



Indian Council  
of World Affairs

# RENEWING QUAD



Between Challenges and Opportunities

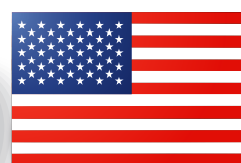
**INDIAN COUNCIL OF WORLD AFFAIRS**

SAPRU HOUSE, NEW DELHI

2024



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# FOREWORD

The rise of mini-lateral initiatives in the Indo-Pacific has attracted worldwide attention as it appears to be a response to the region's changing balance of power. The Quadrilateral Security Dialogue (Quad) has emerged as a prominent platform for strategic engagements and interactions that largely reflect the evolving geostrategic, geo-economic and geopolitical shifts in the Indo-Pacific region. The informal "Quad" group of major Indo-Pacific democracies—Australia, India, Japan and the United States of America (USA) has been energized in recent years, having grown from officials level meetings to the Quad Leader's Summit. Today, the Quad is viewed as an important part of the security and economic architecture of the Indo-Pacific as it has launched various initiatives which resonate with its agenda for the region.

As India looks to host the next Quad Leaders' Summit, this publication analyzes four issues that are of importance to the Quad and to India. The first subject is the Quad's Indo-Pacific Maritime Domain Awareness (IPMDA) initiative. The initiative is a commitment by the Quad to building a free, open and inclusive and rules based Indo-Pacific to enhance maritime domain awareness in the region and to bring increased transparency to its critical waterways. The second subject is Indo-Pacific Economic Framework (IPEF), which seeks to ensure greater engagement on key areas such as development of digital economies, trusted supply chain networks, clean economic growth and transparency in economic dealing in the Indo-Pacific. The third area of interest is the Quad's climate friendly efforts, undertaken through initiatives such as the Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP). The grouping remains committed to promote cooperation on climate mitigation, adaptation, resilience, technology and capacity building for the implementation of the Paris Agreement on Climate Change. And the fourth issue covered in this publication is the Quad's emphasis on critical and emerging technologies. The grouping is prioritising supporting and investing in developing accessible and secure technology ecosystems that support regional development in the Indo-Pacific.

The papers in this publication aim to highlight the common perspectives on peace, security & stability and growth & prosperity for the Indo-Pacific that have brought the Quad nations together, and will help deepen their relations in the future. The publication will prove to be useful to scholars and practitioners alike who are keenly watching the evolution of the Quad and developments in the Indo-Pacific.

**Amb Vijay Thakur Singh**

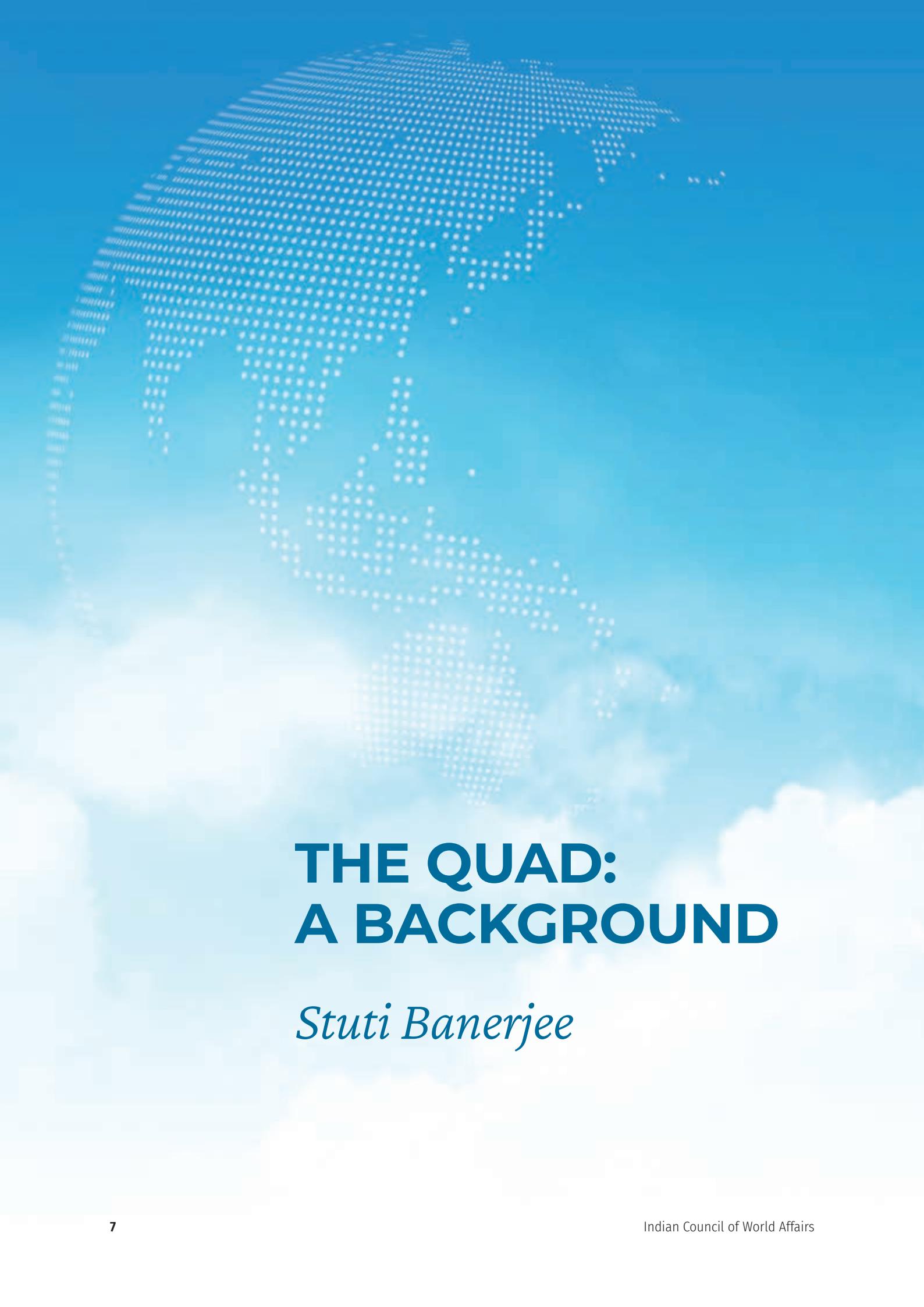
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*May 2024*








# THE QUAD: A BACKGROUND

*Stuti Banerjee*



The Quad was born in response to a natural calamity-the 2004 tsunami in the Indian Ocean region. One of the responses was the establishment of the 'tsunami core group' established by Australia, India, Japan and the United States to facilitate the coordination of relief materials and other related activities.



## The Quadrilateral Security Dialogue

(Quad) comprising of Australia, India, Japan and the United States has come to represent a major grouping that today can influence the geopolitical and geo-economic trajectory of the Indo-Pacific region. In its first avatar, the grouping was focused on maritime security, but today the grouping's agenda focuses on a number of issues and challenges such as health security, climate change, critical and emerging technologies, infrastructure and debt sustainability, cyber security, humanitarian assistance and disaster relief, and strengthening the maritime domain awareness of regional countries.<sup>1</sup> The grouping has witnessed a natural evolution over the past few years from meetings between Foreign Ministers to the first Quad Leader's Summit in 2021. Since then five Summit level meetings have been held with the sixth Summit meeting scheduled to be held in India in 2024. "The commitment to promoting a free, open rules-based order, rooted in international law, to advance security and prosperity and counter threats to both in the Indo-Pacific and beyond...",<sup>2</sup> as outlined in the 'Spirit of the Quad' Joint Statement of 2021, remains the goal of all four nations. The statement also acknowledged that the four nations bring

"diverse perspectives but (are) united in their shared vision of a free and open Indo-Pacific" and that this grouping "... looks forward to the future; it seeks to uphold peace and prosperity and strengthen democratic resilience, based on universal values."<sup>3</sup>

This paper highlights the journey of the Quad from an informal grouping that was formed in the aftermath of the 2004 Tsunami in the Indian Ocean to the Summit level meetings of the group involving the Heads of Governments of all four States.

## THE QUAD: THE INCEPTION

The Quad was born in response to a natural calamity-the 2004 tsunami in the Indian Ocean region. One of the responses was the establishment of the 'tsunami core group' established by Australia, India, Japan and the United States to facilitate the coordination of relief materials and other related activities. The group came together to respond to the tsunami and its aftermath. The close coordination led to the genesis of a quadrilateral dialogue among the four nations. The idea was mooted by Japan which was keen to strengthen coordination between nations with shared values. The then Japanese Foreign Minister Taro Aso in a speech outlined

1 Ministry of External Affairs, Government of India, "Quad," [https://www.mea.gov.in/Portal/ForeignRelation/Quad\\_brief\\_October\\_2023.pdf](https://www.mea.gov.in/Portal/ForeignRelation/Quad_brief_October_2023.pdf), Accessed on 19 April 2024

2 Ministry of External Affairs, Government of India, "Quad Leaders' Joint Statement: "The Spirit of the Quad" 12 March 2021," [https://www.mea.gov.in/bilateral-documents.htm?dtl/33620/Quad\\_Leaders\\_Joint\\_Statement\\_The\\_Spirit\\_of\\_the\\_Quad](https://www.mea.gov.in/bilateral-documents.htm?dtl/33620/Quad_Leaders_Joint_Statement_The_Spirit_of_the_Quad), Accessed on 19 April 2024

3 Ibid. Ministry of External Affairs, Government of India, "Quad Leaders' Joint Statement: "The Spirit of the Quad" 12 March 2021," [https://www.mea.gov.in/bilateral-documents.htm?dtl/33620/Quad\\_Leaders\\_Joint\\_Statement\\_The\\_Spirit\\_of\\_the\\_Quad](https://www.mea.gov.in/bilateral-documents.htm?dtl/33620/Quad_Leaders_Joint_Statement_The_Spirit_of_the_Quad), Accessed on 19 April 2024

the idea of an ‘Arc of Freedom and Prosperity’ across the region. He stated that, “Japan must make its ties even firmer with friendly nations that share the common views and interests, namely of course the United States as well as Australia, India, and the member states of the EU and NATO, and at the same time work with these friends towards the expansion of this “arc of freedom and prosperity”.”<sup>4</sup>

In December 2006, Former Indian Prime Minister Manmohan Singh visited Japan. In the Joint Statement released during the visit, the two leaders “shared the view on the usefulness of having dialogue among India, Japan and other like-minded countries in the Asia-Pacific region on themes of mutual interest.”<sup>5</sup> In bilateral meetings between former Vice President Dick Cheney, Former Prime Minister Shinzo Abe and Former Prime Minister John Howard, the idea of a Quadrilateral involving the four countries to discuss issues of common concern took root.

On the sidelines of the Association of Southeast Asian Nations (ASEAN) Regional Forum held in Philippines (2007), the officials of the four nations discussed areas of future engagements. Later in the year they participated in the Malabar joint naval exercise along with Singapore. However,

the lack of clarity on areas of cooperation, ambiguity over the Quad’s overarching purpose and the pulls of national policies with divergent interests along with the change of Government in Japan and Australia, meant that the Quad was relegated to the background as other more pressing issues came to the forefront.

Another drawback for the Quad was the heightened attention it got as a result of the strong criticism from China. With the four countries differing in their approach to the Quad, they were unable to build an appropriate response to the criticism.

The Quad returned from its brief hiatus in 2017. Prime Minister Abe was instrumental in its revival. In his second tenure as Prime Minister of Japan in an opinion piece titled, ‘Asia’s Democratic Security Diamond’ he stated that “Peace, stability, and freedom of navigation in the Pacific Ocean are inseparable from peace, stability, and freedom of navigation in the Indian Ocean. Developments affecting each are more closely connected than ever.” and stressed the need for “a strategy whereby Australia, India, Japan, and the U.S. state of Hawaii form a diamond to safeguard the maritime commons stretching from the Indian Ocean region to the

4 Ministry of Foreign Affairs of Japan, Speech by Mr. Taro Aso, Minister for Foreign Affairs on the Occasion of the Japan Institute of International Affairs Seminar “Arc of Freedom and Prosperity: Japan’s Expanding Diplomatic Horizons 20 November 2006” <https://www.mofa.go.jp/announce/fm/aso/speech0611.html>, Accessed on 29 April 2024

5 The Ministry of External Affairs, Government of India, “Joint Statement Towards India-Japan Strategic and Global Partnership, 15 December 2006” <https://www.mea.gov.in/bilateral-documents.htm?dtl/6368/Joint+Statement+Towards+IndiaJapan+Strategic+and+Global+Partnership>, Accessed on 29 April 2024

western Pacific”<sup>6</sup> Prime Minister Abe outlined the idea of a free and open Indo-Pacific at the Sixth Tokyo International Conference on African Development in Kenya (2016) where he stated, “What will give stability and prosperity to the world is none other than the enormous liveliness brought forth through the union of two free and open oceans and two continents. Japan bears the responsibility of fostering the confluence of the Pacific and Indian Oceans and of Asia and Africa into a place that values freedom, the rule of law, and the market economy, free from force or coercion, and making it prosperous.”<sup>7</sup> This strategy outlined three pillars- (i) political, (ii) economic and (iii) security. Politically, it was to promote democratic values; economically, it was to promote infrastructure development and connectivity through collaboration between the four States; and lastly, on security, it was to help strengthen defence cooperation between the four and Southeast Asian nations. These developments coincided with other geopolitical developments in the other partners of the Quad. The concept of a free and open Indo-Pacific was an overarching strategy for the region which found resonance with the four nations.

In 2015, Prime Minister Modi highlighted that India seeks “a future for Indian Ocean that lives up to the name of SAGAR – Security and Growth for All in the Region.” India’s goal is to “seek a climate of trust and transparency; respect for international maritime rules and norms by all countries; sensitivity to each other’s interests; peaceful resolution of maritime issues; and increase in maritime cooperation.”<sup>8</sup> Elaborating on the concept at the Shangri la Dialogue (2018) he stated, “India’s vision is for an open, stable, secure and prosperous Indo-Pacific Region” and “India does not see the Indo-Pacific Region as a strategy or as a club of limited members.”<sup>9</sup> India’s foreign policy was also focused on strengthening its economic and strategic engagements and to emerge as a net security provider in the region. The Quad provides it with a platform to engage in maritime security, piracy and disaster management cooperation and strengthen the rules based order.

President Donald Trump made the United States’ engagements in the Indo-Pacific region the top priority for his Administration. In 2017, at the APEC Summit in Vietnam, he outlined a vision

6 Abe Shinzo, “Asia’s Democratic Security Diamond”, 27 December 2012, <https://www.project-syndicate.org/magazine/a-strategic-alliance-for-japan-and-india-by-shinzo-abe>, Accessed on 29 April 2024.

7 Ministry of Foreign Affairs of Japan, “Address by Prime Minister Shinzo Abe at the Opening Session of the Sixth Tokyo International Conference on African Development (TICAD VI) 27 August 2016,” [https://www.mofa.go.jp/af2/af2/page4e\\_000496.html](https://www.mofa.go.jp/af2/af2/page4e_000496.html), Accessed on 29 April 2024.

8 Press Information Bureau, Government of India, “Text of the PM’s Remarks on the Commissioning of Coast Ship Barracuda 12 March 2015,” <https://pib.gov.in/newsite/printrelease.aspx?relid=116881>, Accessed on 29 April 2024.

9 Ministry of External Affairs, Government of India, “Prime Minister’s Keynote Address at Shangri La Dialogue (June 01, 2018),” [https://www.mea.gov.in/Speeches-Statements.htm?dtl/29943/Prime\\_Ministers\\_Keynote\\_Address\\_at\\_Shangri\\_La\\_Dialogue\\_June\\_01\\_2018](https://www.mea.gov.in/Speeches-Statements.htm?dtl/29943/Prime_Ministers_Keynote_Address_at_Shangri_La_Dialogue_June_01_2018), Accessed on 29 April 2024



for the free and open Indo-Pacific, “a place where sovereign and independent nations, with diverse cultures and many different dreams, can all prosper side-by-side, and thrive in freedom and in peace.”<sup>10</sup>

The 2017 Foreign Policy White Paper, highlighted that Australia’s “security and prosperity will be enhanced in a region characterised by respect for international law and other norms, and by open markets. This will help ensure Australia ... (pursue its)... national interests unconstrained by the exercise of coercive power. Australia’s policies to support a stable and prosperous Indo-Pacific complement its trade, investment and economic engagement with the region....”<sup>11</sup>

As the interest of the four nations converged, they met once again in the Philippines on the sidelines of the East Asia Summit (2017) and stated that they intend to pursue “the Quadrilateral discussions and deepening cooperation on the basis of shared values and principles.”<sup>12</sup> As they continued to build on the need to strengthen the rule based international order, peaceful settlement of disputes and freedom of navigation, the Quad has met at regular intervals through senior officials including the Foreign Ministers of

the four countries. The Quad saw a natural evolution and elevation in 2021 to the level of the Leaders with the first Quad Leaders’ Summit taking place in virtual format in March 2021 with President Biden hosting the first in-person meeting in Washington later in the year. The fact that Heads of Governments are meeting annually for the Quad Summit is a clear indication of the importance of the grouping in the regional policies of the four nations. The regular meetings along with the six working groups to address specific issues such as climate, health, critical technology, etc. underline that the grouping is looking for practical cooperation in areas of mutual interest, pool resources not only among members but also include like minded partners and also provide public goods. The rise of the Quad also signals the acceptance, both within and beyond the member countries, of the “Indo-Pacific” as a strategic concept.

## THE DRIVING FORCE OF THE QUAD

One of the primary factors attributed to the demise of the Quad in 2008 was that it had no clear agenda. While it may be true that addressing the challenges posed by China is

10 The White House, “Remarks by President Trump at APEC CEO Summit, Da Nang, Vietnam 10 November 2017,” <https://trumpwhitehouse.archives.gov/briefings-statements/remarks-president-trump-apec-ceo-summit-da-nang-vietnam/#:~:text=PRESIDENT%20TRUMP%3A%20What%20an%20honor,wonderful%20part%20of%20the%20world>, Accessed on 29 April 2024.

11 Australian Government, “2017 Foreign Policy White Paper,” <https://www.dfat.gov.au/sites/default/files/2017-foreign-policy-white-paper.pdf>, Accessed on 29 April 2024

12 Department of Foreign Affairs and Trade, Government of Australia, “Australia-India-Japan-United States consultations on the Indo-Pacific, 12 November 2017,” <https://www.dfat.gov.au/news/media/Pages/aus-india-japan-us-consultations-on-the-indo-pacific>, Accessed on 19 April 2024.

an area of focus of the Quad, its identity is not limited to just that. The Quad today has reshaped its agenda to look at areas of mutual interest that contribute towards their shared commitment for a peaceful and prosperous Indo-Pacific region. This section highlights four such issues that are driving the Quad's policy outlook at the moment.

As stated that counterbalancing China is not the only reason for the revival of the Quad, nonetheless, mutual concerns over the aggressive rise of China is part of the discussion points within the Quad. The growing China-United States tensions, China's assertive behaviour in the East and South China Seas and border clashes with India has changed the strategic calculus in the region. The grouping has gained greater traction since early 2020 because of Beijing's role in the COVID-19 pandemic and the manner in which it has attempted to control multilateral institutions, such as the World Health Organization (WHO) and the International Civil Aviation Organization (ICAO), the border clashes with India and China's coercive trade practices against Australia in response to the latter's calls for an independent investigation into the origin of the coronavirus. The pandemic also highlighted the concerns about the security of the global supply chains, recognizing the vulnerability of their dependence on China. All of these concerns have brought the four countries to work in close cooperation with each other.

A second driving force behind the Quad is the understanding between the members for enhanced cooperation on issues of mutual interest. Through its six working groups, the Quad is working to strengthen its cooperation across a range of issues. With the Indo-Pacific primarily a maritime domain, the Quad has laid emphasis on maritime security and maritime domain awareness. It needs to be pointed that even in its inception years the Quad was faced with natural disasters such as tsunami and earthquakes in the maritime domain of the Indo-Pacific. Today, apart from the natural risks, the Quad members are looking at heightened tensions in the East and South China Sea, increased acts of piracy and the challenges posed by dark shipping to the security and safety of maritime shipping lanes. The Quad members have coordinated their approach and tried to provide maritime assistance to the countries of the region. They have also launched the Indo-Pacific Maritime Domain Awareness (IPMDA) initiative to "support enhanced, shared maritime domain awareness to promote stability and prosperity" in the Indo-Pacific."

Another area of cooperation within this ambit has been in the critical and emerging technology. Technology advancements today are linked to both national security and drive economic prosperity by creating new jobs, securing competitive manufacturing, improving our health and vaccination outcomes, increasing agricultural productivity, modernising our infrastructure and communications, enabling our energy

transition and strengthening our defence forces. With the future prosperity and security of nations being closely linked to emerging technologies, the Quad has established a working group on the same. The challenge before the Quad is to coordinate the expectations of the public and the private sector and ensure that investments are spread across the region. Quad nations are in different stages of this technological evolution and have varying levels of existing cooperation which would require more collaboration.

Third, recognising the need for cooperation to address broader global challenges, building public goods for the Indo-Pacific as well as for the international community is driving the Quad agenda in its second innings. An important aspect of this has been the Quad's strategies for building climate change and environmental resilience. It was declared a priority for the Quad during the inaugural Quad Leaders Summit. The Quad Working Group on Climate Change is working towards the implementation of the Paris Agreement while fostering cooperation on climate mitigation, adaptation, resilience, financing, capacity building and technology innovation, and enabling green shipping networks. It also includes the clean hydrogen partnership. The Quad has also launched the Q-CHAMP with mitigation and adaptation as two pillars of the initiative. In recent years, climate change has risen in prominence on the domestic political agendas of the four Quad partners,

and there are gains to be achieved through coordination and cooperation of their separate national efforts. The Indo-Pacific region is frequently experiencing devastating natural disasters that result in casualties. At a time when many countries feel that international institutions are not working effectively, mini-lateral initiatives such as the Quad have gained appeal as a more flexible way to facilitate joint action.

Lastly, the Quad provides the Member States as well as the countries of the region with a platform to voice regional concerns.<sup>13</sup> The Quad provides a useful and timely opportunity to the four nations to work with like minded countries to meet common challenges through partnerships. As an organisation that is looking at a broad range of issues it provides countries of the region to engage with the Quad on issues such as climate change, health, space, cybersecurity etc without disrupting other security equations.

## POTENTIAL CHALLENGES BEFORE THE QUAD

The flexibility that has been a strength is also its weakness as lack of structures leads to challenges in operationalisation and implementation of policies. The four countries have different levels of bureaucratic capacity and bandwidth. Working-group leads do not always have counterparts in other countries with comparable resources or staffing. This

13 Zongyou Wei, "The evolution of the 'QUAD': driving forces, impacts, and prospects," <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9734955/>, Accessed on 29 April 2024



is something that the Quad nations would need to keep in mind as they move forward in expanding the agenda of the Quad. A related issue is that as the Quad broadens its agenda, the question that arises is can the Quad stay without an institutional structure and how will this impact the cohesiveness of the Quad.

Another challenge for the Quad would be to manage the expectations and follow up on the various initiatives it has announced. There is no doubt that there will be constraints on what the four countries can do together, and the ability of the Quad to maintain its impressive momentum will depend on the ability of its members to solidify their ties and increase their alignment.<sup>14</sup> However, the Quad has to ensure that as its mission expands the members are able to provide solutions and deliver the commitments made to ensure that the Quad is not viewed as one of the many minilaterals in the Indo-Pacific region.

The challenge before the Quad is to be the premier grouping of the region while maintaining the ASEAN centrality and unity that is important to all the four nations.

ASEAN centrality is the notion that the ASEAN would be the driving force in shaping the group's external relations in the regional architecture that is open, inclusive and transparent. This resonates with the Quad's agenda to support an open, inclusive and rules based order in the Indo-Pacific. The Quad aims to build resilience in the Indo-

Pacific by collaborating with the existing regional mechanisms. As one of the most influential groupings in the region, the ASEAN, it is strategically placed to fulfil critical role in the Indo-Pacific region. The Quad is engaged with the ASEAN and other regional partners such as South Korea and Pacific Island countries to ensure that its various initiatives are implemented and managed effectively and bring a positive change in the region.

The last challenge for the Quad is addressing the question of expansion of the grouping. As the Quad members solidify their partnership they have not made any commitments towards the expansion of the grouping. However, the fact that States like South Korea have expressed interest in being part of the grouping shows that in the future the members would need to outline the avenues through which they would deepen collaboration with other countries within the Quad framework.

## CONCLUSION

The Quad is not an alliance, nor is it a prototype for an alliance. The Quad is not backed by a treaty and offers no security guarantees to the members. It also does not have any institutional structure at the moment. In fact the flexible nature of the Quad is seen as an asset that is allowing it to engage among the four but also with the

14 Garima Mohan and Kristi Govella, "The Future of the Quad and the Emerging Architecture in the Indo-Pacific June 2022," <https://www.gmfus.org/sites/default/files/2022-06/The%20Future%20of%20the%20Quad%20and%20the%20Emerging%20Architecture%20in%20the%20Indo-Pacific.pdf>, Accessed on 30 April 2024.

region to build functional cooperation with like minded nations. Thus to assume that the Quad has been revived to ‘contain’ China is a naïve argument. The grouping has focused on working towards a positive and constructive agenda which includes deliberating on for instance, sustainable and demand driven infrastructure in the region through the Quad Infrastructure Coordination Group. The Quad is also involved in creating a decarbonised green shipping network in the Indo-Pacific, making use of clean hydrogen and making it more accessible, besides pooling capacities to assist Indo-Pacific countries in climate monitoring, and information-sharing. The grouping is looking at the development of critical technologies for the future, biotechnology cooperation and working together for the security of critical cyber infrastructure. It is a forum for discussion, exchange of information and practical cooperation which can help lead to better coordination between like minded States with shared interests in region.

The Quad has found support among the four nations and is today an important part of their policy discussions despite change in governments. The various working groups and the broad range of issues under discussion have meant that there is a regular interaction between different government agencies of the four nations which has further contributed to the support base. There is also broad backing for the Quad and its activities across the political spectrum within the member countries. As stated, the success of the Quad does not mean that it does not face challenges. Whether the Quad will be able to circumvent challenges that come with the combination of an expanding agenda and limited institutional structures remains to be seen. However, from the broader perspective of emerging institutions in the Indo-Pacific the Quad is rising in prominence and as it grows it will play an influential role in region’s geostrategic thinking and stability, security and prosperity.



**IPMDA**

ENHANCING QUAD'S  
SIGNIFICANCE AND  
SUBSTANCE IN  
THE INDO-PACIFIC

*Pragya Pandey*

Quad which has its origin in the 2004 Tsunami, later revived after a hiatus in 2017, has become an important platform with regular Summit level meetings. Its agenda now covers a broad range of issues like global health security, critical technologies, infrastructure, cyber security, space, Maritime Domain Awareness (MDA), Humanitarian Assistance and Disaster Resistance (HADR), climate change, clean energy, etc. The Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) is the outcome of the broader agenda being pursued by the grouping.



## The Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA)

was launched two years ago, during the Quad Leader's Summit in Tokyo, on 24 May 2022. The Joint Statement issued after the second in-person Quad Summit attended by the leaders of the four nations mentioned that "the new maritime domain awareness initiative, to support enhanced, shared maritime domain awareness to promote stability and prosperity in our seas and oceans". It also highlighted that "IPMDA embodies what the Quad stands for: catalyzing our joint efforts towards concrete results"...." to make the region stable and prosperous".<sup>15</sup>

Quad which has its origin in the 2004 Tsunami, later revived after a hiatus in 2017, has become an important platform with regular Summit level meetings. Its agenda now covers a broad range of issues like global health security, critical technologies, infrastructure, cyber security, space, Maritime Domain Awareness (MDA), Humanitarian Assistance and Disaster Resistance (HADR), climate change, clean energy, etc. The IPMDA is the outcome of the broader agenda being pursued by the grouping. It is designed to work with regional partners to respond to humanitarian and natural disasters, and combat illegal fishing.

As External Affairs Minister of India Dr S Jaishankar said "the Quad is a product of its times",<sup>16</sup> so is the initiative of IPMDA. At present, more than 90 percent of the long haul international trade is carried out via maritime routes, of which a major chunk passes through the sea lanes of the Indo-Pacific region, it necessitates a safe and secure environment in the region, for which enhanced MDA capabilities is a major requirement.

In this backdrop, this paper analyses the significance of the Quad's IPMDA as it nears two years since it was launched to foster regional co-operation in maritime domain.

## IPMDA: WHAT IS IT AND WHY IS IT SIGNIFICANT?

Marine Domain Awareness (MDA) is key to maritime security. MDA is defined by the IMO as "the effective understanding of anything associated with the maritime domain that could impact security, safety, the economy or the marine environment".<sup>17</sup> Good maritime security environment is an enabler for maritime development.

Oceans and seas have always been a significant contributor to economic prosperity, providing impetus for the growth of the maritime enterprise. Over the years,

15 Quad Joint Leaders' Statement, Amy 24. 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/24/quad-joint-leaders-statement/>

16 Remarks by EAM, Dr. S. Jaishankar at the Inaugural Quad Think Tank Forum, February 24, 2024, [https://www.mea.gov.in/Speeches-Statements.htm?dtl/37659/Remarks\\_by\\_EAM\\_Dr\\_S\\_Jaishankar\\_at\\_the\\_Inaugural\\_Quad\\_Think\\_Tank\\_Forum](https://www.mea.gov.in/Speeches-Statements.htm?dtl/37659/Remarks_by_EAM_Dr_S_Jaishankar_at_the_Inaugural_Quad_Think_Tank_Forum)

17 IMO, <https://www.imo.org/en/MediaCentre/Pages/WhatsNew-1203.aspx>



Peaceful and stable Indo-Pacific region is significant not only from regional perspective but for international economic and strategic stability as well. If one looks at the Indo-Pacific region geographically, essentially it is a large maritime geography that combines two large bodies of water - the Indian and the Pacific Oceans in a seamless continuum. The region connects the energy-rich Middle East, the resource-rich Africa, the Indian subcontinent, ASEAN, growing economies of East Asia and islands in the Indian and Pacific Oceans.

dependence on the seas for human needs has only grown. More and more countries are focusing on enhancing their blue economy capacities in the Indian Ocean Region and wider Indo-Pacific region; an enhanced MDA capacity will facilitate a better environment to do so. Blue economy is one of the most crucial topics associated with the maritime domain. It covers wide expanse of activities related to ocean, seas, and coasts extending from maritime trade, the naval industry, fisheries, marine technology and scientific research, integrated coastal management, marine eco-tourism, inland waterways. Therefore, MDA is key to maritime security.

Peaceful and stable Indo-Pacific region is significant not only from regional perspective but for international economic and strategic stability as well. If one looks at the Indo-Pacific region geographically, essentially it is a large maritime geography that combines two large bodies of water - the Indian and the Pacific Oceans in a seamless continuum. The region connects the energy-rich Middle East, the resource-rich Africa, the Indian subcontinent, ASEAN, growing economies of East Asia and islands in the Indian and

Pacific Oceans. The region has been gaining immense significance, across the strategic, political-diplomatic-economic spectrum. At present, almost 60 percent of global GDP is generated in the Indo-Pacific region. The region also houses around 60 percent of the global population. The region has some of the most critical sea-lanes for global commerce including Malacca Strait, Hormuz Strait, Bab-el-Mandeb and others. As much as 25 percent of international maritime trade passes through the Strait of Malacca alone. Therefore, there is significant economic and strategic value attached to the Indo-Pacific and free and open passage of ships through the region is crucial.

Along with intense geopolitical contestations and constantly evolving strategic situation in the region, the Indo-Pacific maritime theatre is also faced with various non-traditional challenges from non-state actors, which are transnational in nature and need attention. The security of the maritime space faces a gamut of such challenges ranging from piracy, armed robbery, contraband smuggling, IUU fishing, irregular human migration, maritime terrorism, cyber security

related challenges, environment pollution and climate change, other incidences like collision, grounding etc...<sup>18</sup> It is important that these challenges be managed in a cooperative manner because a peaceful and stable Indo-Pacific is closely intertwined with a prosperous and sustainable region. So an enhanced MDA capacity enables a better awareness and preparedness to respond to such challenges as and when they occur.

In order to maintain a safe and secure Indo-Pacific region enhancing maritime domain awareness, coordinated activities through information sharing with other partner countries and agencies is crucial.<sup>19</sup>

Here the Quad's IPMDA will play a crucial role. The IPMDA "seeks to establish a comprehensive system for monitoring and securing maritime activities in the Indo-Pacific, ensuring the safety of critical sea lines of communication, and promoting

cooperation among like-minded nations in the region".<sup>20</sup> It aims to integrate three critical regions in the Indo-Pacific- the Pacific Islands, Southeast Asia, and the Indian Ocean Region (IOR), with an aim to further collaboration among fusion centers located in the three regions in India, in Singapore and in Vanuatu.

## ROLE OF FUSION CENTERS IN IPMDA

Information Fusion Centers (IFC) play an important role in facilitating a reliable MDA environment, by helping to create predictive analysis and allowing better preparedness to challenges in the maritime domain. The Indo-Pacific region has regional fusion centers in India, Madagascar, Seychelles, Singapore, and in Pacific Islands.

The IPMDA aims to promote information sharing among the regional centre located in Indian Ocean (in India), Southeast Asia

The IPMDA aims to promote information sharing among the regional centres located in Indian Ocean (in India), Southeast Asia (in Singapore), in Pacific (in Vanuatu and Solomon Islands). IPMDA will support and work in consultation with Indo-Pacific nations and these regional information fusion centers by providing technology and training to support enhanced, shared maritime domain awareness to promote stability and prosperity in our seas and oceans.

18 WORKING DEFINITIONS MARITIME SAFETY AND SECURITY INCIDENTS, July 2022, IFC-IOR, <https://www.indiannavy.nic.in/ifc-ior/static/data/reports/others/4.%20Working%20Definitions%20-%20Maritime%20Safety%20and%20Security%20incidents..pdf>

19 Annual Report 2023, [https://www.indiannavy.nic.in/ifc-ior/static/data/reports/annual/IFC-IOR\\_ANNUAL\\_REPORT\\_2023.pdf](https://www.indiannavy.nic.in/ifc-ior/static/data/reports/annual/IFC-IOR_ANNUAL_REPORT_2023.pdf)

20 Quad's IPMDA a proof of our commitment to a free, open, inclusive Indo-Pacific: Navy Chief, 7 November 2023, <https://www.thehindu.com/news/national/quads-ipmda-a-proof-of-our-commitment-to-a-free-open-inclusive-indo-pacific-navy-chief/article67500745.ece>

With a focus on collaborative efforts for furthering maritime safety and security and keeping the maritime space in IOR democratically available, the Indian Information Fusion Center is envisioned to support India's capacity building in the region furthering its vision of 'SAGAR' – Security And Growth for All in the Region – and facilitating India's role as a 'net security provider in the region'.

(in Singapore), in Pacific (in Vanuatu and Solomon Islands). IPMDA will support and work in consultation with Indo-Pacific nations and these regional information fusion centers by providing technology and training to support enhanced, shared maritime domain awareness to promote stability and prosperity in our seas and oceans.

IFC-IOR in Gurugram, India, set up in 2018, would play a crucial role in IPMDA. IFC-IOR has emerged as the as nodal centre for sharing maritime security related information for the region, to facilitate a reliable MDA environment in the IOR. With an analytical focus, the IFC-IOR by monitoring developments helps to create predictive analysis and allows better preparedness to challenges in the maritime domain. It has improved situational awareness in the region. With its linkages with the partner nations, other maritime stakeholders and agencies, the Centre is an excellent example of how collaborative and coordinated efforts can be useful, to respond to shared challenges in the global commons. With a focus on collaborative efforts for furthering maritime

safety and security and keeping the maritime space in IOR democratically available, the center is envisioned to support India's capacity building in the region furthering its vision of 'SAGAR' – Security And Growth for All in the Region – and facilitating India's role as a 'net security provider in the region'. IFC-IOR comes regularly publishes reports with interesting data on trends of major challenges to maritime security in the IOR like piracy and armed robbery, contraband smuggling, IUU fishing, irregular migration, also on new and emerging areas of challenges like climate change, cyber security, marine environment pollution.

In Singapore, the IFC was set up in 2009, to collate relevant commercial shipping and maritime information to increase maritime security awareness.<sup>21</sup> The IFC in Singapore acts as “a regional maritime security information sharing hub, covering most of the Indo-Pacific region”,<sup>22</sup> to prepare for responses against the incidences of piracy, armed robbery and such other challenges to maritime security.

21 The Singapore Information Fusion Centre's Role in Maritime Security, <https://maritime-executive.com/features/the-singapore-information-fusion-centre-s-role-in-maritime-security>

22 The Information Fusion Centre (IFC), <https://csoalliance.com/partners/the-information-fusion-centre-ifc-13>



Quad has also agreed to “harnessing commercially-available data using existing technologies. Because of its commercial origin, this data will be unclassified, allowing the Quad to provide it to a wide range of partners who wish to benefit”. Under the IPMDA, the Quad has begun to engage with commercial satellite based tracking services providing near real time data.

Then there is Pacific Fusion Centre (PFC) started in Canberra in 2019, later headquartered in 2021 in regional headquarters of the PFC in Port Vila, Vanuatu and one is based in the Solomon Islands, the Pacific Islands Forum Fisheries Agency. These two in the Pacific region will provide support under IMPDA. The IPMDA aims to collaborate activities of these fusion centers in order to enhance MDA in the wider Indo-Pacific region.

Also as the initiative moves forward, in future, it can collaborate with other fusion centre in region which are not covered under IPMDA yet including in Madagascar and Seychelles.<sup>23</sup>

## EXISTING AND EMERGING TECHNOLOGIES IN IPMDA

Under the initiative, Quad is willing to engage with commercial enterprise, and use data that is unclassified being collected by

existing technologies like radio frequency and transmission data collected through Automatic Identification System (AIS) aboard the ships operating in the ocean. AIS are a requirement by IMO for ships in international voyages over 300 tonnes. It is shipboard broadcast system that acts like a transponder, operating in the Very High Frequency (VHF) maritime band. It handles thousands of reports and updates as often as every two seconds and it ensures reliable ship-to-ship information.<sup>24</sup> It continuously transmits data about vessel speed, identity, course and helps in identifying ships, assisting in SAR and HADR operations and provide additional information to assist situational awareness.<sup>25</sup> IPMDA aims to track ‘dark shipping’<sup>26</sup> where the AIS transponders switch off intentionally or not functioning due to some reasons. Dark shipping strategy is used to avoid vessel tracking to undertake illegal activities such as

23 Indian Ocean Information Fusion Centers, [https://carnegieendowment.org/publications/interactive/indian-ocean-map/?data\\_id=dataSource\\_16-187fd0d1282-layer-33%3A5&page=Information-Fusion-Centers](https://carnegieendowment.org/publications/interactive/indian-ocean-map/?data_id=dataSource_16-187fd0d1282-layer-33%3A5&page=Information-Fusion-Centers)

24 Automatic Identification System (AIS) Overview, <https://www.navcen.uscg.gov/automatic-identification-system-overview#:~:text=The%20AIS%20is%20a%20shipboard,often%20as%20every%20two%20seconds.>

25 AIS (Automatic Identification System) overview, <https://shipping.nato.int/nsc/operations/news/2021/ais-automatic-identification-system-overview>

26 Assessing the Indo-Pacific Partnership for Maritime Domain Awareness, June 23, 2022, [https://www.delhipolicygroup.org/publication/policy-briefs/assessing-the-indo-pacific-partnership-for-maritime-domain-awareness.html#\\_ftnref8](https://www.delhipolicygroup.org/publication/policy-briefs/assessing-the-indo-pacific-partnership-for-maritime-domain-awareness.html#_ftnref8)

IPMDA is also open to adapt and utilize new technologies in future so that it remains cutting edge. Therefore, it will be interesting to explore if the emerging technologies like AI, robotics, quantum, drones and hypersonics can be useful in some way.

illegal trade or trafficking.<sup>27</sup> Most of the IUU fishing activities in the region are undertaken when the vessel is operating in the dark.

Quad has also agreed to “harnessing commercially-available data using existing technologies. Because of its commercial origin, this data will be unclassified, allowing the Quad to provide it to a wide range of partners who wish to benefit”.<sup>28</sup> Under the IPMDA, the Quad has begun to engage with commercial satellite based tracking services providing near real time data. In one such development, the US Company HawkEye 360 Inc., one of the leading defense technology companies for space-based radio frequency data and analytics, announced that they will be working with Australian government as part of IPMDA in combating IUU Fishing. They will be providing data, analytics, and training to identify illicit maritime activity in the Pacific region. This will help track the activities that are not detectable by AIS.<sup>29</sup>

In addition to existing technologies, IPMDA is also open to adapt and utilize new technologies in future so that it remains cutting edge.<sup>30</sup> Therefore, it will be interesting to explore if the emerging technologies like AI, robotics, quantum, drones and hypersonics can be useful in some way.

## ROAD AHEAD

Although IPMDA looks very promising, it will take some time to fully operationalise the initiative. This has to do a lot with the geopolitical situation under which the initiative is performing. The four Quad countries are very much invested in the Quad and in the initiative but are also dealing with intense geopolitical situations in the region and in the world. The next Quad summit is likely to be held before the end of this year in New Delhi. This is a year of election in India and United States, so the governments are also preoccupied with the elections and that is one of the possible

27 Dark Shipping, <https://www.darkshipping.com/>

28 FACT SHEET: Quad Leaders’ Tokyo Summit 2022, March 23, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022/>

29 Hawkeye 360 Working With the Pacific Islands Forum Fisheries Agency for Greater Maritime Visibility in the Pacific Islands, July 6, 2023, <https://www.he360.com/hawkeye-360-working-with-the-pacific-islands-forum-fisheries-agency-for-greater-maritime-visibility-in-the-pacific-islands/>

30 FACT SHEET: Quad Leaders’ Tokyo Summit 2022, May 23, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-quad-leaders-tokyo-summit-2022/>

reasons why a formal announcement of the next Quad Summit has not been made yet. US Ambassador to India Eric Garcetti recently said that the Quad Summit “will take place right after the elections”, stressing that the Quad agenda would be “more productive” by the end of 2024.<sup>31</sup>

IPMDA highlighted shared economic and strategic objectives of the Quad partners in the Indo-Pacific in the wake of geopolitical tensions in the region. The global as also the regional strategic situation in very dynamic. Indo-Pacific at present is the centre point of global geopolitics. Intense US-China competition is being played out across the region in multiple fields in geopolitical, technical and economic domain. The US has made conscious efforts in recent years to make significant upgrades in its relationships in the region which is visible in its engagement with South Korea, Japan, and Vietnam and also with Pacific islands. China’s disregard to international norms and rules, unilateral actions to challenge the status quo especially in the South China Sea, keeps the regional tension unabated with frequent skirmishes. Security situation in Taiwan Strait is also very uncertain. Recently, also an incident was reported where Chinese coastguards were firing water cannons on Philippines’ vessels. There is great power competition brewing in the South Pacific,

with China’s aggressive posturing and deeper inroads causing palpable shift in the regional balance of power. In addition, situations outside the region, including the crisis in Ukraine and Israel-Hamas conflict have resulted in a volatile situation. Ukraine crisis has been a major blow to the global economy, pushing inflation further, disrupted trade, supply chains, refugee crisis, food and energy security. An offshoot of the Israel-Hamas conflict situation was seen when Houthis rebel undertook series of attacks on vessels passing through the Red Sea. The situation once again showed the vulnerability of maritime trade routes and also the significance of cooperative efforts to deal with such challenges and the need for enhanced MDA capacity.

IPMDA is a step in right direction. It can prove to be an important restraint<sup>32</sup> against the multiplicity of challenges to maritime security in the region. IUU Fishing is an important area where IPMDA may prove to be a deterrent in the long run. IUU fishing is the biggest threat to the sustainability of marine fisheries and has implications for the food security of the region. China has been one of the worst offenders on various parameters of IUU fishing in the region. Small island countries in the region are majorly affected by such illegal activities by Chinese fishing vessels operating in their EEZ’s.

31 Quad summit more likely after the U.S. elections in November: American envoy Garcetti, February 6, 2024, <https://www.thehindu.com/news/national/quad-summit-more-likely-after-the-us-elections-in-november-american-envoy-garcetti/article67815260.ece>

32 The Indo-Pacific partnership for maritime domain awareness, 23 June 2023, <https://pacforum.org/publications/pacnet-48-a-work-in-progress-the-indo-pacific-partnership-for-maritime-domain-awareness/>

The four Quad countries, US, Japan, India, and Australia are major maritime powers in the Indo-Pacific Region with well endowed MDA capacities. Indian Navy already provides assistance and training programs to further cooperation with regional navies in the field of MDA. Recently there were episodes of pirate attacks on foreign fishing vessels in the region, which were thwarted by the efforts of the Indian Navy.

Churning the water on the ocean in a sustainable manner, for successfully utilizing blue economy capacities and management of ocean, requires enhanced MDA capacities. As

former Navy Chief Admiral Hari Kumar said IPMDA “is a testament to our commitment to a free, open, inclusive and rules-based Indo-Pacific,”... building networks and partnerships would be instrumental in ensuring the security and stability of the region.”<sup>33</sup> Through the IPMDA, Quad is trying to forge a common response to global and regional needs, as part of Quad’s practical and positive agenda. If developed effectively it will contribute towards not only free, open, resilient and inclusive Indo-Pacific but will also contribute to fulfilling the larger aim of the Quad i.e. to be a ‘force for global good’.<sup>34</sup>

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33 Quad’s IPMDA a proof of our commitment to a free, open, inclusive Indo-Pacific: Navy Chief, 6 November 2023, <https://www.thehindu.com/news/national/quads-ipmda-a-proof-of-our-commitment-to-a-free-open-inclusive-indo-pacific-navy-chief/article67500745.ece>

34 PM Modi’s remarks at Quad Summit in Tokyo, Japan, May 24, 2022, <https://www.narendramodi.in/opening-remarks-by-prime-minister-shri-narendra-modi-at-the-quad-leaders-summit-561972>



# INDO-PACIFIC ECONOMIC FRAMEWORK FOR PROSPERITY

*Stuti Banerjee*



The initiative seeks to advance resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness for the 14 IPEF economies through four pillars covering (i) Fair and Resilient Trade, (ii) Supply Chains, (iii) Clean Economy and (iv) Fair Economy respectively. These allow the IPEF to link seamlessly with corresponding areas of cooperation within the Quad such as in norm setting for critical and emerging technologies, contributing to regional infrastructure, implementing a clean and green agenda, and developing resilient supply chains. With significant overlap in their agenda, the Quad has emerged at the core of the Indo-Pacific construct addressing both security and economic dimensions, while the IPEF is focused on the economic content.





Ahead of the Quad Summit in Tokyo, in May 2022, the United States launched the Indo-Pacific Economic Framework for Prosperity (IPEF) with Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, and Vietnam. The initiative is an effort by the United States to deepen its economic engagement with the region and build new structures of regional cooperation while seeking to strengthen its political engagements in the region. It has become increasingly clear that apart from the technological developments and defence postures, it is the developments in the economic sectors that will guide the geopolitics of the Indo Pacific.

The pandemic along with the impact of the global economic slowdown and the ongoing turmoil in the international arena has made the United States aware of the need to strengthen its Indo-Pacific Strategy across all domains. It is doing so by engaging with its allies and partners in such areas as trade, technology, rule-making, and supply chain reshaping. Partnerships such as the Quad and the IPEF rather than being aimed as strategic containment of any one country seek to provide an alternative set of security and economic frameworks of cooperation which allow the Indo-Pacific nations space to manoeuvre in the backdrop of current geopolitical shifts. The initiative seeks to advance resilience, sustainability, inclusiveness, economic growth, fairness, and

competitiveness for the 14 IPEF economies through four pillars covering (i) Fair and Resilient Trade, (ii) Supply Chains, (iii) Clean Economy and (iv) Fair Economy respectively. These allow the IPEF to link seamlessly with corresponding areas of cooperation within the Quad such as in norm setting for emerging and critical technologies, contributing to regional infrastructure, implementing a clean and green agenda, and developing resilient supply chains. With significant overlap in their agenda, the Quad has emerged at the core of the Indo-Pacific construct addressing both security and economic dimensions, while the IPEF is focused on the economic content.

## **INDO-PACIFIC REGION AND THE GLOBAL ECONOMY: THREE KEY TRENDS**

There an observed shift in the world economic centre of gravity to the Indo-Pacific region with security implications going far beyond the immediate neighbourhood. The region is at the heart of international trade, particularly maritime trade that passes through key straits such as Malacca, Taiwan, Hormuz and Bab-el-Mandeb. Eight of the world's top 20 exporters are in the Indo-Pacific (China, Japan, India, South Korea, Singapore, Taiwan, Vietnam and Australia). Close to 50% of the global maritime trade and 40% of oil passes through Indo-Pacific region and for India that includes 90% of its trade and 80% of its critical freight- Coal, Petroleum and Gas, Iron Ore, Fertilizers etc. This region, home to 64%

of the global population, contributes 62% of the Global GDP.<sup>35</sup> The economic importance of the region and the economic opportunities its present to the rest of the world makes it of utmost strategic value ensuring that it remains open, free and inclusive.

A second trend in the region is the aggressive rise of the China and its strategy of economic coercion. This has been exemplified by Beijing's campaign against Korean economic interests in 2017 following the deployment of the Terminal High-Altitude Area Defence (THAAD), and by China's pressure on Australia in 2020 in response to Canberra's request to investigate the origins of the COVID-19 pandemic.<sup>36</sup> This has implications for the ability of the countries to counter such strategy and for regional stability. While the United States economic engagement in the Indo-Pacific has increased in the recent past, the region's reliance on China has also increased in the economic sector, with China now a leading partner to several Indo-Pacific nations. The Indo-Pacific has also become home to two mega-trade arrangements, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which encompasses 11 countries<sup>37</sup> on both sides of

the Pacific, and the Regional Comprehensive Economic Partnership (RCEP), which covers the 10 ASEAN member-states and five dialogue partners (China, Japan, South Korea, Australia and New Zealand). Neither of the arrangements includes the United States while China has requested to join the CPTPP. The challenge before the countries of the region is to engage with China while simultaneously dealing with its aggression and coercion. "IPEF partners have welcomed U.S. reengagement in the region and see IPEF's potential benefits to include provisions on trade facilitation, digital trade, and support for investments and public-private partnerships in key sectors."<sup>38</sup> The IPEF provides the United States with the means to engage economically in a region outside of the Americas while ensuring that this engagement does not face the extended negotiations or other shortcomings faced by regular Free Trade Agreements (FTA).

A third trend is that the Indo-Pacific region is caught in the middle of the increased rivalry between the United States and China. The rivalry is not new but has escalated in recent years and this has amplified the geopolitical challenges facing the region. In the wake

35 Press Information Bureau, "Text of Vice-President's address at the 2023 edition of the "Indo-Pacific Regional Dialogue, 15 Nov. 2023" <https://pib.gov.in/PressReleasePage.aspx?PRID=1977077#:~:text=50%25%20of%20the%20Global%20Trade,%2C%20Iron%20Ore%2C%20Fertilizers%20etc>, Accessed on 09 April 2024

36 Françoise Nicolas, "The regional economic order: four scenarios," <https://futureshub.anu.edu.au/the-regional-economic-order-four-scenarios/>, Accessed on 09 April 2024.

37 Australia, Canada, Japan, Mexico, New Zealand, Singapore, Vietnam, Peru, Malaysia, Chile, Brunei Darussalam. The United Kingdom accession to the CPTPP was accepted in 2023 and it will become a full member in 2024 upon the passage of implementing legislation by the U.K. Parliament and after applicable legal procedures have been adopted in the other 11 members and notified to the Depositary (New Zealand).

38 Congressional Research Service, "Indo-Pacific Economic Framework for Prosperity," 14 December 2023, <https://sgp.fas.org/crs/row/IF12373.pdf>, Accessed on 15 March 2024



of the Sino-American trade war launched by former President Donald Trump, the decoupling of the two countries' technology sectors has been gaining ground. This United States federal government has been encouraging its multinational corporations to move supply chains away from China and/or banning the exports of key components and products to China. Thus far, the change in Administration has not affected this trend and Washington is encouraging partner nations and allies to follow its example. To this effect it is supporting initiatives such as the Supply Chain Initiatives launched by Australia, India and Japan in 2021 and also the IPEF Supply Chain Initiative that came into force in February 2024. The IPEF Supply Chain Initiative aims to increase the resilience, efficiency, productivity, sustainability, transparency, diversification, security, fairness, and inclusivity of supply chains through both collaborative activities and individual actions taken by each IPEF partner.<sup>39</sup> Through the initiatives the partner nations propose to establish three IPEF supply chain bodies- (i) The IPEF Supply Chain Council for the partners to enhance the resilience of IPEF partner's supply chains, including through diversification of sources, infrastructure and workforce development, enhanced logistics connectivity, business matching, joint research and development,

and trade facilitation. (ii) The IPEF Supply Chain Crisis Response Network would establish an emergency communications channel for the IPEF partners to seek support during a supply chain disruption and to facilitate information sharing and collaboration during a crisis, enabling a faster and more effective response that minimizes negative effects on their economies. And lastly (iii) the IPEF Labor Rights Advisory Board consisting of government, worker, and employer representatives, as well as a subcommittee composed of government representatives, to support the IPEF partners' promotion of labour rights in their supply chains, promotion of sustainable trade and investment, and facilitation of opportunities for investment in businesses that respect labour rights.<sup>40</sup>

As the United States increases its engagements in the Indo-Pacific, the Quad and the IPEF have emerged as two pillars of the broader American Indo-Pacific Strategy.

## THE IPEF: POTENTIAL AND CHALLENGES

The IPEF has been projected as an opportunity to re-engage and reassert the United States role in establishing economic and trade related rules with partners in the region. It is also the first initiative of the United States

39 US Department of Commerce, "U.S. Department of Commerce Announces Upcoming Entry into Force of the IPEF Supply Chain Agreement 24 February 2024," Accessed on 09 April 2024

40 US Embassy and Consulate, Indonesia, "Press Statement on the Substantial Conclusion of IPEF Supply Chain Agreement Negotiations," <https://id.usembassy.gov/press-statement-on-the-substantial-conclusion-of-ipef-supply-chain-agreement-negotiations/>, Accessed on 09 April 2024

in the region after the withdrawal from the Trans-Pacific Partnership (TPP) in 2017 and subsequently not being part of the CPTPP. It needs to be pointed that along with the United States, India is also not part of the CPTPP and the RCEP but the two nation's commitment to the Quad and the IPEF reflects the importance they attach to collaboration in the Indo-Pacific to build a rules based economic framework for the region. One has to keep in mind the fact that the IPEF is not a free trade agreement; it does not include negotiations for reciprocal tariff cuts, market access, binding commitments on other economic issues. Instead it is a collaborative approach to establish common enforceable rules and operable standards that would enable the grouping to achieve its larger objectives for all. The IPEF members decide to choose the commitments they would like to assume, an approach similar to the APEC which is also not a trade body.

The IPEF is a distinctly Indo-Pacific body and, as has been pointed before, its pillars correspond to the Quad's agenda. Accounting for two-fifth of the global gross domestic product, the IPEF is a formidable economic entity. It has four of the world's top 10 economies – the United States, Japan, India and Korea. Australia, Japan, Korea, New Zealand and the United States are members of the Organisation for Economic Co-operation and Development (OECD). The high-income

membership of the IPEF is augmented by non-OECD high-income economies like Singapore and Brunei. The long-term economic potential and prospects of the group is enhanced by major emerging market economies – India, Indonesia, Malaysia, Philippines, Thailand and Vietnam. Except for Cambodia, Laos, and Myanmar, the rest of the economies of the ASEAN have joined the IPEF highlighting the inclusive nature of the IPEF and also the potential long-term economic and strategic benefits in joining the IPEF.<sup>41</sup>

In November 2023, the United States announced that the IPEF partners had agreed to establish an IPEF Investment Accelerator to strengthen the investment climate and promote high-standard investment outcomes. The partners also agreed to the IPEF Critical Minerals Dialogue that the United States hopes will support U.S. expansion and development of full critical mineral supply chain – from mining to processing – through efforts to strengthen the competitiveness and diversification of IPEF critical mineral supply chains. The third initiative announced looks to expand people-to-people ties, promote small business-to-small business matchmaking, facilitate connections among entrepreneurs, expand connectivity among civil society groups, and facilitate scientific, academic, and other research collaboration to help ensure the benefits of IPEF reach all segments of society and to increase diverse

41 Amitendu Palit, "The Indo-Pacific Economic Framework: An Inclusive Quad-plus Initiative," <https://www.isas.nus.edu.sg/papers/the-indo-pacific-economic-framework-an-inclusive-quad-plus-initiative/>, Accessed on 09 April 2024.

stakeholder participation in the advancement of IPEF's initiatives going forward.<sup>42</sup> Taking these initiatives forward the IPEF Clean Economy Investor Forum will be hosted by Singapore on June 5-6, 2024 to facilitate investment in climate related projects in the Indo-Pacific.

While the IPEF's focus on a flexible approach to regional rulemaking is distinctly novel, it remains to be seen how this approach might work. The Biden Administration has not committed to submitting the executive agreements which have resulted in the formation of the IPEF for Congressional approval. Given Congress's constitutional authority to regulate foreign commerce such as FTA, the negotiating approach has raised concerns for Members in both the House and Senate over Congress's role in IPEF. While the current pathway allows the Biden Administration to overcome possible political obstacles that agreements like the Trans-Pacific Partnership faced before Congress, it also means that the Administration cannot offer increased market access or any other concessions that would require changes to U.S. law. As the Executive Order is not a law passed by the US Congress, it has led to concerns among partners that the framework could be vulnerable to U.S. domestic politics or that a future administration may roll back or abandon the framework. Given the current

political climate in Washington and past experiences, IPEF partners are aware that questions on the durability of the IPEF can be answered only after the U.S. elections in November 2024.

The other challenge for the IPEF is the fact that as the initiative is driven by the United States, it features prominently in the initiative. American core interests such as the objective of institutionalising labour standards across the Indo-Pacific, standards for environmental sustainability and decarbonisation, digital economy, competition policy, and tax practices, prominently feature in IPEF consultations. This poses challenges due to the different domestic standards among the partner nations as well as the fact that partner nations may not be willing to accept American standards on politically sensitive topics such as labour, environment, etc. Several members have comparative advantages in production that are derived from their abilities to use domestic labour more efficiently than others. Agreeing on certain labour standards, particularly those that might entail pegging the cost of domestic labour on par with U.S. labour can imply these countries losing out on productivity and efficiency. Similarly, standards proposed or environmental sustainability might be costly and inefficient or many developing

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42 The White House, "FACT SHEET: In San Francisco, President Biden and 13 Partners Announce Key Outcomes to Fuel Inclusive, Sustainable Growth as Part of the Indo-Pacific Economic Framework for Prosperity," Accessed on 15 April 2024

country members of the IPEF to adopt.<sup>43</sup> The other major challenge before the IPEF is the pronounced economic heterogeneity among member nations makes negotiating common objective time consuming. For example, while all the countries in the region want greater digital trade, the region is not a monolith when it comes to digital trade. Each country is at a different stage of digital development and has differing positions on the models of data governance and other key standards. The countries have different capabilities and regulations. The different national capabilities along with the complexities of national and regional politics will be additional challenges for the IPEF as it grows in the future. The positive is that all countries want to join the IPEF and contribute constructively to the development of standards.

## INDIA AND IPEF

The IPEF provides India with an opportunity to collaborate with fourteen partner countries on sustainable economic growth and development. Replying to a question raised in the Rajya Sabha, Smt. Anupriya Patel, Minister of State for Commerce and Industry, stated, “... IPEF aims to provide a durable and forward-looking cooperative platform with

significant potential to deepen and expand trade and investment linkages in the Indo-Pacific region, which is important for India from economic and strategic perspectives.”<sup>44</sup> Currently, India has joined Pillar II to IV on Supply Chains, Clean Economy and Fair Economy respectively, and is an observer under Pillar-I on Trade. “The agreements under the three Pillars, which India is party to, contain cooperative and collaborative provisions to enhance economic linkages and to leverage the existing complementary synergies between IPEF member countries.”<sup>45</sup>

As an IPEF partner, India aims to engage positively with “...IPEF partners to realize tangible and beneficial outcomes, including deeper integration of India in the global supply and value chains particularly of Indian MSMEs; facilitation of inward foreign investment, particularly in the clean economy domain; enhancement of investor confidence by providing a transparent and predictable ecosystem for businesses.”<sup>46</sup> The IPEF is viewed to positively contribute to Indian economic and technological growth as well as for its security. As one of the fastest growing economies and with aims to becoming a developed nation by 2047, the IPEF provides an opportunity for India to

43 Amitendu Palit and Ramita Iyer (edited) “The Making of the IndoPacific Economic Framework for Prosperity (IPEF),” Konrad-Adenauer, Regional Economic Programme Asia (SOPAS) and the Institute of South Asian Studies - National University of Singapore (ISAS-NUS) 2023, <https://kas-japan.or.jp/wp-content/uploads/2023/11/The-Making-of-the-Indo-Pacific-Economic-Framework-for-Prosperity-IPEF.pdf>, Accessed on 15 April 2024.

44 ----, “Rajya Sabha Unstarred Question No. 50 Answered On 02/02/2024,” <https://pqars.nic.in/annex/263/AU50.pdf>, Accessed pm 22 May 2024

45 Ibid

46 Ibid

expand its economic cooperation with the Indo-Pacific region. By joining the IPEF, India could explore and be transformed by the economic potential associated with digital economy. Under the IPEF, India has signed the agreement to fortify global supply chains and enhance adaptability, sustainability and stability. India aims to become the global sourcing hub for IPEF partners by highlighting the advantages of shifting production of key goods/critical sectors to India. This will also benefit domestic manufacturing capabilities and enhance investment in key sectors such as logistics and infrastructure. Benefits envisaged include deeper integration of India in global value chains, support to MSMEs, and the creation of a seamless regional trade ecosystem that would facilitate the flow of Indian products.

India also has an ambitious target for “green economy” and, in the sixth round of IPEF talks in Malaysia (2023), India has proposed a collaborative effort focused on bio-fuels within the framework. The aim is to increase energy security and affordability along with access to sustainable bio-fuels. For the same, India has called for enhanced access to clean energy technologies joint ventures and collaborative finance under clean energy (Pillar III) among the partners, with the objective of reducing greenhouse gas emissions and enhancing energy security.

The IPEF provides India with the opportunity to link its development goals and support its economy through enhanced cooperation with

hi-tech partners such as the United Kingdom, Israel, etc. Deepening such engagements will strengthen Indian crisis management skills and responses that will protect the Indian economy. Working with like-minded countries in a rules-based order strengthens Indian competitiveness.

## CONCLUSION

The IPEF adds to the Quad’s economic strengthens. The framework displays a desire by the Quad members in making the forum ‘open and inclusive’ by inviting members from the Indo-Pacific and living up to the notion of a free, open and inclusive Indo-Pacific. The non-Quad membership of the IPEF indicates that the Quad has not hesitated in embracing a much larger regional community. With many more countries expected to join the initiative in future, it will boost the IPEF’s chances of setting meaningful trade and business rules and increase its political acceptance among the members and the international community. However, it needs to be pointed that the IPEF negotiations are ongoing and the outcomes will be visible in the near future. The negotiations on three of the four pillars, that is, supply chains, clean economy and fair trade have proceeded smoothly while negotiations continue on the fair and resilient trade pillar. The U.S. Department of Commerce led the three pillars on supply chains, clean economy, and fair economy and announced a “substantial conclusion” of the agreement at APEC Summit in 2023. The fair trade pillar negotiated by

the U.S. Trade Representative was accepted to face challenges. The pillar does not focus on regular trade issues but on labour, trade facilitation, regulatory practices, agriculture, and the digital economy with legally binding commitments, making it more difficult to negotiate. Digital trade also proved to be an obstacle for the United States, with concerns expressed over Big Tech's influence over cross-border data flows, data localization, and source code. The fact that the U.S. Congress is not involved in the discussions on the trade pillar has also led to complications on the discussion. Given these circumstances, the Biden Administration would need to ensure that the framework continues to maintain its progress beyond the regular political cycles in the United States.

The IPEF is an important test case. For the United States it showcases its economic

commitment to the Indo-Pacific. Partner countries in turn are negotiating with the United States to ensure that the America continues to play an active role in the region. The IPEF also provides these countries with an opportunity to develop the initiative through their inputs and guide its approach in a collaborative manner making them all stakeholders in the overarching architecture that is developing. The IPEF is not a free trade agreement; rather it is an economic framework of cooperation without tariffs which allows for more flexibility than in traditional trade frameworks. It provides partners an opportunity to participate in the development of the IPEF's commitments in new areas that have not been part of previous trade agreements. If the IPEF becomes a success it will lead to more such framework agreements in the future as a preferred means to achieve collective goals.





# UNDERSTANDING QUAD THROUGH THE LENS OF CLIMATE CHANGE

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The Quad's focus on climate can be gauged from the Quad Leader's Joint Statement (2023) which points to climate change as "the single greatest threat to the livelihoods, security and wellbeing of the peoples of the Pacific..." As climate change becomes a priority area for the Quad, this paper will highlight the way the Quad is shaping climate related strategies.





The Quad has evolved through two distinct phases from its origins in humanitarian cooperation to its current agenda of broader diplomatic endeavours to defend international norms and address contemporary challenges. The Quad has placed strong emphasis on the need to work with partners in the Indo-Pacific for global goods. By focusing on the region's needs, the Quad wants to shape the rules and norms and standards that will guide the region in the future. One such pressing concern that connects the four Quad countries and their partners in the Indo-Pacific is cooperation in addressing the climate crisis.

Climate change is increasingly being recognized as a 'threat multiplier'. It exacerbates various interconnected challenges such as migration, resource scarcity such as water, urbanisation, human health, livelihoods, and agricultural productivity. With the socio-political, economic and security dimensions of climate change becoming apparent, there is a recognition among the Quad members to enhance cooperation on disaster relief and climate change mitigation policies. The Indo-Pacific region is particularly vulnerable, facing imminent threats from climate change that adversely affect ecosystems and change biodiversity. Climate change also impacts the question of livelihood of the people. For example, in high mountain regions like the Himalayas, climate change leads to increasing

temperatures which adversely affect the ecosystems and resources that mountain people depend on for their livelihoods. Similarly, rising temperature of sea water adversely affects coastal ecosystems such as mangroves and effect coastal communities that are dependent on maritime resources for their livelihood. The rapid melting of glaciers are a cause of concern with respect to water security.

The Quad's focus on climate can be gauged from the Quad Leader's Joint Statement (2023) which points to climate change as "the single greatest threat to the livelihoods, security and wellbeing of the peoples of the Pacific..."<sup>47</sup> As climate change becomes a priority area for the Quad, this paper will highlight the way the Quad is shaping climate related strategies. The paper also attempts to make some recommendations for future cooperation which the Quad could explore with its Indo-Pacific partners going forward.

## CLIMATE CHANGE-INDUCED CHALLENGES FACED BY THE QUAD COUNTRIES

Changes in the earth's climate have differing impact on different regions of the world. While some may get warmer, others may experience extreme cold, and some areas may also experience droughts or flooding due to excessive rains. Countries face different climate related challenges depending on

<sup>47</sup> The White House, "Quad Leaders' Joint Statement 20 May 2023," <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-joint-statement/>, Accessed on 22 April 2024

various factors such as distance from the sea, topography, equator, etc.<sup>48</sup> While the Quad is working together to address climate change, they face their respective climate challenges which are outlined below.

## Australia

Australia is witnessing the impact of extreme weather conditions, including increasing heat levels, droughts, wildfires, floods, and marine ecosystem damage.<sup>49</sup> The worst naturally occurring threat in Australia is heat waves and it is responsible for more deaths than all other natural disasters combined. These are predicted to become more frequent and severe as a result of climate change. This will increase the number of heat-related deaths and damage to infrastructure. People especially vulnerable to heat waves include the old, the young, and those with chronic illnesses. Additionally, the frequency of marine heat waves is rising, damaging aquatic ecosystems such as coral reefs and kelp forests.<sup>50</sup>

Furthermore, the increasing frequency of large-scale wildfires also contributes to the challenges. The exceptional severity and scope

of the 2019–2020 bushfires caused significant harm to infrastructure, humans, animals, and the environment.

## India

The 2022 Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report on the Climate Vulnerability Index (CVI) has identified Asia as most vulnerable to climate change especially on extreme heat, flooding, sea level rise, and erratic rainfall.<sup>51</sup> As a result, India is likely to experience extreme weather events in the future. India confronts considerable risks associated with climate change owing to its differentiated temperature zones, geography, and ecosystems. These risks expose vulnerable communities to various risks, including disease outbreaks, disasters, loss of livelihoods, crop failures, poverty, and relocation. These dangers aggravate already-existing problems by endangering food security and biodiversity.<sup>52</sup> The most pressing challenges include increasing heat, inconsistent rainfall, and energy security.

According to a report published by the World Bank in 2018, South Asian megacities—such

48 UK Environmental Change Network. “3.1 Factors affecting climate”, <https://ecn.ac.uk/what-we-do/education/tutorials-weather-climate/climate/factors-affecting-climate>, Accessed 14 April 2024

49 Australian Museum. “Impacts of Climate Change,” <https://australian.museum/learn/climate-change/climate-change-impacts/>, Accessed 14 April 2024.

50 Ibid.

51 Press Information Bureau, Ministry of Environment, Forestry and Climate Change, Government of India, “IPCC Report on Climate Change 2022,” <https://pib.gov.in/PressReleasePage.aspx?PRID=1807725>, Accessed on 07 May 2024.

52 Sonali Sharma, “India's Climate Change Policy: Challenges and Recommendation”, Indian School of Public Policy. <https://www.ispp.org.in/indias-climate-change-policy-challenges-and-recommendations/>, Accessed on 15 April 2024

as Chennai, Kolkata, and Mumbai—are often said to be climate hotspots because they are vulnerable to extreme events and sea-level rise, including coastal flooding and storm surges.<sup>53</sup> Furthermore, the effects of climate change on water resources add more difficulties for India’s two primary energy sources: thermal and hydropower. The energy generation through these sources depends on sufficient water supplies to operate well, especially thermal power plants, whose cooling systems need continuous water supply.<sup>54</sup> Problems with water security will in the future also affect the agricultural sector which is dependent on the monsoons. To address its energy demands which are going to rise with rising population and rapid urbanisation, India is working to increase the share of renewables in the energy mix.

## Japan

Japan’s large latitudinal extent and susceptibility to various wind patterns and ocean impacts result in its various climate conditions, ranging from subtropical to sub-polar zones. Coastal areas remain highly vulnerable to rising sea levels, as data indicate an average annual increase of about 2.8 millimetres in the past three decades. The danger for coastal communities has increased

because of the effects of stronger waves and rising sea levels caused by global warming.<sup>55</sup> The pattern and frequency of rainfall in Japan significantly impact water resources as higher temperatures and varied precipitation patterns influence the water cycle. These irregularities in rainfall distribution cause snow and ice cover alterations, affect groundwater storage, and lead to unusual frequency of floods and droughts.<sup>56</sup>

The country’s energy future depends on its efforts to mitigate climate change. Present pledges, however, call for a 26% reduction in emissions by 2030, indicating a near-term continuation of the use of fossil fuels. A shift towards nuclear and renewable energy is anticipated in the second half of the century, which might help reduce GHG emissions.<sup>57</sup>

## United States of America

The United States is experiencing a rise in both the magnitude and frequency of extreme weather events due to climate change, which has an adverse impact on multiple regions. Rising sea levels, increased frequency and severity of hurricanes and storms and more frequent heat waves are the cause of wildfires that are detrimental to vulnerable communities and low income

53 Muthukumara Mani etc, “South Asia’s Hotspots,” The World Bank 2018, <https://openknowledge.worldbank.org/server/api/core/bitstreams/15c3d2db-33f2-50a9-a011-3db01e57437d/content>, Accessed on 07 May 2024.

54 World Bank. India: Climate Change Impacts 2013. World Bank. <https://www.worldbank.org/en/news/feature/2013/06/19/india-climate-change-impacts>, Accessed on 15 April 2024

55 The Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici (Fondazione CMCC), “Japan. G20 Climate Risk Atlas,” <https://www.g20climaterisks.org/japan/>, Accessed on 16 April 2024

56 Ibid.

57 Ibid.

Over the years, the Quad has made sustained efforts to address the challenges related to climate change. In its first effort, the Quad established the Climate Working Group (CWG) in 2021. The CWG was introduced to encourage collaborative efforts to work on climate mitigation, adaptation, resilience building, capacity building, and climate finance, along with streamlining actions at the domestic, international, and regional levels to implement the Paris Agreement on Climate Change efficiently.

households.<sup>58</sup> In the Northwest, increased temperatures cause glacier melting and rising sea levels, which endangers the ecosystems, industry, infrastructure, and human health and boosts the risk of flooding, wildfires, and other climate-related disasters. This negatively affects ecosystems, fisheries, and vital infrastructure, and also shortens snowfall seasons and reduces snowpack. The rise in warming and thawing permafrost consequently increases health disparities and threatens the distinctive way of life of indigenous communities that are interconnected with the land and the weather patterns.<sup>59</sup>

From the above it can be safely said that the four nations are facing similar climate change challenges, however, as a result of their differing socioeconomic situations, geographical location they are likely to be

impacted differently. The Quad can look at these differing experiences and the expertise they are building to share their knowledge and provide solutions to this complex global issue.

## QUAD'S RESPONSE TO CLIMATE CHANGE

The Quad has acknowledged the pressing need to address climate change. The 2021 Quad Leaders Joint Statement stated that, “We have joined forces to tackle the climate crisis, which must be addressed with the urgency it demands.” The statement further outlined the three thematic areas of its work which included, “(i) climate ambition, (ii) clean-energy innovation and deployment, and (iii) climate adaptation, resilience and preparedness.”<sup>60</sup> The urgent need to address climate change was re-emphasised

58 The White House. “Fact Sheet: Fifth National Climate Assessment Details Impacts of Climate Change on Regions Across the United States 09 November 2023,” <https://www.whitehouse.gov/ostp/news-updates/2023/11/09/fact-sheet-fifth-national-climate-assessment-details-impacts-of-climate-change-on-regions-across-the-united-states/>, Accessed on 16 April 2024

59 Ibid.

60 The Ministry of External Affairs, Government of India, “Joint Statement of Quad Leaders 21 Sept. 2021,” <https://www.mea.gov.in/bilateral-documents.htm?dtl/34318/joint+statement+from+quad+leaders>, Accessed on 22 April 2024

in the 2022 and the 2023 Quad Leader's Joint Statements, which acknowledged that the climate crisis presents significant environmental and socio-economic challenges to the member countries and the region.

Over the years, the Quad has made sustained efforts to address the challenges related to climate change. In its first effort, the Quad established the Climate Working Group (CWG) in 2021. The CWG was introduced to encourage collaborative efforts to work on climate mitigation, adaptation, resilience building, capacity building, and climate finance, along with streamlining actions at the domestic, international, and regional levels to implement the Paris Agreement on Climate Change efficiently.<sup>61</sup> The CWG has three tenets: climate ambition, clean energy, and adaptation or resilience. Through the CWG, the member countries collaborate on several major initiatives, including improving clean energy supply chains for enhanced energy security, disaster risk reduction and resilience building, facilitating green shipping networks, and setting up a robust climate information exchange system.<sup>62</sup> However, to further improve the CWG's work efficiency and to make cooperation on such initiatives systematic and tangible, the Quad launched the Quad Climate Change Adaptation and

Mitigation Package (Q-CHAMP) in 2022 during their second in-person leaders meeting held in Tokyo.

## Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP)

The Q-CHAMP is the Quad's primary initiative to work together to address climate change and clean energy cooperation. The initiative includes the ongoing work being done under the CWG and expanding the scope of their individual climate action programs in support of climate action between the four nations as well the larger Indo Pacific region. The initiative has identified two themes for collaborations, mitigation and adaptation/resilience.<sup>63</sup> Within these two themes the Q-CHAMP is engaged in a number of programmes focused on different areas.

### Mitigation

Under this theme, the Quad works to reduce the severity and pace of climate change-induced environmental degradation and adopts measures to limit anthropogenic actions that lead to increased carbon emissions. Working together within the Q-CHAMP, the Quad has identified areas for collaboration of which a few are highlighted below.

61 A. Roy, "Climate Action and the Quad", <https://www.orfonline.org/expert-speak/climate-action-and-the-quad>, Accessed on 11 April 2024

62 Ministry of Foreign Affairs, Government of Japan, "Quad Cooperation in Climate Change and launch of the Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP)," <https://www.mofa.go.jp/files/100348057.pdf>, Accessed on 19 April 2024.

63 Ibid.



## *Green Shipping and Ports*

The Quad countries, which have some of the biggest ports globally, serve as vital centres for maritime trade and therefore, are uniquely positioned to deploy clean-bunkering fuels and green-port infrastructure on a large scale.<sup>64</sup> Yokohama, Mumbai Port Trust, Sydney (Botany), and Los Angeles are the four initial “ports of ambition” that comprise the Quad Shipping Task Force.<sup>65</sup> The Quad partners seek to foster green shipping corridors by 2025–2030 to lower GHG emissions across the shipping value chain. The four countries recognise the significance of pursuing decarbonisation efforts in the shipping and port sectors, the need to pursue green shipping and adopting sustainable practices throughout the industry.<sup>66</sup>

## *Clean Energy Supply Chains, Clean Hydrogen and Ammonia, and Methane Reduction*

The Quad has underscored the need for achieving its emission reduction goals by incorporating diverse and robust clean energy supply chains in the Indo-Pacific region and enhancing collective energy security and

transition to a net zero future. It launched the Clean Energy Supply Chains Diversification Programme, “to work together to identify and address gaps in our manufacturing capacity for critical clean energy materials and technologies.”<sup>67</sup> The program will fund feasibility studies, research, and development initiatives to help the region’s clean energy supply chains expand and diversify. The main focus of the projects will be on batteries, electrolysers, and solar photovoltaics (PV) supply chains.<sup>68</sup> The Quad also established the Joint Principles on Clean Energy Supply Chains in the Indo-Pacific (2023). The six principles outline the need to diversify clean energy supply chains across the region by expanding the manufacturing of clean energy technologies, increasing demand, creating clean energy workforce, facilitate investments and inter-operability of technical standards, promote sustainable development and encourage companies to adopt decarbonisation solutions.<sup>69</sup>

As part of the Quad’s clean energy strategy, it also established the Clean Hydrogen and Ammonia Partnership, wherein the Quad countries encourage actions to build

64 Department of the Prime Minister and Cabinet, Australian Government, “Climate | Quad Leaders' Summit 2023” <https://www.pmc.gov.au/resources/quad-leaders-summit-2023/climate>, Accessed on 19 April 2024

65 Op. Cit 17, Ministry of Foreign Affairs, Government of Japan

66 Op. Cit 19, Department of the Prime Minister and Cabinet, Australian Government

67 The White House, “Quad Leaders’ Summit Fact Sheet 20 May 2023,” <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-summit-fact-sheet/>, Accessed on 22 April 2024

68 Op. Cit 19, Department of the Prime Minister and Cabinet, Australian Government

69 The Ministry of External Affairs, “Quad Statement of Principles on Clean Energy Supply Chains in the Indo-Pacific May 20, 2023,” <https://www.mea.gov.in/outgoing-visit-detail.htm?36572/Quad+Statement+of+Principles+on+Clean+Energy+Supply+Chains+in+the+IndoPacific>, Accessed on 22 April 2024.



clean hydrogen and clean ammonia supply chains, considering the significance of these fuels as zero-emission alternatives. And is working together to build efficient methods for methane reduction and ensuring precise measurement, reporting, and verification (MRV) of methane emissions in the natural gas sector.<sup>70</sup>

### *Knowledge Sharing on Sub-national Climate Actions*

Understanding that climate change programmes need to factor in the ground realities, the Quad has acknowledged the need for cooperation with sub-national entities such as states and cities. It has established a dedicated workshop on Sub-national Climate Action to promote information exchange and give sub-national organisations a chance to cooperate and learn from one another. To this effect, the countries will make use of existing frameworks, such as the Global Sub-national Zero Carbon Promotion Initiative and the Zero Carbon City International Forum.<sup>71</sup>

### *Quad Mission for Paris Agreement Article 6 Implementation*

The Quad countries acknowledge the necessity of high-integrity carbon markets in the Indo-Pacific region to decrease carbon emissions and promote sustainable development. To efficiently reduce emissions and support environmental integrity aligned

with the goals of the Paris Agreement, the Quad countries aim to launch the Quad Mission for Article 6 Implementation in the future. The mission aims to boost the formation of transparent carbon markets with effective governance arrangements to facilitate the exchange of best practices and procedures. This capacity-building measure intends to foster an exchange of market development and supervision practices, as well as approval of mitigation outcomes and related adjustments.<sup>72</sup>

## **Adaptation/Resilience**

Under this theme, the Quad intends to adapt to the severity and frequency of climate change-induced natural disasters and adopt measures to build resilience against them and safeguard vulnerable countries of the region. With the Q-CHAMP, the Quad collaborates on the following areas and programs:

### *Critical Climate Information Sharing*

Climate change-induced natural disasters are occurring more often with the Pacific region nations being particularly affected. Q-CHAMP includes the Climate Information Services Taskforce to facilitate quick-access climate information services, share knowledge and gauge user needs across the region especially in the event of floods, droughts, and heat waves. The Taskforce has

70 Op. Cit 17, Ministry of Foreign Affairs, Government of Japan

71 Ibid.

72 Ibid.

been established with the aim to provide access to early warning systems and climate data and utilising the knowledge and experience of existing platforms such as the Weather Ready Pacific Initiative, which is led by the Pacific Island Nations, SERVIR and NASA-USAID partnership between the United States and leading geospatial organizations in Asia, Africa, and Latin America. Japan's Asia-Pacific Climate Change Adaptation Information Platform (AP-Plat), and Australia's Climate and Oceans Support Program in the Pacific (COSPPac).<sup>73</sup>

### *Disaster Risk Reduction*

The Quad countries will cooperate to enhance collaboration in disaster risk reduction against extreme weather occurrences through the India led initiative called the Coalition for Disaster Resilient Infrastructure (CDRI) and its Infrastructure for Resilient Island States (IRIS), launched at COP26.<sup>74</sup> The primary aim is to facilitate the resilient and sustainable development of both new and old infrastructure systems to mitigate the risks associated with climate change and natural disasters.<sup>75</sup>

### *Climate-Smart Agriculture*

Climate-smart agriculture (CSA) is an integrated approach to managing

landscapes—cropland, livestock, forests and fisheries--that address the interlinked challenges of food security and climate change. Understanding the importance of the agriculture sector in the broader climate action plans, the Quad are exploring means to bring innovation for climate smart and resilient agriculture. The Quad will collaborate with international initiatives such as AIM for Climate (Agriculture Innovation Mission for Climate)<sup>76</sup>, while working together on joint research and collaborations through research on climate smart agriculture and share the findings with other nations of the region.

### *Conservation Collaboration*

With the Quad essentially looking at the maritime domain, it is natural that apart from security perspective the Quad is also exploring means to preserve the maritime ecosystem such as coral reefs and mangroves. With huge coastlines and communities dependent on the coastal waters and sensitive ecosystems, the Quad is aware of the need for sustainable use of ocean and marine resources. The Quad is working with partner countries to respond to climate related events. The Quad aims to work with partners to strengthen existing mechanisms and collaborate on information

<sup>73</sup> Op .Cit 17, Ministry of Foreign Affairs, Government of Japan

<sup>74</sup> Ibid

<sup>75</sup> Op. Cit 19, Department of the Prime Minister and Cabinet, Australian Government.

<sup>76</sup> AIM for Climate is a global initiative to encourage investments in climate-smart agriculture and food systems innovation to accelerate climate action.

and knowledge sharing to tackle the challenges posed by climate change

## **WAY FORWARD**

The Quad has acknowledged the significance of climate change and the severity of the challenges that it poses. The Q-CHAMP, as a specified approach to address this issue, highlights the determination of Quad to address climate change mitigation and work towards making the Indo-Pacific region more resilient against natural disasters and calamities, which have become more frequent owing to the effects of climate change. While noting the progress Quad has made in addressing the issue of climate change and successfully initiating collaborative measures to tackle the challenges it poses, it still has a long way to go in achieving tangible outcomes from Q-CHAMP.

As has been outlined above, the Quad through its various initiatives remains committed to not only addressing the challenges posed by climate change but also understanding the science behind it through increased research collaborations. As the four nations work together they are also focused on joint cooperation on these initiatives with partners in the Indo-Pacific. The Quad has made it a priority to focus on working with three key sub-regions of the Indo-Pacific, that is,

Southeast Asia, the Pacific Island and the Indian Ocean Rim countries. This is important as they bring their own expertise to the Quad through the already established regional forums such as the ASEAN, the Pacific Islands Forum (PIF) and the Indian Ocean Rim Association (IORA). These regional forums and the Quad face shared challenges and this provides an opportunity for collaborative efforts to address climate change. The sectors in which the Quad is looking to engage with the ASEAN, the PIF, and the IORA are green shipping and ports, disaster risk management, exchanging climate information, and capacity building projects like the Coalition for Disaster Resilient Infrastructure (CDRI) and Infrastructure for Resilient Islands States (IRIS) initiative. The Quad can draw from the Association of Southeast Asian Nations' (ASEAN) Strategy for Carbon Neutrality which it has endorsed to efficiently capitalize on its potential to transition towards a greener economy by encouraging inclusive actions that complement the national policies of the member countries.<sup>77</sup> The Quad members might gain from applying similar strategies enabling minimal trade barriers for green products to give them a larger market and contribute towards minimizing the carbon footprint. The Quad's priorities on climate change are aligned with the PIF's 2050 Strategy for the Blue Pacific Continent

<sup>77</sup> The ASEAN. (2024, February 1). ASEAN Sets Course for a Carbon-Neutral Future - The ASEAN Magazine. The ASEAN Magazine. Retrieved May 27, 2024, from <https://theaseanmagazine.asean.org/article/asean-sets-course-for-a-carbon-neutral-future/>

(2050 Blue Pacific Strategy)<sup>78</sup>, a long-term road map for addressing key regional issues that was agreed upon by PIF members in 2022. The PIF is looking to build regional cooperation to build resilience to disasters and climate change and this aligns with the Quad's commitment to supporting and collaborating with regional institutions. The IORA Indian Ocean Blue Carbon Hub aims to build knowledge about and capacity in protecting and restoring blue carbon ecosystems throughout the Indian Ocean, in a way that enhances livelihoods, reduces risks from natural disasters, and helps mitigate climate change. The Quad can work with these regional forums to build action plans to address the impact of climate change especially on the maritime environment.

The Quad can also explore the possibility of partnering with other countries in the Indo-Pacific on climate related projects. For example, the archipelagic nations like Indonesia and the Philippines are facing challenges like sea-level rise, tsunamis, and other natural disasters. Quad countries have to be very active if they want to be among the first to reach out to these littoral nations in times of such crises. The Quad as a grouping can leverage its bilateral relations with countries of the region to work through the various Quad climate change initiatives and support clean energy transitions, development of blue economy, green shipping and development of sustainable infrastructure

such as ports. Building upon these existing mechanisms would enhance cooperation on climate change adaptation, community resilience and environmental protection, while providing opportunities to explore collaboration on renewable energy, electric vehicles and transport decarbonisation strategies. It will also help in regional connectivity, and wildlife conservation.

## CONCLUSION

In conclusion, climate change is taking a toll on the environment and people worldwide due to rising global temperatures, degrading environmental health, more frequent natural disasters, and rising sea levels. The Quad's focus on regional collaboration and stability proves to be very important in such a situation. Its initiatives to address the climate change-induced challenges faced by the countries of the Indo-Pacific region and work towards overcoming them could play a significant role in the years to come. Carefully curating and implementing initiatives such as the CWG and Q-CHAMP underscores the determination and potential of the Quad countries to effectively work towards climate mitigation and adaptation and build resilience against the disastrous effects of climate change. Hence, these measures taken by Quad represent a positive step towards tackling climate change and achieving the goals of the Paris Agreement to eventually build a safe and sustainable future.


78 The document is available at <https://forumsec.org/sites/default/files/2023-11/PIFS-2050-Strategy-Blue-Pacific-Continent-WEB-5Aug2022-1.pdf>



# QUAD: FOCUS ON CRITICAL AND EMERGING TECHNOLOGIES

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Technology transformations and advancement have become an essential feature of contemporary international politics, and critical and emerging technologies (CETs), a subset of advanced technologies, have become significant for national security and socio-economic development. At the March 2021 Quad Summit, the Quad members identified critical and emerging technologies as an important area of cooperation and set up the Critical and Emerging Technology Working Group.





The U.S. Secretary of State, Antony Blinken has called Indo-Pacific the region that will “shape this century”.<sup>79</sup> United States, India, Japan, and Australia converged in 2007, and subsequently evolved under different phases of the Quadrilateral Security Dialogue (QSD), commonly known as QUAD, (Quad 1.0, Quad 2.0, and now Quad 3.0) bringing together like-minded democracies to create a free and open Indo-Pacific. Over the years the key policy documents and principles produced by the Quad meetings have reflected that the grouping will invest in delivering on issues important to the Indo-Pacific region, advancing strategic interest, augmenting the technological capacity of its members, and not merely being defined as balancing China Act.

As the Quad explores cooperation in non-traditional security areas, critical and emerging technologies (CETs) has emerged as an important subject that bridges the gap between traditional and non-traditional security threats. At the first Summit meeting in 2021, the four nations have signalled their intention to increase engagement and agenda-shaping concerning critical and emerging technologies. During the meeting, the members established the Quad Critical and Emerging Technology Working Group to advance coordination on technical standards,

develop principles on technology design, and convene dialogue on critical technology supply chains.

In this light, the paper examines the Quad’s outlook on critical and emerging technologies and its potential for advancing shared interests and values in the region.

## **QUAD’S CORNER STONE: CRITICAL AND EMERGING TECHNOLOGIES (CETs)**

Technology transformations and advancement have become an essential feature of contemporary international politics, and critical and emerging technologies (CETs), a subset of advanced technologies, have become significant for national security and socio-economic development.<sup>80</sup> At the March 2021 Quad Summit, the Quad members identified critical and emerging technologies as an important area of cooperation and set up the Critical and Emerging Technology Working Group. While underlining the need for collaboration in the domain, the Summit highlighted that such technologies require governance and must be operated according to shared interests and values. For the same, the Working Group was assigned some key areas of cooperation including coordination on developing technological

<sup>79</sup> “Indo-Pacific region will shape the century: Blinken,” The Hindu, Feb 10, 2022, Available at: <https://www.thehindu.com/news/international/indo-pacific-region-will-shape-the-century-blinken/article38408925.ece> (Accessed on: April 16, 2024).

<sup>80</sup> “CRITICAL AND EMERGING TECHNOLOGIES LIST UPDATE,” National Science and Technology Council, 2024, Available at: <https://www.whitehouse.gov/wp-content/uploads/2024/02/Critical-and-Emerging-Technologies-List-2024-Update.pdf> Accessed on (Accessed on: April 16, 2024).

standards by working with a broad range of partners, cooperation on telecommunication, monitoring trends and opportunities in areas including biotechnology, and convening dialogues on critical technology supply chain.<sup>81</sup>

The CET Working Group has a broad mandate focusing on supply chain resilience, tech standards, and advanced telecommunication.<sup>82</sup> Various sub-groups such as Artificial Intelligence (AI), 5G, biotech, semiconductors, and supply chains, among others, all function under the CET Working Group. Further, recognising the importance of technology standards, supply chain resilience, and deployment of open and secure telecommunications technology, the Quad members launched the ‘Principles on Critical and Emerging Technology Standards’, ‘Common Statement of Principles on Critical Technology Supply Chains’ and signed a Memorandum of Cooperation on 5G Supplier Diversification and Open RAN by May 2022.

Critical and emerging technology has become an important pillar of the Quad as it focuses on building partnerships that would allow it to share the benefits of emerging technologies throughout the region helping strengthen strategic collaboration. These initiatives have encouraged cooperation in specific areas, such

as 5G deployment and diversification, Digital Public Infrastructures (DPIs), semiconductors, quantum technologies, biotechnology, artificial intelligence, cybersecurity, and developing industry-led, consensus-based multi-stakeholder technology standards.<sup>83</sup>

## DIGITAL PUBLIC INFRASTRUCTURE (DPI)

DPIs are crucial for developing countries’ growth, especially in South Asia, where the rural-urban divide restricts access to government welfare policies and financial services. As showcased by India, its indigenously developed DPIs, called India Stack, have narrowed the rural-urban divide by bridging gaps in financial inclusion, expanding markets, fostering innovation and entrepreneurship, supporting micro, small, and medium enterprises (MSME) in going global and even providing cost-effective and faster transfer of cross-border remittances.

Understanding the advantages of technology and innovation in raising the quality of living of the people of the Indo-Pacific region and beyond, the Quad is committed to ensuring that it is leading the innovations of the future. The Quad members acknowledge the transformative potential of technology,

81 The White House, “Fact Sheet: Quad Summit”, March 12, 2021. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/12/fact-sheet-quad-summit/> (Accessed on May 9, 2024).

82 White House, “Quad Principles on Technology Design, Development, Governance, and Use”, 24 September 2021, Available at: <https://www.whitehouse.gov/briefingroom/statements-releases/2021/09/24/quad-principles-on-technology-design-developmentgovernance-and-use/> (Accessed on October 16, 2023).

83 The White House, “Quad Joint Leaders’ Statement”, May 24, 2022. Available at: <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/24/quad-joint-leaders-statement/> (Accessed on May 9, 2024).

particularly DPIs, in promoting sustainable development in the Indo-Pacific and yielding social and economic advantages. To this end, it is deepening its engagements in the region on the agenda of deepening practical and positive cooperation by expanding access to DPI for delivering economic and social benefits.

## Supply Chains Resilience

During the pandemic, the over-dependence on one or a few countries revealed the supply chain vulnerabilities globally and in the region. Ensuring the security of supply chains has become a growing concern due to two related developments.<sup>84</sup> The first is centralisation of manufacturing and assembly of consumer products and raw material dependencies, creating a natural dependence on China as the centre of global manufacturing. The second is the increasingly tense geopolitical circumstances, making it difficult for nations to ensure the reliability and security of their supply chains. Thus, the Quad leaders acknowledged that resilient supply chains will ensure diversification of its supply risk across a cluster of supplying nations instead of being dependent on just

one or a few. The primary challenge for Quad countries is to increase the resilience of critical technology supply chains while maintaining innovation.<sup>85</sup>

Three Quad members, India, Japan, and Australia launched the Supply Chain Resilience Initiative (SCRI) in April 2021. The initiative affirmed their commitment to strengthen supply chains and avoid disruptions with the primary objective of attracting foreign direct investment (FDI) to eventually attain strong, sustainable, balanced, and inclusive growth in the Indo-Pacific.<sup>86</sup> Along with supply chain resilience, Quad members focus on the critical minerals that have become quintessential in developing any communication technology. Critical minerals are used as essential components in batteries, electric vehicles, and energy storage systems. All the Quad members are a part of the Minerals Security Partnership (MSP), a United States-led initiative on accelerating the development of diverse and sustainable critical energy minerals supply chains by catalysing public and private investment globally.<sup>87</sup> Furthermore, under the new Supply Chain Agreement, 14 countries of the Indo-Pacific

84 Raji Rajagopalan, "Critical technologies supply chains," Australian National University, Available at: [https://nsc.crawford.anu.edu.au/sites/default/files/publication/nsc\\_crawford\\_anu\\_edu\\_au/2023-10/critical\\_technologies\\_supply\\_chains\\_raji\\_rajagopalan\\_qtn\\_nsc.pdf](https://nsc.crawford.anu.edu.au/sites/default/files/publication/nsc_crawford_anu_edu_au/2023-10/critical_technologies_supply_chains_raji_rajagopalan_qtn_nsc.pdf) (Accessed on April 21, 2024).

85 Akira Igata, "Balancing the resilience and innovation of Quad critical technology supply chains," Australian National University, Available at: [https://nsc.crawford.anu.edu.au/sites/default/files/publication/nsc\\_crawford\\_anu\\_edu\\_au/2023-10/balancing\\_the\\_resilience\\_and\\_innovation\\_of\\_quad\\_critical\\_technology\\_supply\\_chains\\_akira\\_igata\\_qtn\\_nsc.pdf](https://nsc.crawford.anu.edu.au/sites/default/files/publication/nsc_crawford_anu_edu_au/2023-10/balancing_the_resilience_and_innovation_of_quad_critical_technology_supply_chains_akira_igata_qtn_nsc.pdf) (Accessed on April 20, 2024).

86 Ministry of Commerce & Industry, Press Information Bureau, "Australia-India-Japan Trade Ministers' Joint Statement on Launch of Supply Chain Resilience Initiative", April 27, 2021. Available at: <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1714362> (Accessed on May 7, 2024).

87 Ministry of Mines, Press Information Bureau, "Strengthening Of Mineral Supply Chains", August 7, 2023. Available at: <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1946416> (Accessed on May 7, 2024).

Quad continues to support regional organisations through strategic dialogue and by aligning principles and priorities. In this light, Quad leaders support the implementation of the ASEAN Outlook on the Indo-Pacific (AOIP), which, among other things, entails utilizing a digital economy for achieving Sustainable Development Goals (SDGs), facilitating cross-border data flow, and addressing the challenges of the digital revolution.

Economic Framework for Prosperity (IPEF) proposed a first-of-its-kind international IPEF Supply Chain Agreement in November 2023. Under the agreement the countries, including Australia, India, Japan, and USA, agreed to collectively make their supply chains more resilient by establishing a framework for long-term cooperation on issues such as workforce development, supply chain monitoring, investment promotion, and crisis response.<sup>88</sup>

## TECH STANDARDS

The Quad has also published Quad Principles on Critical and Emerging Technology Standards, reflecting the Quad's support for industry-led, consensus-based multi-stakeholder approaches for developing technology standards.<sup>89</sup> Technology standards aim to foster the development of critical and emerging technologies that make the lives of citizens more secure,

prosperous, and rewarding. Further, it aims to promote interoperability, innovation, trust, transparency, diverse markets, security-by-design, compatibility, inclusiveness, and free and fair market competition.<sup>90</sup> The focus on the multistakeholder approach will push for inclusive procedures to build trust, transparency, openness, impartiality, and consensus.

Also, building on commitments made at the 2022 Quad Leaders' Summit in Tokyo, the Quad has launched 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.<sup>91</sup> Furthermore, Quad continues to support regional organisations through strategic dialogue and by aligning principles and priorities. In this light, Quad leaders

88 U.S. Embassy & Consulates in Indonesia, Press Releases, "Press Statement on the Substantial Conclusion of IPEF Supply Chain Agreement Negotiations", May 31, 2023. Available at: <https://id.usembassy.gov/press-statement-on-the-substantial-conclusion-of-ipef-supply-chain-agreement-negotiations/> (Accessed on May 13, 2024).

89 "Quad Principles on Critical and Emerging Technology Standards," Australian Government, 2023 Available at: <https://www.pmc.gov.au/resources/quad-principles-critical-and-emerging-technology-standards> (Accessed on April 27, 2024).

90 Ibid.

91 Ibid.

support the implementation of the ASEAN Outlook on the Indo-Pacific (AOIP), which, among other things, entails utilizing a digital economy for achieving Sustainable Development Goals (SDGs), facilitating cross-border data flow, and addressing the challenges of the digital revolution.<sup>92</sup>

## Telecommunication Technologies

There is a special focus on telecommunication technologies such as 5G and 6G. With security concerns being raised about Chinese companies' growing investments and market access in potentially sensitive technology sectors and access to critical data, countries are taking steps to protect access to sensitive information.<sup>93</sup> To this end, the Quad members are focusing on diversifying the telecom technology. The Quad is deepening engagement with the industry on Open Radio Access Networks (Open-RAN)<sup>94</sup> and exploring ways to collaborate on the deployment of open and secure telecommunications technologies in the Indo-Pacific.

At the 2023 Quad Leaders' Summit, Quad Leaders announced cooperation with Palau to establish the deployment of Open Radio Access Network (Open RAN), the first in the Pacific, to assist in improving digital connectivity, digital infrastructure, and access to advanced telecommunications technology.<sup>95</sup> They also launched the Quad Investors' Network (QUIN) as a private sector-led platform to facilitate investments in strategic technologies including communication technology.<sup>96</sup> In addition to the CET working group, a Quad Tech Network was also established.<sup>97</sup> This Network is a Track 2 initiative of the Australian National University that aims to establish as well as deepen academic and official networks within the Quad.<sup>98</sup>

## ■ CYBER SECURITY

Besides the above, the Quad has been showing considerable interest in aligning cybersecurity amongst themselves and in the region. In order to give a fillip to cyber

92 "ASEAN Outlook on the Indo-Pacific", Association of Southeast Asian Nations, June 23, 2019. Available at: <https://asean.org/speechandstatement/asean-outlook-on-the-indo-pacific/> (Accessed on May 1, 2024).

93 Raji Rajagopalan, "Critical technologies supply chains," Australian National University, Available at: [https://nsc.crawford.anu.edu.au/sites/default/files/publication/nsc\\_crawford\\_anu\\_edu\\_au/2023-10/critical\\_technologies\\_supply\\_chains\\_raji\\_rajagopalan\\_qtn\\_nsc.pdf](https://nsc.crawford.anu.edu.au/sites/default/files/publication/nsc_crawford_anu_edu_au/2023-10/critical_technologies_supply_chains_raji_rajagopalan_qtn_nsc.pdf) (Accessed on April 27, 2024).

94 Open-RAN is not a technology, but rather an ongoing shift in mobile network architecture that allows networks to be built using subcomponents from a variety of vendors.

95 Bharath Reddy, "Building supply chain resilience in telecommunications: the Quad's role in accelerating open RAN adoption," Australian Strategic Policy Institute, March 18, 2024. Available at <https://aspistrategist.org.au/building-supply-chain-resilience-in-telecommunications-the-quads-role-in-accelerating-open-ran-adoption/> (Accessed on April 25, 2024)

96 "Quad," Ministry of External Affairs, 2023, Available at: [https://www.mea.gov.in/Portal/ForeignRelation/Quad\\_001.pdf](https://www.mea.gov.in/Portal/ForeignRelation/Quad_001.pdf) (Accessed on April 27, 2024).

97 "Quad Tech Network," Australian National University, Available at: <https://nsc.crawford.anu.edu.au/department-news/18328/quad-tech-network> (Accessed on April 27, 2024).

98 Ibid.



coordination and cooperation, Quad is working towards a more secure cyberspace by aiming to strengthen cyber resilience and critical infrastructure protection in the Indo-Pacific.<sup>99</sup> To achieve the following objective, the Quad Cyber Challenges<sup>100</sup> are being held to promote cyber awareness and capacity building.<sup>101</sup> At the 2023 Quad Summit, the Quad Joint Principles for Secure Software and the Quad Joint Principles for Cyber Security of Critical Infrastructure were released, to further strengthen defenses against cyber threats to the software supply chain and critical infrastructure and services.<sup>102</sup>

In January 2023, Quad Senior Cyber Group experts met in New Delhi to advance a positive and ambitious cyber agenda to foster an international digital economy that works for everyone, including regional partners in the Indo-Pacific.<sup>103</sup> They are collaborating with respect to the capacity-building efforts and have developed a catalogue of Quad countries' various capacity-building courses on cyber security. In 2023 April, the Quad held its first ever Quad cyber challenge across the

Indo-Pacific for cyber awareness and to share cyber resources. An estimated 85,000 people participated in the challenge, and nearly 600 different schools, universities, companies, and non-profit organisations acted to protect themselves and their communities.<sup>104</sup>

Also, building on the 2022 Quad Leaders' Summit in Tokyo, the Quad held a discussion on supply chain cyber security and resilience. For this the Quad members are developing a framework and methodology for ensuring cyber security in supply chains of critical sectors. They have also framed joint principles to promote common practices for the protection of critical infrastructure from cyber threats like by promoting minimum cyber security practices for governments, to guide their development, use, and procurement of software.

## **FUTURE PROSPECTS**

Over the past years, the Quad countries have converged internally as well as collaborated with other regional organisations in the

99 Ministry of External Affairs, Government of India, "Quad", 2023, Available at: [https://www.mea.gov.in/Portal/ForeignRelation/Quad\\_001.pdf](https://www.mea.gov.in/Portal/ForeignRelation/Quad_001.pdf) (Accessed on April 28, 2024).

100 A public campaign to improve cyber security across the 4 nations. The Internet users are invited across the Indo-Pacific and beyond to join the Challenge and pledge to practice safe and responsible cyber habits.

101 Ibid.

102 Australian Government, Department of the Prime Minister and Cabinet, "Quad Cybersecurity Partnership: Joint Principles for Secure Software", 2023. Available at: <https://www.pmc.gov.au/resources/quad-cybersecurity-partnership-joint-principles-secure-software> (Accessed on April 25, 2024)

103 Australian Government, Department of the Prime Minister and Cabinet, "Cyber", 2023 Available at: <https://www.pmc.gov.au/resources/quad-leaders-summit-2023/cyber> (Accessed on April 28, 2024).

104 Australian Government, Department of the Prime Minister and Cabinet, "Quad Cyber Challenge", 2023 Available at: <https://www.homeaffairs.gov.au/about-us/our-portfolios/cyber-security/quad-senior-cyber-group/quad-cyber-challenge> (Accessed on April 24, 2024).



Indo-Pacific with the focus on “*the region’s development, stability, and resources*”.<sup>105</sup> They have launched several initiatives to strengthen their domestic ecosystem on critical and emerging technologies, expanded research and investment with one another, and enforced greater scrutiny over the misuse of technology and resources by a few nations. For instance, the \$12.7 million Australia-India Cyber and Critical Technology Partnership (AICCTP) 2022 proposes cooperation and collaboration on cyber and critical technology.<sup>106</sup> Similarly, India and Japan signed a Digital Partnership agreement in 2018 which linked Indian startups with venture capital investors in Japan.<sup>107</sup> Later, the Quad Investors Network further brought together investors for increasing access to capital for emerging technologies within and across the Quad countries. Hence, as the Quad members have differential scales of technology competence, they are bridging the gaps through bilateral and multilateral dialogue and agreements.

Their expertise and collaboration in the emerging technologies domain can assist

small island nations such as Tuvalu which is facing extinction because of sea-level rise.<sup>108</sup> Tuvalu’s limited access to information, restricted economic opportunities, and challenges in accessing essential services have isolated the community from the global digital landscape. The Quad member’s expertise and transformative capabilities in the domain can assist Tuvalu in preserving its invaluable assets such as land, ocean, and culture in the digital realm. Further, simplifying documents on privacy laws, certifications and cooperation on technical exchanges testbed activity to advance interoperability and telecommunications cybersecurity, making policy and regulatory adjustments, and facilitating better information sharing will aid in technological advancement of the region.

## CONCLUSION

In this age of the digital revolution, the tempo of technological transformations is accelerating at a faster pace. On the one hand, it is advancing economic growth, promoting innovation, and aiding welfare programmes,

105 The White House, “Quad Leaders’ Joint Statement”, May 20, 2023. Available at: <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-joint-statement/> (Accessed on May 13, 2024).

106 Australian High Commission, “Australia-India Cyber and Critical Technology Partnership: Grant Round 2”. Available at: <https://india.highcommission.gov.au/ndli/AICCTP.html#:~:text=The%20%2412.7%20million%20Australia%2DIndia,stable%20and%20prosperous%20Indo%2DPacific.> (Accessed on May 13, 2024).

107 The Economic Times, “India-Japan script an expanding partnership for a shared future”, July 26, 2023. Available at: [https://economictimes.indiatimes.com/tech/startups/india-japan-script-an-expanding-partnership-for-a-shared-future/articleshow/102139039.cms?utm\\_source=contentofinterest&utm\\_medium=text&utm\\_campaign=cppst](https://economictimes.indiatimes.com/tech/startups/india-japan-script-an-expanding-partnership-for-a-shared-future/articleshow/102139039.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst) (Accessed on May 13, 2024).

108 U.S. Embassy SUVA, “Ustda Advances Secure Internet Connectivity In The Pacific Islands”, October 18, 2023. Available at: <https://fj.usembassy.gov/ustda-advances-secure-internet-connectivity-in-the-pacific-islands/> (Accessed on May 14, 2024).

and on the other, it poses a risk to data privacy and cyber security threats. Through a range of meetings and information-sharing, Quad is working towards breaking down barriers to assist governments in harnessing the benefits of technological evolution and creating a conducive environment for innovation and

investment. The Quad's outlook on critical and emerging technologies is progressive and inclusive as it addresses issues related to economic growth, digital advancement, and technological transformations in a holistic manner while promoting its positive agenda in the Indo-Pacific region.



# BIO-PROFILES



## Dr. Stuti Banerjee

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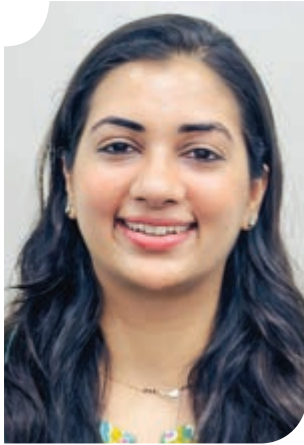
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## About ICWA

The Indian Council of World Affairs (ICWA) was established in 1943 by a group of eminent intellectuals led by Sir Tej Bahadur Sapru and Dr. H.N. Kunzru. Its principal objective was to create an Indian perspective on international relations and act as a repository of knowledge and thinking on foreign policy issues. The Council today conducts policy research through an in-house faculty as well as through external experts. It regularly organizes an array of intellectual activities including conferences, seminars, roundtable discussions, lectures and brings out a range of publications. It has a well-stocked library, an active website, and publishes the journal India Quarterly. ICWA has over 50 MoUs with international think tanks and research institutions to promote better understanding on international issues and develop areas of mutual cooperation. The Council also has partnerships with leading research institutions, think tanks and universities in India.



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