telecommunications and Information Administration, "NTI Index: Results," accessed May 10, 2024, <https://www.ntiindex.org/results/>

From the perspective of the Quad countries, each member brings unique insights and concerns to the table. Currently, two Quad countries—the United States and India—are nuclear weapon states and Japan is the only country in the world to have been bombed with atomic weapons during wartime. The United States, Japan, and Australia have ratified the Nuclear Non-Proliferation Treaty and India is one of two countries to have committed to a No First Use policy. All Quad members are members of the International Atomic Energy Agency, an intergovernmental forum for scientific and technical cooperation in the nuclear field.<sup>72</sup> The nuclear dimensions of AUKUS—a trilateral security partnership between Australia, the United Kingdom, and the United States—have also added a layer of complexity to the broader nuclear stability discourse in the Indo-Pacific.

In South Asia, the Quad countries may have to recognize the challenges posed by a fragile nuclear dynamic in the region, especially considering the historical tensions between India and Pakistan. The Quad's broad goal to promote dialogue and confidence-building measures in the Indo-Pacific could augment the importance of addressing nuclear stability. As Quad countries engage in discussions and collaborations related to nuclear stability, they aim to create an environment that reduces the risk of conflict, promotes transparency, in the broader Indo-Pacific region.

72. "Overview," International Atomic Energy Agency, accessed April 30, 2024, <https://www.iaea.org/about/overview>



# Critical Minerals

Critical minerals are essential in the transition to a low-carbon future and in manufacturing next generation technology, including fiber optic cables, semiconductors, weapons systems, and medical devices. Quad members have individually recognized the importance of critical minerals and published strategies and lists related to critical minerals. Australia's Critical Minerals Strategy 2023-2030 outlines the country's vision to become "a globally significant producer of raw and processed critical minerals" by 2030.<sup>73</sup> An expert committee formed by India's Ministry of Mines identified 30 critical minerals deemed essential for India's push towards self-reliance and achieving its net-zero target. India's report also frames the country as a "credible destination for capital diversifying out of other countries" in the push to restructure global value chains.<sup>74</sup> Currently, a handful of countries have the resources and mining, processing, and manufacturing capabilities of critical minerals, resulting in a highly concentrated market and vulnerable supply chains. While demand for critical mineral resources is growing, many countries remain dependent on mineral and intermediate product imports.

China represents 60 percent of the global production and 85 percent of the processing capacity of critical minerals.<sup>75</sup> They are the largest mine producer of rare earth elements and silicon as well as the dominant processor, manufacturer, and end-use producer of cobalt, copper, lithium, nickel, rare earth elements, and silicon.<sup>76</sup> In comparison, the United States is 100 percent import-dependent for 12 critical minerals and more than 50 percent import-dependent for an additional 31 minerals. Australia, on the other hand, is a key mineral supplier, exporting \$22.3 billion in critical minerals globally in 2022, which accounts for six percent of all global exports. In the processing and manufacturing markets, Japan is a top producer of copper and nickel, although China holds the dominant market shares. Of 33 minerals identified by India's Ministry of Mines, 17 were flagged as having both high economic importance for the country and high supply risk, while an additional seven were

also a high supply risk.<sup>77</sup> Japan and India are both positioning themselves to be key players in the push for mineral extraction through deep-sea mining.

Quad partners are working both within and outside the partnership to diversify and safeguard these highly concentrated critical minerals supply chains. As part of its effort to expand down the global value chain into mineral processing and low-carbon technology manufacturing, Australia has signed memoranda of understanding with Japan, India, and South Korea. In 2023, Australia and the United States agreed to a Climate, Critical Minerals and Clean Energy Compact, which establishes a bilateral ministerial-level Taskforce on Critical Minerals. In March 2023, the United States and Japan also signed an agreement to diversify critical minerals supply chains and promote electric vehicle battery technologies. Also last year, India became the newest member of the Minerals Security Partnership, a 14-member association including all four Quad countries that works collaboratively to invest in and diplomatically support projects that promote sustainable critical minerals supply chains and clean energy transitions.

The Quad has recognized the potential national security implications of the lack of diversified mineral supply chains. The Quad established the Semiconductor Supply Chain Initiative to map out vulnerabilities related to the manufacturing of semiconductors, which involves several critical minerals.<sup>78</sup> Investing in critical minerals supply chains is a key initiative of the Quad Investors Network. For example, the Quad Investors Network is supporting India's Epsilon Advanced Materials in building a \$650 million battery materials and components plant in North Carolina, the United States.<sup>79</sup> In 2023, the Quad announced its intention to establish a Memorandum of Cooperation between its export credit agencies to increase financing, trade promotion, and economic development of projects in areas of strategic interest, including critical minerals.<sup>80</sup>

73. "Critical Minerals Strategy 2023-2030," *Australian Government, Critical Minerals Office*, July 2023, <https://www.industry.gov.au/publications/critical-minerals-strategy-2023-2030>

74. "Critical Minerals for India," *Indian Government, Ministry of Mines*, June 2023, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1936083>

75. Bonnie Glaser and Abigail Wulf, "China's Role in Critical Mineral Supply Chains," *German Marshall Fund of the United States*, August 2, 2023, <https://www.gmfus.org/news/chinas-role-critical-mineral-supply-chains>

76. Yu-Hsuan Wu and Phung Quoc Huy, "Geopolitics of Critical Minerals," in "Critical Minerals Global Supply Chains and Indo-Pacific Geopolitics," *The National Bureau of Asian Research*, December 2022, [https://www.nbr.org/wp-content/uploads/pdfs/publications/sr102\\_criticalminerals\\_dec2022.pdf](https://www.nbr.org/wp-content/uploads/pdfs/publications/sr102_criticalminerals_dec2022.pdf)

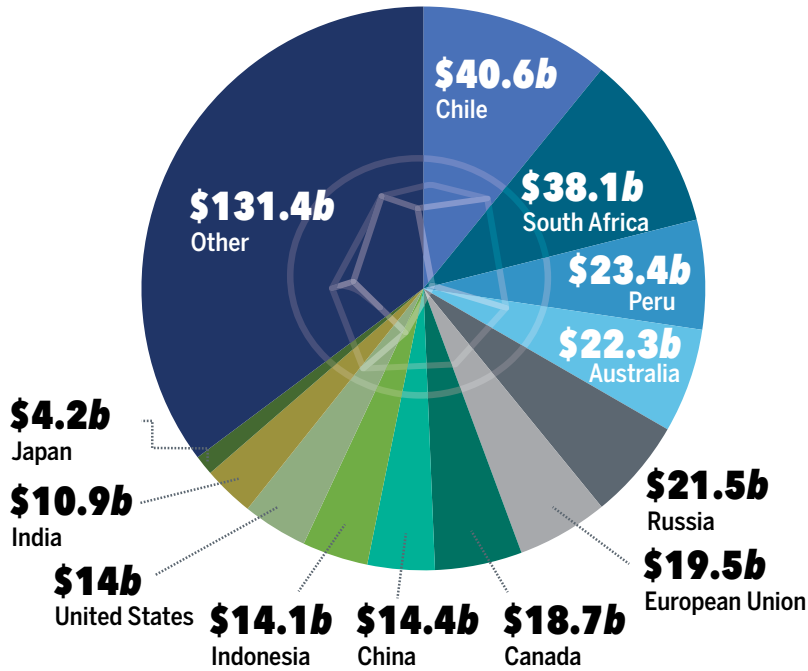
77. "Critical Minerals for India," *Indian Government, Ministry of Mines*, June 2023, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1936083>

78. "Fact Sheet: Quad Leaders' Summit," *The White House*, September 24, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/24/fact-sheet-quad-leaders-summit/>

79. "Quad Investors Network 'Instrumental' In \$650M U.S. Investment by India's Epsilon Advanced Materials," *Quad Investors Network*, November 14, 2023, <https://quadinvestorsnetwork.org/news/quad-investors-network-instrumental-in-650m-us-investment>

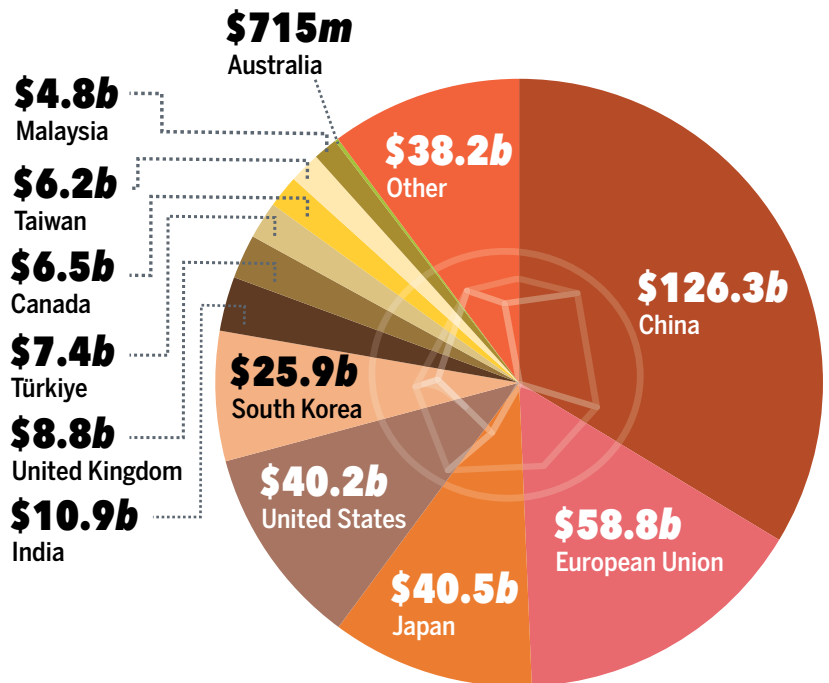
80. "Quad Leaders' Summit Fact Sheet" *The White House*, May 20, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-summit-fact-sheet/>

## SHARE OF GLOBAL CRITICAL MINERALS EXPORTS (2022)



Source: World Trade Organization Analytical Database, 2022 data

## SHARE OF GLOBAL CRITICAL MINERALS IMPORTS (2022)



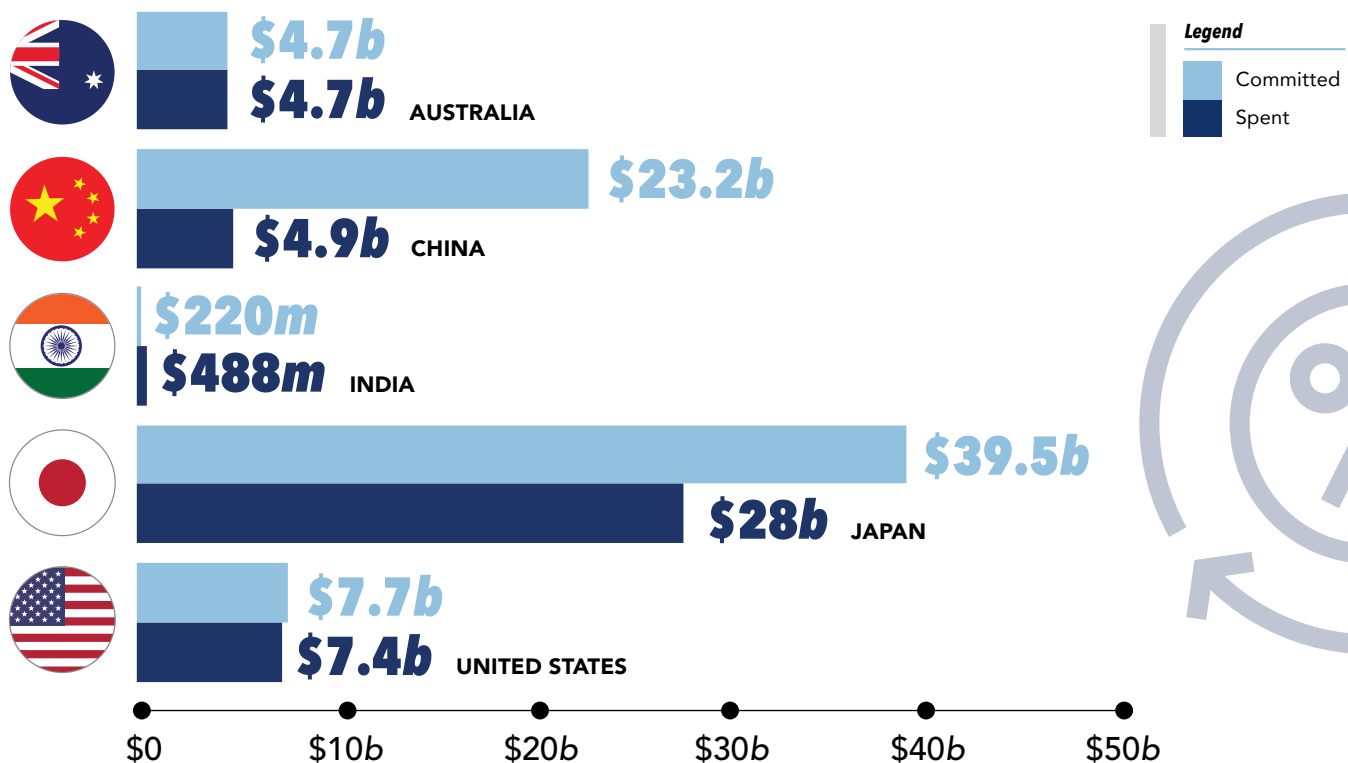
Source: World Trade Organization Analytical Database, 2022 data

# Sustainable, Transparent, and Fair Lending and Financing Practices

The Indo-Pacific region has witnessed a surge in infrastructure development projects over the past decade, with China emerging as a major player through its Belt and Road Initiative. However, concerns have risen regarding the asymmetry in China's lending practices, which often result in unsustainable debt burdens for recipient countries. As such, the Quad has an opportunity to fill this infrastructure gap recognizing an urgent need for a paradigm shift towards "sustainable, transparent, and fair lending and financing practices" in the region.<sup>81</sup>

China's approach to lending has been criticized for lacking transparency, leading to hidden costs and unfavorable terms for borrowing countries. The Quad aims to address this imbalance by fostering a mechanism that promotes sustainability, transparency, and fairness in lending practices. This could not just protect the sovereignty of countries in the Indo-Pacific, but also ensure that infrastructure projects contribute to long-term economic development rather than create a debt trap.

## OFFICIAL DEVELOPMENT ASSISTANCE TO SOUTHEAST ASIA FROM 2015 TO 2021



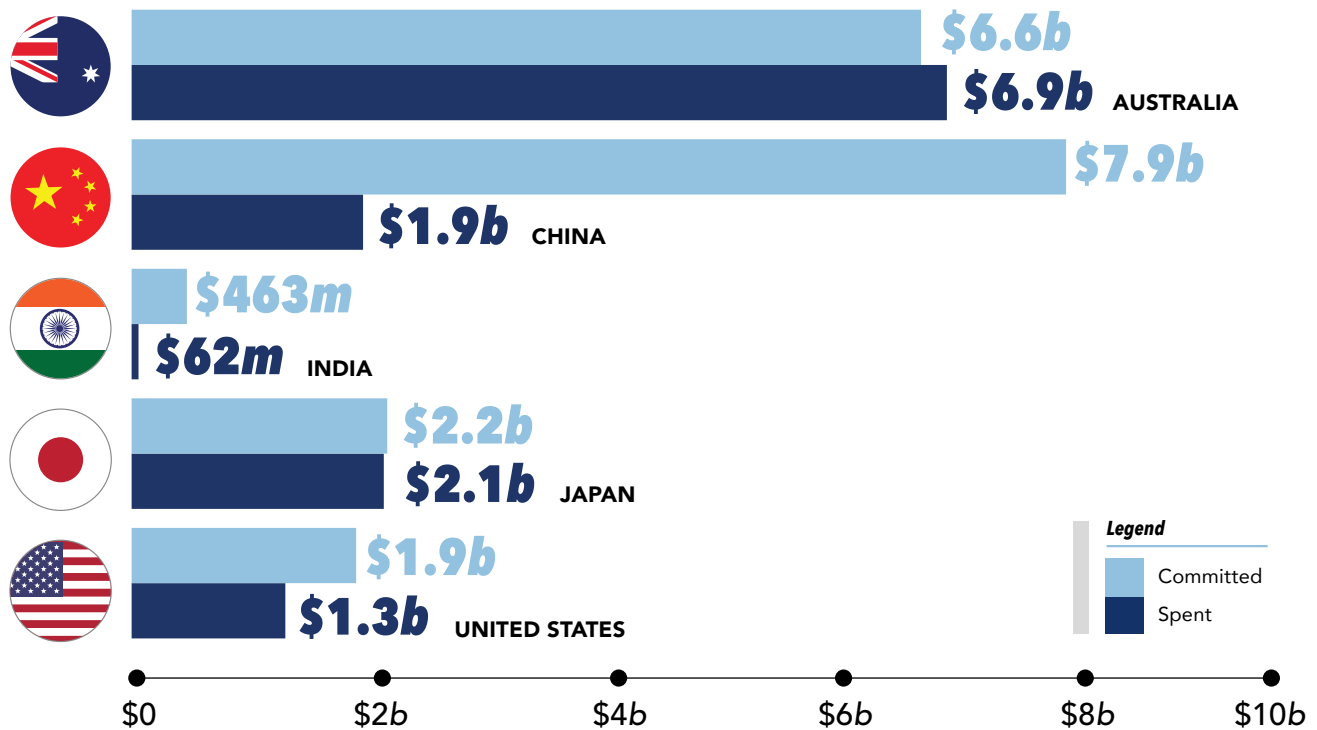
Source: Lowy Institute Southeast Asia Aid Map 2023, 2015-2021 data, transaction value in USD Constant

81. "Joint Statement of the Quad Ministerial Meeting in New Delhi," U.S. Department of State, March 3, 2023, <https://www.state.gov/joint-statement-of-the-quad-ministerial-meeting-in-new-delhi/>

The Quad's commitment to sustainable, transparent, and fair lending practices represents a strategic move towards shaping the economic landscape of the Indo-Pacific. It reflects the shared values of democracy, transparency, and respect for national sovereignty among the Quad countries. To further collaboration among Quad countries, the group launched the Quad Investors Network in 2023 in parallel with the Quad Leaders' meeting. The Network acts as a forum for public, private, and philanthropic stakeholders from Quad countries to collaborate and co-invest in projects that are critical to overcoming economic and security challenges in the Indo-Pacific.<sup>82</sup> By providing an alternative financing mechanism, the Quad seeks to promote a vision of regional development that aligns with democratic principles and economic prosperity without compromising the autonomy of nations in the Indo-Pacific.

In response to China's dominance in financing, the Quad has an opening to establish an alternative pool of financing that operates under principles of inclusiveness and fairness. Various initiatives like the Indo-Pacific Economic Framework, Partnership for Quality Infrastructure, and the Partnership for Global Infrastructure and Investment to economically integrate the Indo-Pacific region. This mechanism will prioritize projects that adhere to high environmental and social standards while providing financial assistance without imposing unrealistic conditions. By pooling their resources, the Quad countries could offer a viable and competitive alternative to China's lending practices, fostering economic growth in the Indo-Pacific while safeguarding the interests of borrower nations.

## OFFICIAL DEVELOPMENT ASSISTANCE TO PACIFIC ISLANDS FROM 2015 TO 2021



Source: Lowy Institute Southeast Asia Aid Map 2023, 2015-2021 data, transaction value in USD Constant

82. "The Quad Investors Network Launches with Advisory Board, Expert Groups," *Quad Investors Network*, accessed April 30, 2024, <https://quadinvestorsnetwork.org/blog/the-quad-investors-network-launches-with-advisory-board-expert-groups>





# Humanitarian Assistance and Disaster Relief



U.S. Navy Cmdr. Gabe Valerio, from San Diego, uses a slit lamp to check the eyes of a patient from Palau during an ophthalmology post-op consultation at Belau National Hospital during Pacific Partnership 2024-1 in Koror, Palau, Jan. 5, 2024. (U.S. Navy photo by Mass Communication Specialist 2nd Class Celia Martin)  
Disclaimer: The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.

A foundational initiative of the Quad, Humanitarian Assistance and Disaster Relief (HADR) remains a core element of Quad cooperation. With the Quad's renewed focus on providing public goods in the Indo-Pacific, HADR has become a key mechanism given the Indo-Pacific is the most disaster-prone region in the world. Since 1970, disasters in the Indo-Pacific have accounted for nearly 60 percent of the global disaster death toll with over two million fatalities. The region is home to 10 of the 15 countries considered most at risk of disasters and climate change impacts, including storms, earthquakes, tsunamis, and floods.

The United States, Australia, and Japan jointly participate in the Pacific Partnership, the largest annual humanitarian and disaster relief-preparedness mission in the region. Initiated in response to the December 2004 Indian Ocean Tsunami, the Pacific Partnership exercise is now in its 19<sup>th</sup> iteration. Pacific Partnership-24 included stops in the Marshall Islands, Solomon Islands, Palau, and Micronesia, where

participating nations organized civic-action projects, community health exchanges, and disaster response trainings.<sup>83</sup> As members of the ASEAN Regional Forum, all four Quad countries have previously participated in joint disaster relief and emergency response exercises.<sup>84</sup>

The Quad is now focused on formalizing and strengthening their coordination on HADR. In May 2022, the Quad Leaders announced the establishment of the Quad Partnership on Humanitarian Assistance and Disaster Relief in the Indo-Pacific.<sup>85</sup> In September 2022 during a Foreign Ministers' Meeting in New York, the United States, the partners signed the Guidelines for the Quad Partnership on Humanitarian Assistance and Disaster Relief in the Indo-Pacific.<sup>86</sup> Under this partnership, the first tabletop exercise and biannual meeting was held in New Delhi, India in December 2022 followed by the second in Brisbane, Australia in October 2023.

83. Celia Martin, "Supplying Logistical Success for Pacific Partnership 2024-01," *United States Navy*, January 29, 2024, <https://www.navy.mil/Press-Office/News-Stories/Article/3660071/supplying-logistical-success-for-pacific-partnership-2024-1/>

84. "PDC Participates in ARDEX, ASEAN's Multinational Disaster Simulation Exercise," *Pacific Disaster Center*, September 13, 2023, <https://www.pdc.org/pdc-participates-in-ardex-2023-exercise/>

85. "Quad Joint Leaders' Statement," *The White House*, May 24, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/24/quad-joint-leaders-statement/>

86. "The Quad," *Australian Government Department of Foreign Affairs and Trade*, accessed April 12, 2024, <https://www.dfat.gov.au/international-relations/regional-architecture/quad>

# Conclusion

The Quad has undergone a major transformation in the last two decades, evolving from a responsive ad hoc coalition to a significant diplomatic and public goods delivery initiative. The grouping has not only dramatically expanded the scope of its activities and deepened its strategic alignment, but also moved to the center of regional diplomacy to playing a key role in it. With the Indo-Pacific facing a complex array of demands, ranging from maintaining its freedom and openness to navigating emerging technologies and associated threats, the Quad holds great potential to promote security and prosperity throughout the region.

In an era in which fragmentation in the global order is increasing due to conflicts in Europe and the Middle East, there is a growing inclination for states to employ gray zone tactics. Traditional bloc politics have given way to flexible institutional mechanisms that encompass a wide array of interests and concerns. Arguably, issues of non-traditional security have become equally, if not more, important than traditional aspects of security. As such, non-traditional cooperation in the region remains the Quad's greatest asset. For example, the Quad's Health Security Partnership aims to strengthen health systems and promote resilience against future health crises through vaccine distribution, pandemic preparedness exercises, and health workforce development. This collective capacity building approach extends to all the Quad's initiatives, providing support and public goods to regional partners.

Climate change and the transition to clean energy present significant challenges to the Indo-Pacific region, necessitating concerted action and cooperation between developed and developing countries in the region. The Quad's emphasis on addressing climate change and promoting clean

energy underscores its dedication to tackling this issue through mitigation, adaptation, and the advancement of renewable energy technologies. The combination of capacities in critical and emerging technologies, infrastructure and connectivity, space, and cybersecurity has become essential for the Quad countries as they confront multidomain challenges.

Committed to dialogue, cooperation, and collaboration, the Quad aims to tackle shared security challenges, foster economic prosperity, and uphold the principles of a free and open Indo-Pacific. As the Quad progresses and broadens its agenda, it will continue to be a crucial pillar of regional security and stability. Reflecting the future potential of the Quad, the partnership's six working groups represent the diverse array of challenges and opportunities in the Indo-Pacific. They range from preparing the region for the challenges posed by China to ensuring that intra-regional processes adhere to principles of free, open, inclusive, and responsible conduct.

As the Quad continues to expand and institutionalize its cooperation, its primary imperative is to promote strategic balance while sustainably responding to demand signals from the region. Challenges in this endeavor will span across the domains of democracy, defense, trade, and nuclear stability. China is likely to pose the most significant challenge to the Quad's goals, given Beijing's current activities in the Indian and Pacific oceans. China's long-term goal of expanding its presence in the Indian Ocean presents considerable challenges for the Quad. As the world grapples with conflicts on two major continents, the Indo-Pacific finds itself at the epicenter of rising polarization. The Quad's mission, centered on stability, sustainability, resilience, and growth possesses the potential to mitigate conflict.







EAST-WEST  
CENTER