



Leaders' Summit
2023





Looking south towards the coastline of Sydney from Mount Ettalong Lookout, Pearl Beach, located on Darkinjung Country.

Contents

Quad Leaders' Summit 2023

© Commonwealth of Australia 2023
ISBN 978-1-925365-27-6 (print)
ISBN 978-1-925365-28-3 (online)

Copyright Notice

With the exception of the Commonwealth Coat of Arms, this work is licensed under a Creative Commons Attribution 4.0 International licence (CC BY 4.0)(<https://creativecommons.org/licenses/by/4.0/>).



Third party copyright

Wherever a third party holds copyright in this material, the copyright remains with that party. Their permission may be required to use the material. Please contact them directly.

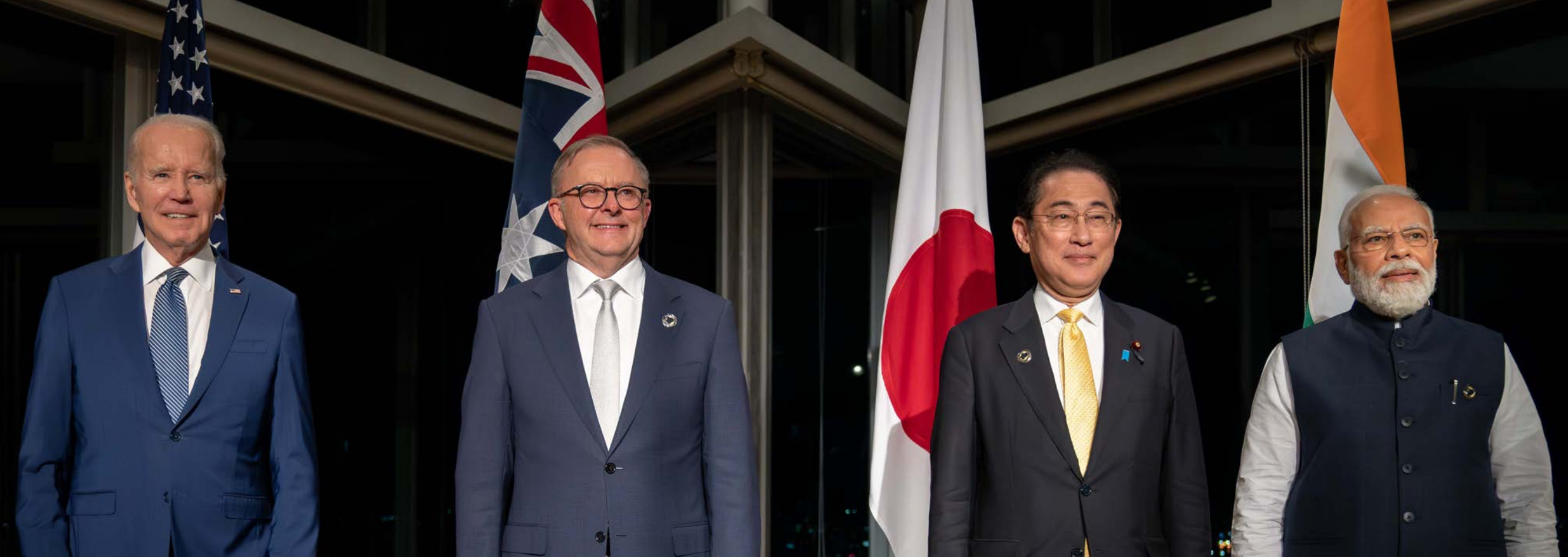
Attribution

This publication should be attributed as follows:
© Commonwealth of Australia,
Department of the Prime Minister and Cabinet,
Quad Leaders' Summit 2023

Use of the Coat of Arms

The terms under which the Coat of Arms can be used are detailed on the following website: <https://pmc.gov.au/cca>

The Story So Far	2
The Quad In Numbers	4
Quad Leaders' Track Working Groups	6
Climate	8
Critical and Emerging Technology	10
Cyber	12
The Quad Cyber Challenge	14
Health Security	15
Quad Delivery of Vaccines to Fiji	17
Infrastructure	18
Space	20
Indo-Pacific Partnership for Maritime Domain Awareness	22
Quad STEM Fellowships	23
2023 Quad Leaders' Summit documents	25



Quad Leaders at the 2023 Quad Leaders' Summit in Hiroshima (20 May 2023).

The Story So Far

The Quad is a diplomatic partnership of four countries, Australia, India, Japan and the United States, committed to supporting an open, stable and prosperous Indo-Pacific that is inclusive and resilient.

The Quad's origins date back to our first collaboration in December 2004 in response to the devastating Indian Ocean tsunami. Today, Quad partners are working actively together to meet challenges faced by the Indo-Pacific, including in the areas of climate,

critical and emerging technology, cyber security, infrastructure, regional health security, space, maritime security, counter-terrorism, and humanitarian assistance and disaster relief.

Quad Leaders have agreed to meet annually. The 2023 Quad Leaders' Summit was held in Hiroshima, Japan on 20 May 2023, convened by Australia.

Quad Leaders first met collectively at a virtual Summit in March 2021. In September 2021, the United States hosted the first in-person Quad Leaders' Summit in Washington, D.C. Last year, Quad Leaders met on 24 May 2022 in Tokyo.

Since 2019, Quad Foreign Ministers have met annually to exchange views and drive cooperation on key regional strategic challenges. Quad Foreign Ministers met most recently on 3 March 2023 in New Delhi.

Quad partners engage regularly through Leaders, Foreign Ministers, Quad Sherpas, senior officials, and experts.

The Quad In Numbers



1.9 billion
combined population

Source: IMF, 2022



US \$34.8 trillion
combined GDP



Quad countries
account for
**44% of two-way
merchandise trade**
across the
Indo-Pacific region

Source: UN Comtrade, 2021



Quad countries hold
**30% of Global
Foreign Direct
Investment
(FDI) stock**

Source: UNCTAD, 2022



**22% of FDI
stock held by
Quad countries
is invested in the
Indo-Pacific**



**18% of two-way
global goods and
services trade**

US \$10 trillion

Source: World Trade Organization, 2023, Bulk Download of Trade Datasets, accessed via Macroband



**16% of global
exports**

US \$4.5 trillion



**20% of global
imports**

US \$5.5 trillion



**34% of world
scientific
publications**

Source: InCites™, Clarivate Analytics (2023), 2017-21









Quad countries are all
**in the world top
10 for scientific
publications**




**50% of all
international
scientific
co-publications**

Quad Leaders' Track Working Groups

The practical work of the Quad is taken forward through six Leader-level Working Groups:

-  **Climate**
-  **Critical and Emerging Technology**
-  **Cyber**
-  **Health Security**
-  **Infrastructure**
-  **Space**



A mangrove ecosystem near Tin Can Bay, Queensland, Australia. Mangroves capture and store large quantities of carbon, both in plants and in the sediment below, and provide essential breeding grounds and nurseries for many species.

Climate

Quad countries are working together to take action to address climate change. The Quad is supporting regional partners, in particular countries in the Pacific, with energy transition and to tackle the challenges posed by climate change.

Clean Energy Supply Chains

Secure and diversified clean energy supply chains are an integral part of the Indo-Pacific region's enhanced collective energy security, emissions reduction goals and transition to a net zero future.

At the 2023 Quad Leaders' Summit, Quad Leaders announced a Quad Statement of Principles on Clean Energy Supply Chains in the Indo-Pacific, which are designed to promote diverse, secure, transparent and resilient clean energy supply chains and support a just, sustainable, and inclusive clean energy transition.

Quad partners are taking action to support the implementation of the principles by announcing a Clean Energy Supply Chains Diversification Program. The program will support research and development, and feasibility study projects to support development and diversification of clean energy supply chains in the

Indo-Pacific. Projects will focus on key supply chain areas of solar photovoltaics (PV), electrolyzers and batteries.

Climate Information Services Taskforce

Globally, climate disasters are becoming more frequent. The impacts can be felt especially by countries in the Pacific. To address this, the Quad has established the Climate Information Services Taskforce as part of the Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP) that was announced at the 2022 Quad Leaders' Summit in Tokyo. Through supporting the Pacific-led, Weather Ready Pacific initiative, the Taskforce will increase access to early warning systems and climate data through infrastructure and capacity building in the Pacific region.



Solar panels installed along the coastline in South Australia.

Coalition for Disaster Resilient Infrastructure

The Quad is working with the Coalition for Disaster Resilient Infrastructure in India to support the sustainable development and resilience of new and existing infrastructure systems to address climate and disaster risks.

Conservation Collaboration

Quad partners are sharing nature-based solutions in the Indo-Pacific region to conserve critical seascapes, particularly coastal marine ecosystems such as coral reefs and mangroves.

Methane Reduction in the Natural Gas Sector

Quad partners are sharing best practices and practical initiatives for reducing methane in the natural gas sector.

Green Shipping

Quad countries represent major maritime shipping hubs with some of the largest ports in the world. As a result, Quad countries are uniquely situated to deploy green-port infrastructure and clean-bunkering fuels at scale. Quad partners are working to facilitate green shipping corridors by 2025-2030, to reduce greenhouse gas emissions across the shipping value chain.

Critical and Emerging Technology

The Quad continues to advance critical and emerging technologies to enhance the prosperity and security of the region. The Quad promotes global technology markets and standards that are governed by our shared interests and values such as openness, diversity, trust and resilience.

Open Radio Access Networks

The Quad is working to advance secure and resilient telecommunications infrastructure across the Indo-Pacific. At the 2023 Quad Leaders' Summit, Quad Leaders announced cooperation with Palau to establish a deployment of Open Radio Access Network (Open RAN) capabilities, the first in the Pacific. The development of Open RAN capabilities represents a significant commitment to supporting the modernisation of telecommunications infrastructure in the Pacific.

Open RAN Security Report

The Quad has produced an Open RAN security report. The report conducted a risk-based assessment of Open RAN technology, demonstrating how Open RAN can be constructed in a manner as secure as traditional RAN networks.

Technical Experts' Discussion - Open RAN Test Lab Frameworks

Following the development of a Memorandum of Cooperation on Open RAN announced at the 2022 Quad Leaders' Summit in Tokyo, the Quad conducted an online workshop, convening experts in operationalising national Open RAN research and development and testing facilities. This initiative further promoted supplier diversification.

Quad Investors Network

The Quad welcomes the launch of the Quad Investors Network (the QUIN), a non-governmental network that will aim to foster private sector investment into critical and emerging technologies in Quad countries and across the Indo-Pacific.

Quad Technology Business and Investment Forum

In partnership with the Australian Strategic Policy Institute (ASPI), the inaugural Quad Technology Business and Investment Forum convened on 2 December 2022 in Sydney, aimed at aligning private capital with the Quad's strategic technology interests. The forum kick-started a genuine partnership among Quad governments, technology companies and investors. The next forum will be held in the United States.

Quad Principles on Critical and Emerging Technology Standards

The Quad has published a joint statement of Principles on Critical and Emerging Technology Standards, outlining our common vision for international technology standards, underpinned by values such as transparency, openness, security and interoperability.

These principles will help to shape technology standards in cooperation with other like-minded countries who share these values.

Quad International Standards Cooperation Network (Q-ISCN)

Building on commitments made at the 2022 Quad Leaders' Summit in Tokyo, the Quad is launching the Quad International Standards Cooperation Network (Q-ISCN) to serve as a mechanism for Quad partners to increase situational awareness, coordination, and influence in international standards development.

Horizon Scanning

Through its work on horizon scanning, the Quad is recognising and affirming the important role of synthetic biology in promoting bio-manufacturing, including by exploring opportunities to expand cooperation through Track 1.0 and 1.5 dialogues.



Australia's Minister for Foreign Affairs, Senator the Hon Penny Wong, visits a telecommunications site in Niue.

Cyber

The Quad is expanding cyber security cooperation and strengthening cyber resilience and critical infrastructure protection in the Indo-Pacific.

On 30-31 January 2023, Quad Senior Cyber Group Principals met in New Delhi to advance a positive and ambitious cyber agenda. Principals reaffirmed the Quad's commitment to work together to better secure cyberspace and foster an international digital economy that works for everyone, including regional partners in the Indo-Pacific.

Machine Learning

Machine learning has many exciting applications in the cyber security space. In May 2023, the Quad hosted a roundtable between leading academics and relevant government agencies in the field of machine learning in cyber security to discuss existing research streams and identify new avenues for collaboration.

Capacity Building

The Quad is strengthening regional cyber security capacity through coordination and collaboration on capacity building efforts and has developed a catalogue of Quad countries' various capacity building courses on cyber security.

Quad Cyber Challenge

In April 2023, the Quad held the first ever Quad Cyber Challenge, encouraging participants across the Indo-Pacific and beyond to take steps to improve their cyber security and cyber awareness and share cyber resources. An estimated 85,000 people took part in the challenge, and nearly 600 different schools, universities, companies and non-profit organisations took action to protect themselves and their communities.



ABC International Development, supported by the Australian Department of Foreign Affairs and Trade, has supported young women in Vanuatu and Tonga to raise awareness on cybersafety.

Supply Chain Security and Resilience for ICT and OT Systems of Critical Sectors

Building on Quad Leaders' discussions at the 2022 Quad Leaders' Summit in Tokyo, the Quad held a discussion exercise on supply chain cyber security and resilience, and is developing a framework and methodology for ensuring cyber security in supply chains of critical sectors.

Joint Principles

The Quad has developed a set of joint principles to promote common practices for the protection of critical infrastructure from cyber threats. The Quad has also developed a set of joint principles to collectively improve software security by promoting minimum cyber security practices for governments, to guide their development, use, and procurement of software.

The Quad Cyber Challenge

The Quad Cyber Challenge took place from 10-14 April 2023. The Challenge raised public awareness and encouraged good cyber hygiene practices across Quad countries and the wider Indo-Pacific.

The joint efforts of Quad partners culminated in 85,341 individuals participating from 594 different organisations, including schools, universities, private companies, governments, and non-profits. Of these, an estimated 67 organisations were from Australia, and a further 44 international organisations from non-Quad countries.

KPMG Australia

KPMG Australia committed to sharing resources on personal cyber security best practices with its people to help raise awareness, and to promote the How Not to Get Hacked video series and the Quad Cyber Challenge checklist to the broader community.

The University of Queensland

The University of Queensland committed to sharing resources on cyber security best practices with its 20,000+ staff and 55,000+ students.

Our Lady of Mercy Catholic High School, Federated States of Micronesia

Our Lady of Mercy Catholic High School in Pohnpei State, Federated States of Micronesia committed for their whole community to take part in the Cyber Challenge by watching the How Not to Get Hacked video series and having a whole school discussion on cyber awareness and the Cyber Challenge checklist.

Health Security

The Quad Health Security Partnership

At the 2023 Quad Leaders' Summit, Quad Leaders decided to evolve the Quad's former Vaccine Partnership into a more comprehensive Health Security Partnership, tackling a range of health security priorities in a coordinated and integrated way. The Quad Health Security Partnership promotes coordination and collaboration between Quad countries and partners in the Indo-Pacific to strengthen regional, and therefore global, health security. It builds on successful collective efforts to provide safe and effective COVID-19 vaccines to the Indo-Pacific and beyond, as well as the Quad's broader support for economic recovery and revitalisation.

Strengthening Capabilities in the Indo-Pacific to Detect and Respond to Disease Outbreaks

As the first priority of the new Quad Health Security Partnership, Leaders announced at the 2023 Quad Leaders' Summit, a package of measures to strengthen the Indo-Pacific's ability to detect and respond to outbreaks of diseases with epidemic or pandemic potential. They committed funding to support field epidemiology and outbreak responder training, boost disease surveillance, improve data systems and strengthen public health laboratories.



A woman gets vaccinated in Ainaro municipality, Timor-Leste. Australia shares doses with regional partners such as Timor-Leste as part of its commitment to vaccine equity.



A woman gets vaccinated in the Solomon Islands.

Expanding Vaccine Access in the Indo-Pacific

Consistent with the commitments Quad Leaders made in March 2021, Quad partners have significantly improved access to COVID-19 vaccines in the Indo-Pacific, including through support for vaccine manufacturing, technical assistance to national medicines regulatory agencies and ministries of health, and the provision of vaccines, consumables and cold-chain infrastructure, either directly or through multilateral channels including COVAX. The Quad's contributions to regional and global COVID-19 vaccine access include providing US \$5.6 billion to the COVAX Advance Market Commitment (AMC) for vaccine supply to low- and middle-income countries; sharing more than 400 million vaccine doses with Indo-Pacific countries and almost 800 million globally; funding expanded vaccine manufacturing in the region; and providing extensive 'last mile' delivery support to national vaccination programs.

Technical Engagement to Support Health Security

Quad partners have been bringing technical experts together to support improved regional health security beyond COVID-19 vaccine supply. Activities have included convening an event on combatting vaccine hesitancy in the margins of the 75th World Health Assembly and arranging the first pandemic preparedness tabletop exercise for senior Quad officials. Quad partners have also been exploring scope for collaboration on clinical trials and genomic surveillance.

Quad Delivery of Vaccines to Fiji

The Quad Vaccine Partnership, in coordination with COVAX, WHO and UNICEF, provided access to COVID-19 vaccines in the Indo-Pacific at a critical stage of the COVID-19 pandemic.

In Fiji, assistance provided by Quad partners enabled a strong national vaccine campaign that achieved adult vaccination rates above 95%.

Quad partners supplied more than two million COVID-19 vaccine doses to Fiji—more than 80% of all doses supplied—as well as targeted technical and logistical support for Fiji's national vaccine roll-out.



Australian vaccines being delivered in the Pacific.

Infrastructure

Quality infrastructure development is critical to driving productivity and prosperity in the Indo-Pacific. The Quad is helping to meet the Indo-Pacific's enormous infrastructure needs by deepening collaboration and pursuing complementary actions.

At the 2022 Quad Leaders' Summit in Tokyo, Leaders highlighted the collective effort underway by Quad countries to extend over US \$50 billion in infrastructure financing and assistance over the next five years.

Quad Partnership for Cable Connectivity and Resilience

At the 2023 Quad Leaders' Summit, Quad Leaders announced the Quad Partnership for Cable Connectivity and Resilience. The Partnership represents a shared commitment to undersea cables as a priority for regional infrastructure. Quad partners will discuss overarching priorities and engage with the private sector. Quad Leaders welcomed Australia's commitment to establish an Indo-Pacific Cable Connectivity and Resilience Program which will commission technical and policy research, share best-practice policy frameworks and provide technical assistance to the Indo-Pacific.

Quad Infrastructure Fellowships Program

At the 2023 Quad Leaders' Summit, Quad Leaders also announced the Quad Infrastructure Fellowships Program. Under this commitment Quad partners aim to empower more than 1800 practitioners across the Indo-Pacific with the skills to build quality infrastructure through university scholarships, mid-career professional exchange programs and placements, senior government executive programs and in-country training positions.

Capacity Building and Disaster Preparedness

Quad countries have delivered training and capacity-building for the Indo-Pacific region, with a focus on digital and transportation connectivity, clean energy and climate resilience.

Quad countries have delivered training programs to the region to help build capacity in debt management and infrastructure development, building on the Quad Debt Management

Resource Portal announced at the 2022 Quad Leaders' Summit in Tokyo. Experts from Quad countries have jointly participated in a Coalition for Disaster Resilient Infrastructure workshop on disaster preparedness for energy infrastructure in small island developing states and US workshops on attracting quality investment in smart and secure ports. These programs have been delivered to a wide range of participants from countries across the Indo-Pacific.

Export Credit Agencies

At the 2023 Quad Leaders' Summit, Quad Leaders welcomed ongoing efforts to enhance cooperation among Quad partners' export credit agencies, including through a Memorandum of Cooperation between ECGC Limited of India, Export Finance Australia (EFA), Nippon Export and Investment Insurance (NEXI) of Japan, and Export-Import Bank of the United States (USEXIM).



As part of her visit to New Caledonia and Tuvalu in April 2023, Australia's Minister for Foreign Affairs, Senator the Hon Penny Wong, visited the Tuvalu Coastal Adaptation Project (TCAP) hosted by Tuvalu's Minister for Finance and Climate Change, Seve Paeniu.

Space

Space-related applications and technologies make an essential contribution to addressing contemporary challenges in the Indo-Pacific. The Quad is working to expand Indo-Pacific countries' access to and utilisation of earth observation data and other space-based tools to address the climate crisis, support the sustainable use of oceans and marine resources, and consult on the sustainable use of outer space.

Extreme Precipitation

Climate change has resulted in an increase in global extreme precipitation events. Following consensus at the 2022 Quad Leaders' Summit in Tokyo, a Quad Space Working Group Extreme Precipitation Steering Committee was announced. The committee has hosted two workshops to strengthen collaboration among Quad countries to build capacity in the region. Experts discussed how they could best support countries in the region to monitor and respond to extreme precipitation events more effectively.

Sharing of Space-Based Civil Earth Observation Data

The Quad is committed to the open sharing of earth observation data in order to better utilise space to address the climate crisis and support the sustainable use of oceans and marine resources. At the 2022 Quad Leaders' Summit in Tokyo, the Quad established the Quad Satellite Data Portal. Two technical workshops were held in early 2023 to examine earth observation datasets and downstream capacity building application.

Through its collaboration on space, the Quad promotes the concept of Open Science to accelerate the pace of scientific discovery, broaden participation in science through accessibility, and help stakeholders across the globe embrace new technologies.

Located about 500km north-west of Sydney in rural New South Wales, the Australian Telescope Compact Array is an array of six 22-m antennas used for radio astronomy.



Workshops on the Long-Term Sustainability of Space

The Quad is organising workshops to support Indo-Pacific countries in the implementation of the United Nations Committee on the Peaceful Uses of Outer Space Guidelines for the Long-Term Sustainability (LTS) of Outer Space Activities.

The workshops will focus on implementing the Guidelines to support the safety and sustainability of outer space, including capacity building and sharing of learnings and experiences in domestic policy, regulations and outcomes.

Indo-Pacific Partnership for Maritime Domain Awareness

The Quad is committed to contributing to maritime domain awareness in the Indo-Pacific region, which is fundamental for stability and prosperity. At the 2022 Quad Leaders' Summit in Tokyo, Quad Leaders announced the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) to enhance existing maritime domain awareness capabilities.

Purpose of IPMDA

IPMDA is a technology and training initiative to enhance maritime domain awareness in the Indo-Pacific region and to bring increased transparency to its critical waterways. IPMDA harnesses innovative technology, such as commercial satellite radio frequency data collection, to provide partners across Southeast Asia, the Indian Ocean region and the Pacific with near real-time information on activities occurring in their maritime zones.

The Australian Fisheries Management Authority conducts an exercise in the Pacific.

Benefits to Regional Partners

The cutting-edge maritime domain awareness picture provided under IPMDA supports the ability of Indo-Pacific partners to rapidly detect and respond to a wide range of challenges involving illicit maritime activities such as illegal, unreported and unregulated fishing, climate events, and humanitarian crises. The initiative also involves regional information centres, helping to establish a common operating picture of the maritime domain across the Indo-Pacific region.

Pilots

Quad countries continue to consult with regional partners and provide demonstrations of the technology underpinning IPMDA. The Quad has launched a series of regional pilots delivering radio frequency data to maritime agencies in Southeast Asia, the Indian Ocean region and the Pacific.

QUAD FELLOWSHIP

by SCHMIDT FUTURES



At the 2022 Quad Leaders' Summit in Tokyo, Quad Leaders met with Schmidt Futures CEO Eric Braverman and discussed how to continue work across borders to elevate the brightest minds in STEM through the Quad Fellowship.

Quad STEM Fellowships

What are the Quad STEM Fellowships?

The Quad Fellowships are a scholarship program designed to build ties among the next generation of Science, Technology, Engineering and Mathematics (STEM) leaders. The Fellowship brings together 100 students each year – 25 from each Quad country – to pursue Masters and Doctoral degrees in STEM fields in the United States.

The Quad Fellows will be part of a growing network of science and technology experts committed to advancing innovation and collaboration in the private, public and academic sectors in their own nations and among Quad countries. The program is administered by Schmidt Futures in consultation with a non-governmental taskforce of academic, foreign policy and private sector leaders from each Quad country.

Progress So Far

The first class of 100 Quad Fellows will begin their studies in the third quarter of 2023. The Quad Fellows come from 64 different undergraduate institutions and will study 17 unique disciplines of study ranging from astronomy to biology to engineering, and much more. Quad Fellows' 60 distinct areas of specialisation are interdisciplinary and impact-orientated, including sustainable energy grids, solid-state batteries, environmental protection and restoration, quantum and optical computing, neuroimaging and more. Of the 100 Quad Fellows, 56% identify as women or non-binary and 77% will pursue a PhD in the 2023-2024 academic year.



2023 Quad Leaders' Summit documents

2023 Quad Leaders' statements

Quad Leaders' Vision Statement

<https://www.pm.gov.au/media/quad-leaders-vision-statement-enduring-partners-indo-pacific>

Quad Leaders' Joint Statement

<https://www.pm.gov.au/media/quad-leaders-joint-statement>

2023 Quad Leaders' Summit outcomes documents

Quad Statement of Principles on Clean Energy Supply Chains in the Indo-Pacific

<https://www.pmc.gov.au/resources/quad-statement-principles-clean-energy-supply-chains-indo-pacific>

Open Radio Access Network (Open RAN) Security Report

<https://www.pmc.gov.au/resources/open-ran-security-report>

Quad Principles on Critical and Emerging Technology Standards

<https://www.pmc.gov.au/resources/quad-principles-critical-and-emerging-technology-standards>

Quad Cybersecurity Partnership: Joint Principles for Secure Software

<https://www.pmc.gov.au/resources/quad-cybersecurity-partnership-joint-principles-secure-software>



Australian Government