The Innovative Route to Development

INDO-PACIFIC PERSPECTIVE



#2507



The Innovative Route to Development Indo-Pacific Perspective



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Indo-Pacific Perspective

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Foreword



Pradeep S Mehta Secretary General CUTS International

In the rapidly evolving geopolitical landscape of the Indo-Pacific region, the need for collaborative frameworks that promote stability, security, and prosperity has never been more critical.

The 'ocean' serves as the unifying element that binds the expansive Indo-Pacific region. Consequently, the region's primary focus is centred on the oceans. India, Indonesia, Singapore and Sri Lanka, which occupy important strategic positions in the Indian Ocean, are primarily among other maritime nations with a rich and glorious history of maritime trade.

The primary catalyst for the 'Indo-Pacific' concept was the increasing strategic alignment between India and Japan on various regional and global issues. Indian Prime Minister Modi's speech at the Shangri-La Dialogue in 2018 clearly outlined India's vision of the Indo-Pacific, spanning from Africa to the Americas, thereby encompassing both the Indian and Pacific Oceans, in line with Japan's perspective. He, however, highlighted several key aspects reflecting India's policy approach towards the Indo-Pacific, including "inclusiveness," "openness," "ASEAN centrality," and the assurance that the concept is not aimed against any specific country.

As we prepare this compendium on the Indo-Pacific, it is essential to recognise its significance. This region encompasses a diverse array of nations and cultures and serves as a pivotal arena for global economic and strategic interests.

The Indo-Pacific is not merely a geographical designation but a dynamic interplay of political, economic, and cultural forces. This region is home to some of the world's largest economies, including the United States, China, India, and Japan. It is characterised by its complex security challenges and opportunities for cooperation. The strategic importance of the Indo-Pacific has been underscored by various international initiatives aimed at fostering a free, open, and inclusive environment that benefits all nations involved.

In this compendium, we will explore the multifaceted dimensions of the Indo-Pacific—ranging from security dynamics and economic partnerships to environmental sustainability and technological innovation. We will delve into India's strategic engagements with key partners like the United States through initiatives such as the Quad and the Indo-Pacific Economic Framework (IPEF), which aims to address pressing challenges such as supply chain resilience, clean energy transition, and countering regional threats.

Moreover, this compilation will highlight the importance of collaboration in addressing nontraditional security threats such as climate change and cyber warfare—issues that transcend national borders and require collective action. The future of the Indo-Pacific hinges on our ability to navigate these complexities through dialogue, cooperation, and mutual respect.

As we embark on this journey to document the evolving narrative of the Indo-Pacific region, let us reaffirm our commitment to fostering an inclusive environment where all nations can thrive. Together, we can build a resilient framework that addresses current challenges and paves the way for sustainable growth and lasting peace in this vital part of the world.

Editors Note

The "Confluence of two seas" is not just a geographic construct but a strategic and economic reality reflecting the interconnectedness of nations, economies, and peoples. It is a region where great power competition coexists with multilateral cooperation, traditional security challenges are compounded by nontraditional threats like climate change, disaster and cyber vulnerabilities, and innovation is driving transformative change across sectors.

As former Vice-President of the European Commission, Josep Borrell, remarked, "In many ways, the Indo-Pacific region is where the future of our planet and history will be decided".

As External Affairs Minister of India S. Jaishankar stated, "The concept of Indo-Pacific is a rejection of spheres of influence and a reiteration that the world cannot be frozen for the benefit of a few".

This compendium aims to capture the complexity and dynamism of the Indo-Pacific by presenting diverse perspectives from experts and thought leaders. This compendium, *The Innovative Route to Development: Indo-Pacific Perspective*, seeks to explore the multifaceted dimensions of this critical region through a collection of insightful articles spanning four pillars of the CUTS International's Global Affairs Centre: trade, defence & security, climate, and technology & innovation.

This compendium is organised into four broad themes, each of which addresses a critical aspect of the Indo-Pacific's development trajectory:

Themes of the Compendium

The first theme, *Trade and Economic Cooperation*, this compendium explores economic interdependence, a defining feature of the Indo-Pacific, and the challenges and opportunities it presents. As India's Prime Minister Narendra Modi noted, "*A free, open, inclusive, and prosperous Indo-Pacific is our shared priority and shared commitment,*" Stephen Olson critiques U.S. President Trump's first administration tariff policies and their impact on the WTO. At the same time, Barbara Kolm underscores the need to uphold free trade in turbulent times.

Mark Linscott discusses the risks threatening the multilateral trading system, while Amb. Gurjit Singh emphasises the role of impact investing in fostering sustainable development. Yosuke Yasui advocates for foreign direct investment without rent-seeking activities, and Pasi-Heikki Vaaranmaa argues for an open-world economy as a catalyst for growth and development.



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The next section, Defence and Security Issues, examines the immense strategic significance of the Indo-Pacific region, which was shaped by the power play between major nations such as the United States, China, and India. This section delves into this dynamic's military, economic, and diplomatic dimensions, the role of strategic alliances like the Quad, and the evolving nature of defence partnerships. Contributions from Lt. Gen Vijay Singh (Retd.) and Michael Rubin provide insights into the Sino-U.S. rivalry and China's aggressive posture towards India.

Pradeep S Mehta, Purushendra Singh, and Madhvendra Singh discuss the importance of the Quad in securing the Indian Ocean, while James Carafano and Marton Ugrosdy explore the power of free and open spaces. India's rising defence exports, analysed by Rajinder Singh Bhatia and Dnyanada Palkar, highlight the country's growing role in global defence markets.

Additionally, R.Adm Yamamoto Katsuya (Retd.) examines the challenges a nation faces when transitioning from a land power to a sea power, and Kim Heriot-Darragh assesses the implications of India's defence reforms for Australia.

The third theme, *Climate*, *Energy*, *and Sustainability*, highlights how the Indo-Pacific is both a victim and a contributor to climate change. UN Secretary-General António Guterres has stressed, "Everyday people worldwide are suffering the deadly effects of a warming planet and extreme weather."

Kyungjin Song discusses how Korea's climate efforts should align with broader regional initiatives, while Eugenio Díaz-Bonilla explores the intersection of food systems, The Agenda 2030, and the Paris Agreement. Emily Rees highlights agricultural innovation as a crucial driver of sustainable development, emphasising the need for resilient and adaptive food systems.

Finally, *Innovation and Technology* are the cornerstone of the Indo-Pacific's development trajectory, shaping its economic landscape and regional cooperation. Lt Gen Anil K Ahuja assesses the first year of the India-U.S. iCET initiative, while Sean Randolph examines India's role in global supply chains. Indranil Banerjie discusses the importance of managing innovation for a sustainable Indo-U.S. partnership, and Lurong Chen explores strategies for keeping the Indo-Pacific aligned with globalisation.

Ratnakar Adhikari highlights the role of digital innovation in Asia-Pacific's least-developed countries, while Amrita Narlikar delves into the ancient roots of Global Bharat. Scott Jacobs contemplates the future of innovation and regulatory forbearance, and Natasha Jha Bhaskar and Rahul Sen assess the India-Australia Economic Cooperation and Trade Agreement and its significance for the G20.

Why This Compendium Matters

The Indo-Pacific is at a critical juncture in its development journey. The region is grappling with geopolitical tensions, economic inequality, climate change, and technological disruption. At the same time, it is home to some of the world's most innovative solutions and collaborative initiatives. This compendium provides a holistic understanding of these challenges and opportunities while offering actionable insights for policymakers, researchers, and practitioners.

As we navigate the complexities of the 21st century, the Indo-Pacific will continue to play a pivotal role in shaping the global order. This compendium is a testament to the region's potential and a reminder of the work ahead.

Adhering to Mahatma Gandhi's thought, "The future depends on what you do today," let us seize the opportunities before us and work together to build a brighter future for the Indo-Pacific and the world.





Enhancing Development Cooperation in the Indo-Pacific through Impact Investing



Gurjit Singh
Former Ambassador of India to
Germany, Indonesia, Ethiopia,
ASEAN and the African Union,
Distinguished Fellow, CUTS
International

India's 75-year legacy of South-South cooperation emphasises capacity-building and equal partnerships, shaping robust development models in Africa and ASEAN. This approach predates global frameworks like the UN's TCDC initiative.

The Indo-Pacific concept, uniting the Indian and Pacific Oceans, has emerged as a strategic rather than purely economic or functional idea. This evolving reality necessitates innovative approaches to development cooperation, particularly focusing on Africa and ASEAN. Both regions are integral to the Indian conception of the Indo-Pacific, which stretches to the shores of Eastern and Southern Africa.

Historical Context and Successes

India's successful development cooperation with Africa and ASEAN, particularly the CLMV countries (Cambodia, Laos, Myanmar, and Vietnam), provides a strong foundation for advancing cooperation in today's global context. While globalisation promised equitable trade and sustainable development financing, it often involved control through sanctions, nontariff barriers (NTBs), and preferences, a trend that became more evident postpandemic and amid the European war. A multipolar economic order, supported by

robust South-South cooperation, is now essential.

India's development cooperation dates back over 75 years, beginning in 1949 with technical assistance to Burma and Indonesia. This cooperation was rooted in India's national movement ethos and emphasised capacity-building and equal partnerships,



To counter debt-led development, India advocates an FDI-led model integrating impact investment funds. This shift fosters resilient economies, enhances South-South cooperation, and positions India as a key Indo-Pacific development partner

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even amidst resource constraints. This model predated the UN's Technical Cooperation for Development Cooperation (TCDC), established in 1978.

Diverse Instruments of Cooperation

India's development cooperation is diverse, including lines of credit (LoC) under the Indian Development and Economic Assistance Scheme (IDEAS) 2003, grant assistance, small development projects, technical consultancy, humanitarian aid, and disaster relief. These efforts are often supported by capacity-building programmes, especially through the Indian Technical and Economic Cooperation (ITEC) programme. A 2021 survey showed that ITEC had the best recall among Indian programmes in Africa.

Established in 1964, ITEC embodies South-South cooperation ideals, initially for Asian countries and later expanding to over 150 countries, including Africa, Central Asia, Latin America, and the South Pacific.

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India employs grants,
concessional loans, and
technical assistance, including
the ITEC programme and IBSA
fund. These mechanisms foster
sustainable growth, private
sector participation, and SDGfocused impact investing across
the Indo-Pacific

India has also contributed to plurilateral funds, such as the India-Brazil-South Africa (IBSA) fund and the India-UN Development Partnership.

India's development efforts are primarily non-profit and supported by grants. The ITEC programme has an annual budget of "220 crores and maintains institutional cooperation with ASEAN and Africa. The India-ASEAN fund (US\$50mn) and the India-Africa Forum Summit (IAFS) have further bolstered India's grant programmes.

Concessional LoCs have facilitated major projects in developing countries, with over US\$32bn provided in 15 years, including US\$12bn to 41 African countries. These initiatives often involved private sector participation, enabling Indian companies to explore new markets and attract foreign direct investment (FDI), particularly in Tanzania, Mozambique, and Ethiopia.

Specific Regional Benefits and Challenges

The CLMV countries have also benefited significantly from LoCs, with several projects funded in water resource development, infrastructure, defence procurement, digital connectivity, rural electrification, and educational institutions. Since 2003, India has extended a Line of Credits worth about US\$1.5bn to these countries.

Given the challenges of debt-led development, the LoC-led model must evolve towards an FDI-led model, with grants and technical assistance supporting this shift. The focus should be on achieving the Sustainable Development Goals (SDGs) through impact investing, which supports private-sector entrepreneurship.





ASEAN's Rapid Development and Impact Investing

ASEAN, central to the Indo-Pacific, is developing rapidly and is expected to be the world's fourth-largest economy by 2030. However, there is significant diversity in development levels within the region. Impact investing has grown significantly in ASEAN, with nearly US\$7bn invested in impact investing companies between 2020 and 2022, despite the pandemic. Private impact investors have increased their capital investment, particularly in the financial services and ICT sectors.

Development finance institutions (DFIs) in ASEAN have also significantly increased their investments, focusing on financial services and energy sectors. Indonesia and Vietnam are key focus areas for impact investment, with substantial funds directed towards these countries.

Green bonds and other financial instruments focusing on sustainable development have grown, supporting environmentally friendly infrastructure

projects. In ASEAN, gender bonds and orange bonds have emerged to support women entrepreneurs and gender equality.

The Concept of Impact Investing

Impact investing, defined as investments generating positive social and environmental impact alongside financial returns, is becoming a critical channel for supporting entrepreneurs. It is not philanthropy, as it expects returns, but prioritises impact over financial returns. Impact investments can include private equity, venture capital, debt, and direct support, with transparent measurement and reporting of social and environmental performance.

Impact investing involves investing in companies, organisations, and funds to generate measurable social and environmental impact alongside financial returns. There are four main attributes of impact investing:

- Intentionality: The investor's intention to have a positive social or environmental impact through investments.
- Financial Returns: Investments are expected to generate a financial return on capital or, at minimum, a return on capital.
- Range of Asset Classes: Impact investments can be made across asset classes, including but not limited to cash equivalents, fixed income, venture capital, and private equity.
- Impact Measurement: Commitment to measure and report underlying investments' social and environmental performance and progress.

The evolution of impact investing has been driven by a desire to address critical social and environmental challenges while also achieving financial returns. This dual focus has attracted a range of investors, including high-net-worth individuals, pension funds, family offices, foundations, and institutional investors.

India's Legacy and Current Contributions

India's 75-year development cooperation legacy and the growing trend of impact investing highlight the potential for the Indo-Pacific region to achieve SDGs more directly through this approach. Bilateral and trilateral cooperation should include impact investment funds, as seen in the India-UK and India-France partnerships focusing on Africa and the Indo-Pacific. Supporting social entrepreneurship through impact investment funding will best serve the region's development needs.

India's development cooperation instruments include several mechanisms. LoCs under the IDEAS have been a significant tool. Since 2003, LoCs worth

US\$32bn have been extended, with US\$12bn allocated to 41 African countries. This has facilitated infrastructure development, energy projects, and capacity-building initiatives.

In addition to LoCs, India provides grant assistance for various projects. These grants support small development projects, technical consultancy, humanitarian assistance, and disaster relief. This approach ensures that development cooperation is not just about financial assistance but also about sharing expertise and building capacities.

One of the most notable programmes is the Indian Technical and Economic Cooperation (ITEC) programme, established in 1964. ITEC focuses on capacity building and providing training and education to individuals from developing countries. The programme covers diverse fields such as IT, engineering, health, and agriculture, reflecting India's commitment to sharing its development experience and expertise.

The Role of Plurilateral and Multilateral Cooperation

India's contribution to plurilateral and multilateral development funds further underscores its commitment to global development. The India-Brazil-South Africa (IBSA) Fund for Poverty and Hunger Alleviation is a notable example. Established in 2004, the IBSA Fund supports projects in least-developed countries, focusing on poverty alleviation and capacity building.

Similarly, the India-UN Development Partnership Fund, launched in 2017, supports Southern-owned and led, demanddriven, and transformational sustainable development projects across the developing world. This fund is particularly aligned with the Sustainable Development Goals (SDGs), ensuring that development assistance is directed towards achieving global development targets.

Future Directions and Recommendations

Innovative development in the Indo-Pacific requires bilateral and trilateral cooperation to integrate impact investment funds, focusing on social entrepreneurship to advance the SDGs. Combining grants, technical assistance, and FDI will foster sustainable development and reduce debt stress across developing countries, aligning with the broader goals of equitable and free trade in the Global South.

The successful implementation of development cooperation requires acknowledging the challenges of debt-led development due to debt stress in many borrowing countries. Therefore, the LoC-led model of development cooperation needs to transition towards a more FDI-led model.

Grants, technical assistance, and other forms of support should facilitate this transition under an India Development Initiative. This initiative, proposed at the CII Africa Conclave in July, aims to bring together talents from business, academia, think tanks and relevant government departments to craft a new approach to development cooperation in the post-Belt and Road Initiative, post-pandemic, post-Ukraine crisis world.

An FDI-led development model focusing on the SDGs brings us to the evolving and emerging category of impact investing funds. These funds can support private sector entrepreneurship while achieving the SDGs, creating a more sustainable and resilient development pathway for the Indo-Pacific region.

Furthermore, it is essential to recognise the diversity within the ASEAN region. While countries like Singapore and Indonesia have made significant strides in impact investing, others lag. Therefore, tailored approaches that consider each country's unique context and development stage are crucial. For instance, Indonesia has become a hub for impact entrepreneurs, attracting substantial private impact investment. In contrast, Vietnam has become



the preferred destination for DFIs, particularly in the FinTech and energy sectors.

Conclusion

In conclusion, the Indo-Pacific region stands at a crossroads where traditional development cooperation models must evolve to meet contemporary challenges. The region can foster sustainable and inclusive development by integrating impact investment funds into bilateral and trilateral cooperation frameworks, focusing on social entrepreneurship, and prioritising SDG achievements.

India's rich legacy in development cooperation and its expanding role in impact investing position it as a pivotal force in this transformation. The proposed shift towards an FDI-led model, supported by grants and technical assistance, can significantly reduce debt stress and promote a multipolar economic order that benefits the Global South.

By embracing these innovative approaches, the Indo-Pacific can achieve a more equitable and prosperous future aligned with the broader goals of sustainable development and global cooperation. This strategy addresses immediate development needs and builds a foundation for long-term resilience and growth, ensuring that the benefits of development are shared broadly and inclusively.



Walmart is helping unlock India's retail ecosystem to meet the aspirations of customers through investments in eCommerce, logistics and digital payments. In addition, we partner with hundreds of Indian manufacturers and set a goal to export \$10 billion worth of "Made in India" goods annually by 2027.



60,000+

MSMEs have been trained to digitize and scale through the Walmart Vriddhi Supplier Development program thus far



1.8 million

Livelihoods positively impacted by the Flipkart Samarth initiative, empowering India's artisans and rural entrepreneurs



290+ million

Digital payment transactions are processed daily by PhonePe, leveraging the power of UPI















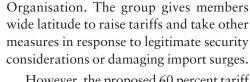
Stephen Olson Senior Adjunct Fellow The Pacific Forum (TPF)

Trump's China Tariff Plan Would be the Death of the WTO

Trump's proposed 60 percent tariff on Chinese imports and 10 percent universal tariff would undermine WTO principles, triggering a global trade war and potentially dismantling the rules-based international trade system.

Donald Trump has indicated his intention to impose a 60 percent tariff on all imports from China and a 10 percent "universal baseline" tariff on imports from elsewhere should he recapture the U.S. presidency when Americans go to the polls in November.

The exact mechanism that Trump would use to effectuate these tariffs is unclear, but some portion might conceivably be justified under the rules of the World Trade



However, the proposed 60 percent tariff on all Chinese imports, to say nothing of the 10 percent universal tariff, would stretch the spirit, if not the letter, of WTO rules beyond the breaking point and constitute a massive frontal assault on the organisation that would likely leave the already teetering body on life support.

Ahead of the election, there were some moves in the U.S. Congress to revoke the most favoured nation (MFN) status that Washington granted to China permanently as a part of the process that brought China into the WTO in 2001. Definitive action, though it is unlikely until after the election.

At any rate, Trump's planned tariff would essentially eviscerate the MFN principle of equality so cherished by the WTO and dramatically undermine the foundational principles that define the organisation's raison d'etre.



Institutions derive as much legitimacy from their foundational assumptions, shared philosophies and stakeholder buy-in as they do from codified regulation. This is especially true of the WTO and its predecessor, the General Agreement on Tariffs and Trade, which emerged from the ashes of World War II.

The shared objective of these agreements was to help avoid another world war by binding countries together through rules-based international trade while generating interdependent prosperity. The law of the jungle, of big fish-eating small fish, was rejected in favour of a cooperative system in which each party agreed to restrict the range of its tariffs and extend MFN treatment to every fellow member while working toward a reduction in trade barriers and abiding by agreed rules.

Central to this premise was the belief that the record-breaking Smoot-Hawley tariffs imposed by Congress in 1930 exacerbated the Great Depression, unleashed a destructive global trade war and contributed to antagonistic international relations in the lead-up to World War II.

Architects of the postwar system were firm in their resolve that these mistakes should not be repeated. Although economic historians have taken a nuanced view of the impact of the Smoot-Hawley tariffs over the years, it has become an enduring article of faith during the postwar era that protectionism and tariffs are economically counterproductive and disruptive to harmonious relations.

While the idealised vision of free trade that fuelled the foundation of the modern trade system seems ill-suited to current-day realities, the philosophical commitment to pursue progressively freer trade has remained a bedrock of the postwar global order. The march toward freer trade has not always been a straight line, but the quasi-sacrosanct status of the objective has never been in danger until now.

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The WTO's foundation —
MFN status and
progressive trade
liberalisation — faces
existential risk if Trump
implements aggressive
tariffs, pushing the
world toward a
fragmented,
mercantilist system
with retaliatory trade
harriers

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Assume Trump is elected and his tariffs are implemented. If the past is prologue, major U.S. trading partners would feel compelled to respond by slapping retaliatory tariffs on American products, leading to additional tariffs by the Trump administration and instigating the most significant global trade war since the 1930s.

This would be a feature, not a bug, with Trump's design. Trump sees himself as the consummate negotiator, willing to raise the stakes to the breaking point to wrangle concessions. As tariffs escalate, expect to see small trade deals struck one country at a time by partners unable to countenance an ongoing trade war with the world's largest economy.

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If Trump's tariffs spark retaliatory measures, the postwar trade order could collapse, replaced by a chaotic web of bilateral deals, protectionism, and economic fragmentation, reversing decades of global trade liberalisation.

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At that stage, the vision of a unified, rules-based trade system founded on MFN status for all members will be effectively dismantled. In its place would be a patchwork of coerced agreements with heavy mercantilist overtones, like the 2020 Phase One agreement Trump reached with China during his previous term, while those on the outside face mounting tariff walls.

The MFN principle would be inverted. Any member unwilling to meet Trump's terms would become a "least favoured nation." The world the WTO's founders aspired to build would cease to exist as a viable possibility.

Stalwart WTO members would continue to advocate for the WTO vision, but it is difficult to maintain adherence to a set of principles once its underlying rationale has been fatally undermined. When a thread is pulled from a sweater, it tends to unravel, and the U.S. is a very big thread.

Worse yet, the WTO sweater is already badly frayed. In recent years, the organisation has been staggered by institutional dysfunction and a membership that cannot seem to agree on anything important. Questions about the organisation's relevance are rife; many have already given up.

There is no imaginable scenario in which the WTO would fold up shop and switch off the lights. But if the U.S. — the largest economy in the world, the founding architect of the rules-based trade system and the driving force behind three-quarters of a century of global trade liberalisation — slams a wrecking ball into the side of the building, the net effect will be largely the same.

Betting on Free Trade in Difficult Times



Barbara Kolm

Member of the National
Council of Austria

Today, nations bounded by common goals, namely free trade, peace, and a rules-based order, can cooperate to increase welfare and bring stability to the world. The Americas and Europe have ample opportunity for cooperation with the Indo-Pacific region.

The past couple of years have shaken the world to its core. Scenarios once deemed unthinkable have become once again a reality. The war in Ukraine, the biggest ground war in Europe since World War II, has called into question the rules-based order upon which the world was supposedly cemented, a world where rules and not force determined the fate of nations.

Subsequent conflicts such as the "Israeli-Palestinian conflict, hostilities between Armenia and Azerbaijan in Nagorno-Karabakh, the Serbian military measures against Kosovo" and the Houthis' attacks on Red Sea fleets have eroded our prospects for world peace. Besides major supply chain disruptions, these conflicts have caused immeasurable suffering and destruction, a countless loss of lives.

Faced with this situation, citizens and world leaders alike are left wondering about the sensible course of action. What is the world to do? In addition to garnering support for battered states, the free world can coalesce around the liberal values and

ideas that have made the world more prosperous and peaceful.

The idea that free trade can foster peace is anything but new. In the First Supplement of Perpetual Peace, Kant argued that trade



Global conflicts threaten stability, but economic interdependence fosters peace. Free trade raises welfare and deters war, making economic cooperation essential for stability in regions like the Indo-Pacific, Europe, and the Americas

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was incompatible with war: "The commercial spirit cannot coexist with war, and sooner or later it takes possession of every nation". Subsequent philosophers and economists would echo these same thoughts. Schumpeter argued that capitalist societies were inclined to peace as energies were to be devoted to production and not to conquest: [in capitalist societies] there is much less excess energy to be vented in war and conquest than in any precapitalist society.

And Sir Norman Angell, economist and Nobel Laurate, argued that in the era of credit and commerce, war was unlikely to yield any spoils: in the age of international trade and finance, states do not have to resort to conquest to acquire wealth, states "already make money from one another state's assets via commerce and investment". Violence is only likely to backfire, destroy wealth-creating assets and consequently impoverish the parties involved in any dispute.

Economic interdependence can help prevent potential disruptions by increasing the opportunity cost of war. Economic interdependence is no panacea, but as "trade raises the welfare of all states involved in it, owing to the efficiency gains from specialisation", the opportunity costs of conflict rise. Hence, economic cooperation can foster peace and stability in regions interlinked by trade, investment, borrowing and lending. The relationship is that bilateral economic integration fosters peace, but peace, in turn, can bring about better economic conditions.

Today, nations bounded by common goals, namely free trade, peace, and a rules-based order, can cooperate to increase welfare and bring stability to the world. The Americas and Europe have ample opportunity for cooperation with the Indo-Pacific region. And the region, in turn, has opportunities to strengthen intraregional trade. The time is apt to bolster trade and alliances.

As noted by Foreign Policy, "U.S. alliances and partnerships in the Indo-Pacific are just about the deepest and most robust they have been in all their history". The ties between East and West extend beyond economic concerns. Promoting stability in the Indo-Pacific region and limiting the rising influence of rogue regimes remains a top priority for law-abiding states.

Economically, these past years, Europe and the U.S. have strengthened their economic ties with countries in the Indo-Pacific region. It would suffice to mention a few among multiple milestones:

- In 2023, Italy and Vietnam celebrated 50 years of diplomatic relationships. Trade between the two countries amounted to US\$6.2bn in 2022, an 11 percent increase compared to 2021.
- Last year, the UK was accepted into the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), a free trade agreement between 11 countries across the Indo-Pacific. This is a landmark as the UK is the first European country to be accepted into this partnership, which counts among its members Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam. Another relevant event was Emmanuel Macron's visit to India.
- In January, Emmanuel Macron was the chief guest at India's Republic Day celebrations. This was an opportunity for both countries and world leaders to display mutual appreciation, echoing the joint statements issued in July 2023 when both countries issued a joint statement underlining their "shared values, belief in sovereignty and strategic autonomy, an unwavering commitment to international law and

- the U.N. Charter, an abiding faith in multilateralism, and a common quest for a stable multipolar world".
- In unison to strengthening economic ties, these regions have strengthened strategic partnerships:
 - In July 2023, Vietnam and Italy held their 4th Defence Policy Dialogue in Rome. Both parties expressed an interest in "boosting cooperation in various fields, such as defence exchanges, training to troops' raise capability, cooperation in the defence industry and technology transfer for the production of dual-use products, and sharing experience U.N. peacekeeping operations".
- The Quadrilateral Security Dialogue (Quad), comprised of Australia, India, Japan, and the U.S., whose goal is to 'strive for a region that is free, open, inclusive, healthy, anchored by democratic values, and

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Deepened Indo-Pacific partnerships, like the CPTPP and Quad, showcase opportunities to counter geopolitical threats, ensuring prosperity through economic cooperation and strategic collaborations

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Increased intercontinental trade, strategic partnerships, and economic interdependence can deter conflict. Liberal states must seize opportunities to foster stability through trade, investment, and security cooperation

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unconstrained by coercion,' has expanded its agenda 'to cover non-military issues such as vaccines, climate change, critical and emerging technologies, and infrastructure.'

In doing so, South Korea's interest in joining the Quad has been piqued. The South Korean Yoon Suk Yeol administration has promised to work closely with, and potentially even join, the Quad as part of its Indo-Pacific Strategy.

Work is far from done. There are still prospects to foster trade across these regions,

within the regions themselves, and to establish strategic partnerships among them. Opportunities are vast within South Asia, where "intraregional trade accounts for barely 5 percent of South Asia's total trade, compared to the ASEAN region where intraregional trade makes up 25 percent."

This represents a window of opportunity for liberal states who want to foster trade and cooperation in a region where Western influence is lacking as most of the region's countries, except Bhutan, are participants in China's Belt and Road Initiative (BRI), a vast economic plan for investment and infrastructure development.

In conclusion, "economic links between states alter those states' incentives" and hence their behaviour – actions and interactions – with one another. Suppose some state's welfare is dependent upon any other's welfare. In that case, states will likely avoid any disruption of activities that procure welfare, such as commerce, investment, borrowing and lending, as any interruption will likely hurt the states involved in these activities. By increasing economic interdependence, states increase welfare, promote stability, and increase peace prospects between them.

In these turbulent times, states bound by liberal principles should promote economic integration both as a means of welfare and peace. There are ample opportunities to increase intercontinental trade with the Indo-Pacific region, and, equally important, there are ample opportunities to promote peace in the region, not only through economic integration but also through the security partnership.

A Triple Threat is Putting the Multilateral Trading System at Risk. What Can WTO do About it?



Mark Linscott
Former Assistant U.S. Trade
Representative for South and
Central Affairs

Protectionist industrial policies, driven by national interests, challenge WTO principles like non-discrimination. Ignoring WTO rules on subsidies and trade restrictions weakens the system, threatening its ability to uphold global economic cooperation. Bottom of Form

Blame COVID, China, Russia, or globalisation — responsibility for the rise of national industrial policies lies somewhere. These protectionist trends, though complex, have serious implications for the World Trade Organisation (WTO), threatening core principles like non-discrimination and equal treatment of all members. If these foundations weaken, can the WTO system endure?

The multilateral trading system faces additional threats. Regional trade agreements have long challenged WTO principles, and growing strategic competition with China has led members to pursue market decoupling, contradicting WTO's integration goals. The combined impact of COVID-19 and Russia's war in Ukraine has accelerated these trends, raising doubts about the WTO's future relevance and survival.

Relentless market liberalisation dismantled trade barriers and extended nondiscriminatory practices globally following World War II. The General Agreement on Tariffs and Trade (GATT) culminated in



Regional trade
agreements undermine
WTO credibility when
they bypass nondiscriminatory principles.
Incomplete "interim"
FTAs risk sidelining WTO
negotiations, shifting the
global trade landscape
toward preferential,
fragmented
arrangements





the WTO's creation in 1995, expanding trade rules to cover agriculture, textiles, intellectual property, and services. Major geopolitical events, such as the Soviet Union's collapse in 1991 and China's WTO entry in 2001, further opened markets. Francis Fukuyama's declaration of the "end of history," predicting the decline of global conflict and state-controlled markets, has since proven overly optimistic.

Insidious Industrial Policies

In a recent speech, U.S. Trade Representative Katherine Tai outlined the industrial policy roadmap, emphasising that domestic policies should complement trade policies. While she reassured that this would not lead to a "might makes right" global economy, it signals a shift away from shared global economic interests as a U.S. priority. Actions like ignoring WTO rules on subsidies, restricting foreign access to government procurement, and maintaining high tariffs have prompted even close allies to consider similar measures to protect their own economies.

Some see industrial policies as a necessary correction to over-globalisation. Tai noted the need for rebalancing, with industrial policy playing a key role. However, this approach raises concerns about economic efficiency, the persistence of protectionist measures, and other nations' reciprocal actions. Even if national interests take precedence when others act unfairly, the WTO's influence is undermined. Ignoring fundamental rules weakens the organisation's ability to promote global economic cooperation.

Regional Trade on Steroids

While free trade agreements (FTAs) are allowed under WTO rules, they often clash with the most favoured nation (MFN) treatment principle, which mandates equal treatment for all members. FTAs are permitted to offer preferential tariffs if they cover "substantially all trade" between parties, but their growing prevalence risks sidelining WTO negotiations and diminishing its influence.

On the positive side, FTAs can innovate by testing new trade agreement approaches, including labour and environmental issues. Recent progress on fisheries subsidies in agreements like the Comprehensive and Progressive Trans-Pacific Partnership and the US-Mexico-Canada Agreement has spurred WTO efforts in similar areas. FTAs have also pioneered good regulatory practices, promoting transparency and accountability, which could benefit WTO rule-making.

The biggest threat FTAs pose to the WTO's credibility is the trend of negotiating incomplete "interim" agreements, like the US-Japan and Australia-India deals, which fall short of the WTO's requirement to cover "substantially all trade." The global trade landscape has shifted from largely non-discriminatory practices to a preferential system with varying tariff levels for the same products. This shift risks undermining the MFN principle, potentially eroding one of the WTO's core foundations.

Decoupling as a Strategic Policy

The U.S. and its allies, which view China as a strategic competitor that is bent on upending the existing global balance of power and related institutions, have compelling arguments for restricting commercial engagement, particularly if



Strategic economic decoupling, particularly involving the U.S. and China, tests WTO resilience. If major economies disregard WTO rules for national security, the system faces unprecedented strain, endangering its long-term viability

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that engagement might feed a military buildup that threatens national security interests. However, the greater the decoupling, the greater the threat to the WTO

After many years of hard negotiations, China joined the organisation in 2001. At the time, most observers viewed accession as a critical step in China's market-opening reform process, which would provide the economic underpinnings of a more integrated and safer world. I was then serving in Geneva, where negotiators expressed a collective relief that China's economic behaviour could be tamed by it being in the WTO. Instead, China effectively exploited gaps in WTO rules to advance its export-driven strategic interests in ways deemed unfair and dangerous to other countries' economic and strategic interests.

At this point, it would be improbable to return to the economic landscape that existed before China's accession. A significant decoupling between China's economy and those of other major WTO members would seriously strain the framework of WTO rules. While the WTO provides wide latitude for a country to deviate from WTO rules based on its interpretation of its "essential security interests," a full abandonment of a WTO relationship between the U.S. and China, for example, could test the WTO to its breaking point.

Earlier precedents, such as Cuba and the United States or India and Pakistan, are hardly relevant to the circumstances of the United States or the European Union and China because of their sheer size and the extent of the connections between the economies.

Headwinds Ahead

These multiple threats suggest that the future of the WTO is far from assured, even if a sudden collapse or departure of a critical player is unlikely. There are opportunities to turn the tide.

Policymakers who are concerned about the implications of widespread industrial policies in major economies should call these measures out. They are short-sighted, of limited effectiveness (particularly if others respond in kind), and contrary to important WTO obligations. If they persist, the WTO's rule of law could collapse.

FTAs will, and should, continue. They can increase trade, enhance supply-chain resilience, and cement strong strategic relationships. However, it is best to avoid the shortcuts of interim FTAs. If they are to support, rather than undercut, the



multilateral trading system, they should be generally comprehensive and not just an easy alternative to hard work in the WTO.

Finally, economic decoupling between the world's first and second largest economies would destabilise globally and likely cause the eventual end of the WTO. Some disengagement is inevitable and necessary if the United States or European Union, for example, needs to take truly justifiable actions to protect essential security interests. However, the system will not be able to survive for long if the two or three most prominent members ignore the rules concerning each other.

Slow and Steady Offers Long-Term Relevance

Assistant U.S. Trade Representative Andrea Durkin recently noted that the WTO can "reform by doing." Although her comments focused on the possibility of small, negotiated trade agreements, such as those concluded at the 12th Ministerial Conference, the sentiment is relevant to countering these existential threats.

For example, the WTO's disputesettlement system must become fully operational again, so that industrial policies that run afoul of its rules are effectively contested. Only then might there be deterrence so that WTO members are more inclined to formulate subsidies and traderestrictive measures that are consistent with WTO rules? This requires a resolution to the current Appellate Body crisis, in which the United States has blocked appointments to the Appellate Body because of concerns with its record of exceeding its mandate, thus preventing trade disputes from being meaningfully adjudicated in the WTO. The United States plays the most central role in finding a compromise, but others will have to do their part to prevent future Appellate Body overreach.

The WTO's scrutiny of FTAs should be intensified, particularly to shed light on partial agreements that do not adhere to WTO requirements and potentially undermine the organisation's credibility. A healthy and complementary coexistence of FTAs and the WTO will benefit all.

Finally, the WTO should continue as a forum to discuss the implications of specific actions to decouple economies. The WTO must be more assertive in highlighting the dangerous implications to the organisation and the system that has delivered economic growth for more than seven decades if major economies continue to disengage, resulting in less global trade.

For several years, attention has been focused on the breakdown of the WTO's negotiating function. However, if the WTO is to survive this moment and eventually thrive in the long term, its members will need to go even further to show that they value its role in curbing some of their worst instincts.



Yosuke Yasui Senior Economist The Japan Research Institute

Pursuing Foreign Direct Investment Without Rentseeking Activities

Global tensions threaten stability in the Indo-Pacific, making peace essential for sustainable development. As history shows, post-war reconstruction fosters growth, but recent conflicts highlight the challenges of maintaining peace.

Clobal tensions are on the rise, and the Indo-Pacific region is no exception. As members of democratic societies, we share a collective responsibility to avert conflict in this region. Peace is widely acknowledged as indispensable for sustainable development, a principle underscored by Japan's remarkable reconstruction following World War II. However, recent events such as the Russian invasion of Ukraine in 2022 and the Israel-Gaza conflict in 2023 underscore the daunting challenge of maintaining peace.

Furthermore, the expectation that the G7 and other high-income countries alone can contain or prevent conflicts is no longer valid. Even high-income countries have declining economic and defence capabilities relative to powerful authoritarian states. Consequently, high-income countries must join forces with populous and rapidly developing low-income countries, particularly those in the "Global South," to oppose any attempts by authoritarian states to alter the status quo forcibly.

However, some low-income countries are accepting significant amounts of foreign direct investment (FDI) from influential authoritarian countries as an easy solution to their economic problems. As governments face increasing demands for rapid economic growth and improved living standards from their citizens striving to escape poverty, they inevitably rely on FDI from authoritarian countries. The adverse effects of overreliance on such FDI are becoming increasingly apparent. According to an African study by Iacoella et al. (2021), the greater the Chinese investment, the more likely citizens will protest.

Moreover, as citizens become increasingly concerned about China's growing influence on the domestic economy, they are more likely to lose trust in local governments notorious for corruption. This situation undoubtedly diminishes opportunities for long-term economic growth in Africa. In addition, from the perspective of international politics, too much reliance on FDI from

authoritarian countries (and powerful countries with deep strategic interests) also entails the risk that low-income countries' positions on international issues will align more closely with or at least face difficulty in resisting the wishes of these countries rather than their values.

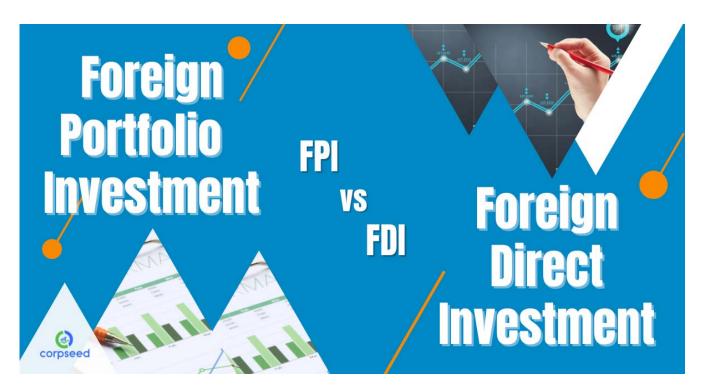
For low-income countries to assert their positions on international issues based on their values, they must establish a foundation of sustainable economic development without excessive reliance on investment from authoritarian countries. To achieve this, high-income countries should play a pivotal role as major supporters of low-income nations. While Official Development Assistance (ODA) must be increased, examining the flow of funds from high-income to low-income countries reveals that the amounts of FDI significantly surpass those of ODA.

Moreover, cutting-edge management expertise and technology from high-income countries could be transferred to low-income countries through FDI. Therefore, FDI from private multinational corporations (MNCs) in high-income countries is expected to



Low-income countries
increasingly rely on FDI from
authoritarian states, risking
economic and political
dependency. Sustainable
development requires investment
from democratic nations,
ensuring growth without
compromising governance and
strategic autonomy

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facilitate sustainable economic growth in low-income countries.

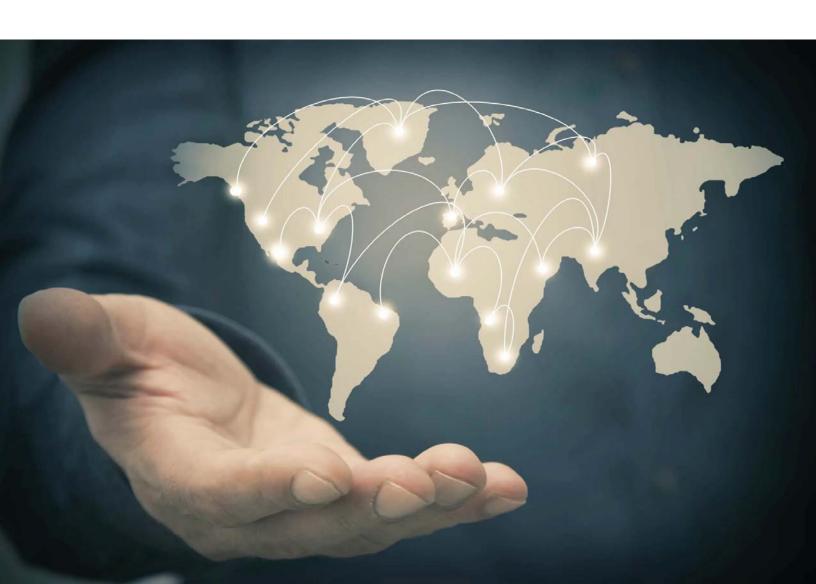
So, what type of FDI by MNCs in highincome countries contribute most to sustainable development in low-income countries? To pre-emptively conclude, FDI without rent-seeking activities can promote sustainable economic development by increasing productivity in low-income countries.

To determine the influence of the "environmental," "social," and "governance" (ESG) practices of MNCs in high-income countries on the performance of their foreign subsidiaries in low-income countries, Yasui et al. (2024) constructed unique matched data by combining the ESG scores of Japanese-listed companies with financial data from their central headquarters (CHQs) in Japan and

overseas subsidiaries in low-income economies.

The estimation results reveal that improvements in the ESG scores of CHQs do not positively impact the employment and wages of their overseas subsidiaries. However, they have a significantly positive effect on labour productivity. The enhancement in the "Community" score within the "Social" pillar demonstrated a substantial positive impact.

This "community" score is an indicator of aspects such as fair competition, antibribery and anti-corruption measures, and community relations. In this regard, even in low-income countries with high levels of corruption, compliance with fair competition and anti-bribery policies by CHQs in Japan allow their foreign subsidiaries to utilise their assets for



production without engaging in rent-seeking activities.

As a result, this can be interpreted as an increase in labour productivity growth rate. Assuming this case study has external validity, the active promotion of "Community"-related initiatives by MNCs in high-income countries and the preferential acceptance of FDI by foreign firms with such a stance by the governments of low-income countries could stimulate economic growth in low-income countries.

To summarise, an innovative approach to achieving sustainable development among Indo-Pacific countries includes pursuing FDI from private MNCs in high-income countries while avoiding engagement in rent-seeking activities in low-income countries. Such FDI contributes to the achievement of SDGs in low-income countries, which can foster support for peace in the Indo-Pacific region.



FDI from high-income nations'
MNCs, emphasising ESG values,
enhances labour productivity in
low-income countries. Prioritising
fair competition and anticorruption measures
strengthens economies, reducing
reliance on rent-seeking
investments





Pasi-Heikki Vaaranmaa

Ambassador of Finland
to the OECD and UNESCO

Going for Growth Requires Embracing an Open-World Economy

Sustained seven percent GDP growth can double an economy in a decade, yet only 13 countries have achieved this for 25 years. Structural transformation and governance are key to long-term success.

The World Bank's 2008 "Growth Report" examined the reasons behind successful policies in select developing countries since the 1950s. These countries had managed to maintain impressive year-over-year GDP growth of seven percent for 25 years or longer.

Seven percent is impressive in and of itself, but it is also interesting in the sense that a ten-year period of sustained 7 percent growth would see a country's economy double in size. As the authors of the report

Embracing India: The Evolution and Importance of India in the World Economy

put it, growth is a necessary, if not sufficient, condition for broader development, so countries should understandably strive for growth, especially the sustainable kind.

Not every country has been able to achieve such a growth target for 25 consecutive years. The report could identify only 13 that have achieved it in the 60 preceding years.

There is no single recipe for achieving sustained economic growth. According to the report, (successful) growth stories entail a structural transformation of the economy.

On the one hand, it is about moving labour from low-productivity sectors such as agriculture to higher productive growth sectors such as manufacturing. On the other hand, it requires creating and maintaining a conducive business environment for private investment to flourish, including from abroad. It requires solid institutions and people committed to good governance who are willing and able to implement the necessary policies, such as the rule of law, the protection of individual rights and

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Economic growth thrives on global openness, but rising protectionism and geopolitical tensions threaten trade.

Strengthening WTO discussions and fostering cooperation on climate, investment, and digital trade can revitalise multilateral trade efforts

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liberties, and tackling issues such as corruption. In addition, sustainable and inclusive growth requires public investment in infrastructure and people's health and education. All the more so in the rapidly changing world we are living in today.

What is most striking is the acknowledgement of the importance of an open world economy to economic growth. Openness to the world allows the import of ideas, technologies, and know-how from abroad. According to the report, sustainable high growth is "catch-up growth," with the global economy acting as an essential resource.

While the link between 'openness to trade' and economic growth has been contested sometimes in the economics literature in the past, most recent research would seem to confirm the Growth Report's premise: trade reforms have a positive impact on economic growth, on average, although the effect is heterogeneous across countries.

This openness of the global economy is no longer a given these days, alas. The reasons are many.

There has been a marked uptick of nationalist, populist and increasingly protectionist policies in the aftermath of the economic and financial crisis of 2008. There is emerging strategic competition mainly between China and the U.S., with national security considerations impacting the trade and investment decisions of companies, both domestic and foreign.

In addition, the pandemic and the war in Europe have exposed supply chain dependencies and vulnerabilities and raised questions about economic security, reshoring, friend-shoring, near-shoring etc. Addressing these challenges is putting a notable strain on globalised value chains that were built mainly based on efficiency considerations.

Finally, we have witnessed the steady deterioration of the rules-based trading system and its institutions, especially the WTO, which is causing unwelcome uncertainty for global business.

The outcomes of the recent WTO ministerial conference (MC13) left much to be desired, as there were no substantive results on any negotiation topics, be it in agriculture, fisheries subsidies or WTO reform. While everyone is happy to see the Comoros and Timor-Leste join the organisation (after a hiatus of 8 years without any new entrants), the accessions did little to contribute to further opening of the world economy.

To be sure, the WTO has been in a fragile state for quite some time for various reasons. As Members have failed to agree on further trade liberalisation multilaterally, it is occurring outside Geneva in bilateral and regional configurations. Some countries have unilaterally lowered barriers, including non-tariff barriers. Some are looking at sectoral arrangements.

This should call for serious reflection. After all, the best option would be to pursue the opening of world trade via the WTO. Granted, there is little appetite for doing so, not least because many of the "main players" are not willing to commit to multilateral trade liberalisation for the time being.

Of course, opening up is not without risks. But there are things that Members could and should do, even in Geneva.

The easiest would be to facilitate the WTO's "deliberative function." The world has changed a lot since the WTO was founded in 1995. There are "non-trade issues"—like climate change—that have a trade dimension, as our policy decisions can and do impact international exchange. Can we find ways of mitigating climate change effects together via trade? Should we give it a try? Can we enhance the circular economy via trade rules? Should we look if we can do something about plastic pollution?

In addition to climate change/ environmental deliberations, there should be discussions, for instance, about the extent and possible distortive impact of state intervention in the global economy. There is probably a case to be made for public investment in green transition, also in a cooperative manner. Are there grounds to attempt further rule-making to address these issues?

Enabling discussion at the WTO would show the outside world that Members are willing to use it as the forum for international trade cooperation. Facilitating deliberation would give WTO back some of the relevance it has lost. It would take nothing away from the bread-and-butter work of the WTO.

Regarding further trade opening, even in the absence of a collective movement forward, Members should allow for "coalitions of the willing" to move forward. First, this should apply to any unilateral liberalisation of trade on an MFN basis, like the agreement on domestic regulation of services negotiated between almost 100 WTO Members. There is simply no economic rationale for not allowing the integration of such liberalisation into the WTO schedules. It was highly positive that an agreement to that effect was (finally) reached in Abu Dhabi in February. This should apply to other sectoral initiatives if these materialise, primarily if these are pursued on an MFN basis.





Domestic reforms and open trade policies drive economic success. India's proactive trade agreements and structural changes illustrate how embracing globalisation and policy innovation fosters sustainable economic expansion

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Secondly, Members should be more pragmatic with the so-called Joint Statement Initiatives, such as the investment facilitation for development agreement ("IF4D"). The deal struck last year was negotiated among more than 120 WTO Members, including 85 developing country Members. As the proponents underlined, it has a development dimension.

As foreign investment – which has suffered a lot in recent years - is for many countries, and especially developing countries, a highly crucial ingredient of economic growth, facilitating sustainable investment flows should be in the interest of every WTO Member, regardless of whether they are party to the agreement itself. The (relatively soft) obligations for the participating countries should furthermore benefit investors from all over the world. While the IF4D is hardly the silver bullet concerning attracting FDI, if it can contribute to ameliorating the situation, at least in part, why stand in its way?

Plurilateral agreements exist in the WTO architecture. Incorporating the results of the IF4D and other plurilateral negotiations would enhance the rules-based trading system as the deals would remain

under the WTO umbrella, even if the results might occasionally be applied only on a non-MFN basis.

Finally, Members should be wary of pursuing multilateral policies that risk dragging the world economy backwards. One such blunder would be discontinuing the e-commerce moratorium (the 1998 WTO decision to refrain from introducing duties on electronic transmissions). Evidence clearly shows that there is next to nothing to be gained in terms of tariff revenue. The damage to cross-border trade is considerable, however.

It would be highly self-defeating for any country to entertain this option. Imposing a tariff on imports of electronic transmissions would result in a corresponding "tariff" on exports of such transmissions (as per Lerner Symmetry Theorem). Such an export tariff would harm the competitiveness of domestic businesses in global markets in sectors where many emerging economies possess huge potential as hubs for intermediate services.

Domestic reforms and open trade policies drive economic success. India's proactive trade agreements and structural changes illustrate how embracing globalisation and policy innovation fosters sustainable economic expansion.

Going for growth requires *inter alia*, commitment and capacity to design and implement domestic reforms, which are sometimes extremely difficult. India has carried out many such reforms that are currently bearing fruit, as manifest in recent years' impressive GDP growth figures.

Going for growth also requires embracing an open-world economy. Over the past few years, India has concluded many bilateral free trade agreements, and some are in the pipeline. Multilateral trade liberalisation has proven elusive, but as stated above, there are things one can do in the meantime. These little things might have a considerable positive effect further down the road.





Military, Economic, and Diplomatic Dimensions of Sino-U.S. Power Play in Indo-West Pacific



Lt. General Vijay Singh AVSM, SM, VSM (Retd.)

The Indo-West Pacific, home to 65 percent of the world's population, is central to U.S.-China power dynamics. This region's economic and security landscape shapes global stability, trade, and strategic alliances.

The geostrategic and geo-economic significance of the Indo-West Pacific Region needs no amplification, especially in the wake of the ongoing Sino-U.S. Powerplay subtleties. This region includes the tropical waters of the Indian Ocean and stretches beyond the seas, attaching it to the Pacific. It embodies forty-plus nation-states and economies, each having relevance and dynamics as a 'Cog' in the 'Indo-Pacific Wheel.'

The region houses 65 percent of the world's population and large economies, including PRC, Japan, India, ROK, and Australia, which by 2040, in all probability, will account for 50 percent of the world GDP. These and other economies have direct or indirect stakes in the all-important South and SE Asian 'Cogs' with interwoven interests and securities. Every component or nation is of consequence to the U.S. and

China for the 'Wheel' to roll in sync with their respective geostrategic and geoeconomic intent: the challenge lies in luring these nations into respective folds while denying them to the other.

The test for the region's nations lies in adopting the right strategies to pursue and safeguard respective national interests. Ironically, the game is complex and is entrapped in the ever-changing permutations and combinations of international equations, including the ever-varying levels of rivalry, cooperation, and competition between the U.S. and China with its manifestations.

The intent is to briefly evaluate the degree of influence the U.S. and China wield, primarily upon South and SE Asia, in the three key domains of military, diplomatic, and economic spheres, as well as the opportunities and challenges for India in the Indo-Pacific Game.

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Southeast Asia, with a US\$2.7tn economy and vital SLOCs, is pivotal in the Indo-Pacific. The U.S. and China compete for dominance through trade, diplomacy, and military influence, defining regional power dynamics

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South East Asia

Southeast Asia encompasses eleven nation-states, extending east of India to China, and could be further segregated into "mainland" and "island" zones. The 'mainland' comprises Myanmar, Thailand, Laos, Cambodia, and Vietnam, which form part of the Asian landmass. The remaining six, Brunei, Timor-Leste, Indonesia, Malaysia, the Philippines, and Singapore, lie in the 'island' zone. Southeast Asia, which lies astride the most vital SLOCs, has a combined GDP of US\$2.767tn, spans a market of 646 million people, and draws almost one-fifth of global FDI inflow annually.

Over the next five years, growth is set to remain robust at an average of 5.2 percent. Beyond the Pacific are the polemic waters of the South China Sea. The geographic definitions, economic relevance, and power play combine to make the region one of the most sensitive parts of the world—its domination defines the global power dynamics.

While the demographic profile of SE Asia comprises varied ethnicities, the two important countries, namely Singapore and Malaysia, house a large proportion of Chinese at 76 and 34 percent of the total population, respectively: an influencing factor of a serious kind. On the economic front, the region is China's most prominent and fastest-growing source of imports, which reached a staggering US\$432bn, accounting for nearly 23 percent of ASEAN's total imports between 2027 and 2022.

In the case of the U.S., the goods and service trade with ASEAN was estimated at US\$520.3bn, with exports at US\$160.2bn and imports by the U.S. at US\$360.1bn, leading to a trade deficit of US\$199.9bn a couple of years back. The diaspora, proximity, and trade links supported by investments suggest the economic dominance of China in SE Asia, and they say that "money makes the mare go."

On the diplomatic and military fronts, the Chinese are in a conflict mode given their Nine Dash claim lines, the Sino-Indian border conflict, and the Taiwan issue. On the other hand, the Americans hold sway through treaty alliances with Australia, ROK, Japan, the Philippines, and Thailand that facilitate diplomatic and military effectiveness. The U.S. also has growing strategic relations with India, Indonesia, Malaysia, New Zealand, Singapore, Taiwan, Vietnam, Singapore, Taiwan, Vietnam, and the Pacific Islands. Adding to it are the Quad and AUKUS arrangements designed to counter China.

The U.S., in its Indo-Pacific Strategy of 2022, states, "We will modernise our longstanding alliances, strengthen emerging partnerships, and invest in regional organisations—the collective capacity that will empower the Indo-Pacific to adapt to the 21st century's challenges and seize its opportunities." China's growing assertiveness finds a deep challenge in the U.S. strategic and military-driven dominance of the region.

North-East Asia

In brief, the NE segment of Asia is the complicated part of the Indo-West Pacific Region and is potentially the most volatile of all. Taiwan, Japan, and South Korea, in alliance with the U.S., are in close physical proximity and confrontation with an assertive China, a dangerous North Korea, and an ambiguous but powerful Russia.

From an economic perspective, most trade routes begin or end in this segment of the Indo-Pacific, as China's trade and supply lines emanate or terminate here. The most militarily and economically powerful nations of the region reside here. This is the 'in the face' frontline of the Sino-U.S. conflict, which is too sensitive and dangerous for all stakeholders to ignore: here, tactical actions have strategic manifestations.

The 'Indo' Part of the Region

The 'Indo' part of the region, including the South Asian fringes, is significant for China, as all its trade and energy supply routes to West Asia and Africa pass through the Indian Ocean. For the U.S., it is an important region for dominance to, on one side, raise the stakes for China and, on the other, facilitate trade for its allies to pass through freely.

It is, however, essential to note that the real chokepoints or vulnerabilities for U.S. allies are in the West Pacific seas, which complicates matters. While the USA has the military capability to operate independently in the Indo-Pacific with a base in Diego Garcia, it is not cost-effective. Hence, collaborations with nations like India are essential for pursuing its counter-China policy.

While China already has or attempts to lure many smaller countries of the IOR and its rim through financial baits, the challenge of securing the region remains, especially as it lacks effective naval capabilities to be of weight in the 'Indo' segment. Relentless Chinese endeavours have led to inroads, and China today has a naval outpost at Djibouti, with presence or involvement in 21 seaports, including Kyaukphyu Port in Myanmar, Chittagong, Hambantota, and Gwadar, with the rest along the African coast.

As an offset to the threats posed to its trade flows through the Malaccan Straits, China also vigorously pursues to pan out as many BRI arteries as possible to the Indian Ocean and the West, which, unfortunately for her, are not fructifying as desired. For





India's strategic location in the Indo-Pacific challenges China's maritime expansion. While China secures influence via economic ties, India's security posture and partnerships with the U.S. counterbalance China's growing regional assertiveness

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example, the CPEC troubles; hence, the SLOCs' sensitivities remain high.

India, by its dominant location in this 'Indo' segment, becomes a key challenge to China, as it can effectively dominate the Bay of Bengal, Malacca Straits, and the Arabian Sea and all the BRIs dropping into the IOR.

India is also seen as a potential net security provider; this, however, is a challenge due to the economic and financial lure of the Chinese that sways the smaller nations to, at the least, not oppose its military and diplomatic endeavours aimed at neutralising the obstacles posed by the Americans and their partners.

Conclusion

One of the ways for the U.S. to counter China's growing might in the economic and technological domains is to dominate the Indo-Pacific as effectively as possible through all the military, financial, and diplomatic tools. This, however, is a significant task, as China is part of and has a compelling economic dominance in the region.

In any case, an assertive China deeply enmeshed in the American supply and manufacturing setup is no pushover in the U.S.'s effort to retain its unipolar status, which has been severely dented. Despite all the challenges, China continues to rival the U.S., provided the growing unrest amongst its youth does not make the bubble burst.



The U.S. Can't be Blind to China's Aggression against India



Michael Rubin
Senior Fellow
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(AEI)

Adm. John Aquilino, commander of the U.S. Indo-Pacific Command, told a press conference in Tokyo on April 24, 2024, that the People's Republic of China will be ready to invade Taiwan by 2027. His speech was based on findings from the Central Intelligence Agency and Pentagon.

Demography accentuates China's threat. The United Nations' estimates that India's population surpassed China's a year ago made headlines. Few outlets, however, reported arguably the more relevant finding: By the end of the 21st century, United Nations' demographers believe India's population will be twice that of China. Indian fertility will increase before levelling off. China will continue to suffer the consequence of the one-child policy for decades after its discontinuation, as births will fall short of replacement rates.

Translated into a military lens, China's window of military opportunity is beginning to close. It is one thing to strike at Taipei with ballistic missiles; it is quite another to occupy the island's rough terrain in the face of certain guerrilla warfare. With its army of only children shrinking and its economy poised to fall behind its demographic

decline, China's ability to achieve its military ambitions will become more difficult every year.

A more sober leader might look to the future and calculate aggression is not worth it. Xi Jinping, however, is not sober. His dictatorship exacerbates the problem. China publishes fake statistics. The country downplays the military budget, exaggerates economic growth, suppresses its accurate COVID-19 infection figures, and fabricates unemployment rates.

While Xi treats the military budget as a state secret, he may believe his government's lies on other issues. Consider it the usual dictator's self-deception. He surrounds himself with yes men, while his underlings prefer to lie about their productivity rather than acknowledge flaws that the Communist Party might punish. As a result, the system

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With a shrinking, singlechild army and economic struggles, Beijing's window for aggression is closing—making rash decisions like an invasion of Taiwan more likely

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leaves Xi with inflated notions of his economy and military power.

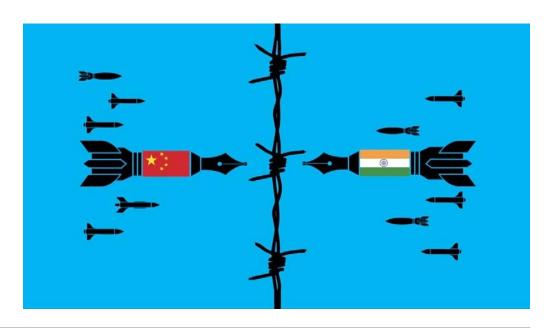
Should the Chinese economy begin to recede as China's population shrinks — and all indications are this is beginning to happen — Xi might lash out and use nationalism to distract the public from his failure. This exact pattern condemned Vladimir Putin to a quagmire in Ukraine. What Putin believed to be a cakewalk based

on his generals' exaggerations turned into a disaster that has already cost Russia more than ten times the number of troops than the Soviet war in Afghanistan did over a far longer period.

If China attacks Taiwan, it might first target its outlying islands rather than the main island, home to 99.6 percent of the population. Beijing could see islands like Quemoy (Kinmen), Matsu, or Pratas — closer to Hong Kong than Taiwan — as more straightforward to seize. If the West shows compromise or inaction over such annexations, the resolve could weaken when China moves against the main island. China has already effectively used this "salami slicing" strategy in the South China Sea.

If China attacks Taiwan, it will likely test the water first by poaching Taiwan's outlying islands rather than seek to attack the main island, where 99.6 percent of the population lives. Beijing may calculate that it would be easier to seize closer islands like Quemoy [Kinmen] and Matsu, the site of the previous Taiwan Strait crises, or Pratas Island, closer to Hong Kong than Taiwan.

After all, if the West establishes a precedent of compromise or inaction on Chinese annexation of Taiwanese territory, it may break down the will to respond when



the People's Liberation Army moves more directly on the main island. Indeed, the People's Republic of China has already used such "salami slicing" in the South China Sea.

While American officials focus on potential Chinese aggression against Taiwan, they ignore the danger it poses to India. Like his predecessors back in the George W. Bush administration, President Joe Biden may talk about the importance of the U.S.-India partnership. Still, he ignores the fact that since Mao Zedong invaded India to seize Aksai Chin, part of Kashmir, for more than 100 years, China has occupied a 40,000-square-kilometre area larger than the U.S. state of Maryland.

Time should not launder the legality of this occupation; instead, American diplomats should consider it a constant reminder of China's irredentism. Indeed, for all the overly optimistic talk of reform, the Chinese Communist Party's attitudes have not moderated with time.

Beijing's hostility is on display in Ladakh, where the People's Liberation Army continues to contest and occupy valleys around Pangong Lake. Chinese road-building through the occupied territory and the occasional skirmish may make headlines internationally, but low-intensity aggression, such as the Chinese tactic of forcing Chinese nomads to graze in Indian territory to assert a false claim of traditional Chinese control.

False Chinese maps bolster such claims. Such actions should not surprise: They repeat the tactics of the Nine-Dash Line, a historical fiction supported by claims that Chinse fishermen have always plied those waters and a map historians deem fraudulent. That American authorities will contest and condemn Chinese actions in the South China Sea but ignore parallel aggression in India reflects dangerous inconsistency.

Countering Chinese aggression should not be an either-or prospect. Still, the fact



China may first seize Taiwan's outlying islands, testing Western resolve before attacking the mainland. Inaction on minor incursions could embolden China, just as it has in the South China Sea

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remains: China's aggression toward India has already occurred on a far greater scale than in other dispute zones, such as the South China Sea and the Senkaku Islands dispute. Today, China contests nearly all regions along their 4,000-kilometer international boundary with India. Chinese moves against Arunachal Pradesh also increased, with Beijing refusing to issue visas to residents because they are Chinese citizens.

Nor is India alone a victim. Satellite imagery and local observation confirm Chinese incursions and illegal movement of border posts to the detriment of both Nepalese and Bhutanese sovereignty, a strategy Chinese troops also try against India.

The White House today scrambles to respond to the most destructive war in Europe in almost 70 years and the most destabilising war in the Middle East in a half-century. Distraction is no excuse to ignore a potentially even more significant threat. A broader Chinese move against India may seem unthinkable to the U.S.

Still, such lackadaisical thinking led American officials to believe that Russian President Vladimir Putin had satiated his 66

China's aggression
toward India exceeds its
South China Sea
disputes. From Ladakh to
Arunachal Pradesh,
China's creeping
incursions demand
stronger U.S.-India
cooperation to deter Xi
Jinping's expansionist
ambitions

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hunger after his 2014 conquest of Crimea. They never thought that Putin would order his armies into Kharkiv, let alone Kyiv, until it was almost too late.

China is an expansionist power. When it cannot buy proxies, as it does today with Pakistan and Sri Lanka and tries to do with the Maldives, it uses military bluster to cow them and could perhaps use force to seek their subjugation. India is too big for China to subjugate, but declining powers seldom gracefully forfeit delusions of grandeur. From Xi's point of view, Indian democracy exacerbates the threat since a successful India shows that freedom works.

The United States is right to support Taiwan as it faces the Chinese threat, but Washington must realise Taiwan is not alone. If the U.S.-India partnership is, as Biden declared, "the defining partnership of the 21st century," then its reality must match the White House leader's lofty rhetoric.

It is time to define China as an occupying power, recognise Aksai Chin as a sovereign Indian territory without qualification, and do everything possible with arms sales and intelligence to help India defend a frontier under attack in a slow-motion wave of aggression that has the potential, if ignored, to turn into a tsunami.

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MQ-9B is the world's most versatile multi-domain remotely piloted aircraft.

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SkyGuardian and SeaGuardian configurations by integrating and swapping advanced surveillance and defence technologies to accomplish missions over land or sea.





Pradeep S Mehta Secretary General CUTS International

India's Good Bet: Quad in the Indian Ocean



Purushendra Singh Associate Director CUTS International



Madhvendra Singh
Programme Officer
CUTS International

China's expanding influence from Bab-el-Mandeb to Strait of Malacca is posing new and unique challenges each passing day. This continues to pose challenges to the Quadrilateral Security Dialogue (Quad) group, whose sole aim is to create a cooperative bulwark against Chinese expansionism and aggressiveness.

The Indian Ocean Region (IOR), connecting the Pacific and Atlantic Oceans, is emerging as a critical axis of global trade, a skilled young population, and geo-economic prosperity. However, this region has witnessed significant transformations in recent years. For instance, China's expanding influence from Bab-el-Mandeb to the Strait of Malacca poses new and unique daily challenges. This continues to pose challenges to the Quadrilateral Security Dialogue (Quad) group, whose sole aim is to create a cooperative bulwark against Chinese expansionism and aggressiveness.

China's economic and military might have increased, and so has its interest in securing its maritime trade routes and expanding its influence across the Indian Ocean Region (IOR). Here, we are reminded of Admiral Alfred T. Mahan's quote, "Whoever controls the seas controls the world."

Furthermore, China's Belt and Road Initiative (BRI) has seen significant investments in port infrastructure and maritime logistics, exemplified by projects like the Djibouti Port in the Horn of Africa, Gwadar Port in Pakistan, and the Hambantota Port in Sri Lanka, among others.

These developments are raising global concerns, particularly for countries bordering the Indian Ocean and, even more critically, for those bordering China and the Indian Ocean. India is one such country. This situation is causing alarm within India's strategic community. In response, India should consider adopting a strategy similar to that of the Philippines, which has engaged with and sought support from its allies to manage its relationship with China. India, too, should leverage its diplomatic relations to navigate these challenges.

Additionally, China's PLAN (People's Liberation Army Navy) surpasses India's naval capability in sheer numbers and technological advancement. However, India's geostrategic position, growing alliances with like-minded countries, and

diplomatic heft gives it significant leverage in regional maritime security and could help maintain balance in the region.

Given the sheer prowess of China's PLAN, India cannot do this alone. To enhance its strategic presence in its surroundings, it should deepen its partnership with countries like the United States, Japan, and Australia through initiatives such as the Quad. Like the Philippines has the 'Squad,' India has the 'Quad.'

The Quad, called a "Force for Good" by the Indian PM during the Tokyo summit in 2022, could prove to be a good bet in this regard. The Quad's seriousness could be witnessed in this year's Quad Leaders' Summit, held in Sydney, where the leaders of the four countries highlighted the importance of the Indian Ocean Region (IOR) as a key area of strategic focus.

This was reiterated at the Quad Foreign Minister's Meeting in Tokyo on July 29. In Tokyo, the ministers announced plans to enhance regional maritime domain awareness through satellite data, training, and capacity building and to expand the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) into the Indian Ocean Region.

This emphasis on maritime domain awareness (MDA) aims to create a comprehensive understanding of maritime activities in the region. This involves deploying advanced surveillance technologies, sharing real-time information, and establishing monitoring frameworks to detect and respond to suspicious, spying, or malicious activities. Such initiatives are crucial for countering China's expanding naval presence and preventing the establishment of a Chinese maritime hegemony.

Born in the wake of the 2004 tsunami, the Quad aims to promote a free, open, and inclusive Indo-Pacific, emphasising principles of international law and respect for sovereignty. Conceptualised in 2007, it



The Quad enhances maritime domain awareness, strengthens regional security, and counters China's expansionism. Joint naval exercises, intelligence sharing, and strategic partnerships ensure a free, open, and rulesbased Indo-Pacific



gained renewed momentum in the late 2010s due to growing concerns over China's assertive maritime policies and expansionism.

Over the past two decades, the Quad has emerged as a strategic counterbalance and deterrent to the fuming dragon. To understand the Quad's role in the IOR, it is important to examine its strategic objectives, key initiatives, combined strengths and implications for the region's stability and security.

Maritime security remains at the core of the Quad's strategy. The grouping's naval cooperation is designed to enhance interoperability and interchangeability, share intelligence, and conduct joint patrols to ensure the safety of sea lanes and deter potential traditional and non-traditional threats

Australia's participation in the upcoming Malabar naval exercise this year will further exemplify this collaborative approach, showcasing its collective naval capabilities and readiness. These exercises 66

India must lead in shaping the IOR's strategic roadmap, focusing on trade, maritime security, and disaster management. Strengthening alliances with Quad members will secure vital sea lanes and regional stability

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enhance synergy, interoperability, and coordination among the four navies, reflecting their shared commitment to an open, inclusive Indo-Pacific and a rules-based international order.

The four countries understand the value of "Indo" in the Indo-Pacific, which serves as a vital channel for global trade, with major sea lanes facilitating the movement of energy supplies and commercial goods. Moreover, this region's strategic importance is highlighted by the presence of at least



seven key chokepoints: Mozambique Channel, the Bab el Mandeb, the Suez Canal, the Strait of Hormuz, the Malacca Straits, the Sunda Strait, and the Lombok Strait.

India and other countries in the region recognise the crucial importance of these maritime chokepoints for global trade and commerce. They need to unite and collectively safeguard control over these strategic routes, as dominance over any of them can significantly impact international trade.

In light of this context, India should take a leading role in crafting a strategic roadmap for the region by incorporating insights from Quad members. This plan should focus on enhancing maritime safety and security and ensuring freedom of navigation and overflight in line with international law.

India has previously demonstrated leadership in advancing the blue economy, vaccine diplomacy, and addressing climate change. It is now crucial for India to spearhead the development of a strategic framework that identifies key areas for action. Immediate priorities for cooperation in the IOR could include:

- Trade and Investment Facilitation
- Maritime Safety and Security
- Tourism and Cultural Exchange
- Fisheries Management
- Disaster Risk Management
- Academic and Science and Technology Collaboration

In conclusion, the Quad must play a larger role in safeguarding the chokepoints and ensuring the stability of maritime trade routes in the IOR. By working together, the Quad can help maintain open sea routes and prevent any single country from dominating this youngest region, which is at the heart of global trade, economic growth, and prosperity.

The Power of Free and Open Spaces



James Carafano
Senior Counselor to the
President and E.W. Richardson
Fellow, The Heritage Foundation

We think India, Japan and Australia have pioneered a different and more realistic way of viewing interregional connectivity for trade, transport, energy, and cyber, not through the prism of great power competition but through the concept of "free and open spaces."



Márton Ugrósdy Director of the Institute for Foreign Affairs and Trade, Budapest

Free and open spaces represent an alternative way to conceptualise strategy for like-minded nations to secure freedom, prosperity, and security in the fractious modern world, eschewing the notion that geopolitics must be viewed through the idea of competing blocks, hard spheres of influence.

The concept of "free and open" was introduced by the Quad States (India, Japan, Australia, and the U.S.) as a vision for the Indo-Pacific. It is often viewed as an alternative to China's Belt and Road, which BRI's detractors view as an effort to dominate global markets and what the QUAD's members (and others) perceive as aggressive Chinese maritime and territorial claims.

The contrast was proposed not as an alternative system imposed by the West but as support for open spheres that worked in



Free and open spaces
empower nations by fostering
stability, economic growth,
and security without rigid
alliances. This strategy
preserves sovereignty,
enhances maritime security,
and strengthens global
connectivity across regions
and trade routes



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Expanding free and open spaces unites Indo-Pacific, European, and African nations, enhancing trade and security. Strategic partnerships ensure resilience against disruptions, fostering sustainable cooperation and economic prosperity for small, medium, and major powers

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common cause to preserve freedom of the seas, respect for territorial integrity (including sovereign state's jurisdiction over internal waters), territorial seas, contiguous zones, and exclusive economic zones, as well as safeguarding maritime infrastructure (including shipping ports, undersea cables and pipelines, oil and gas drilling and production operations) and maritime industries (e.g., fisheries). In addition, free and open nations fostered transparent investment and commerce, respecting the rule of law and national sovereignty.

However, the need to protect and foster free and open spaces is not only relevant to the Indo-Pacific. Indeed, the great value of free and open spaces come from fostering and linking them, which would reestablish the traditional pathways of connectivity that have crisscrossed for most of human history.

Free and open spaces are particularly crucial to small and medium nations. Rather than seeking security by aligning with great powers, these nations can control their future with like-minded nations—the freedom and independence to chart their destinies.

Free and open spaces also benefit great powers by eschewing conflict zones for great power competition and encouraging and empowering zones of stability that deliver maximum benefit to all and mitigate the need for aggressive and muscular regional policies.

In the end, a mutual strategy of empowering free and open spaces offers maximum benefits for human flourishing, respects civilisational cultures, and strengthens national sovereignty. For countries that desire a common end state, the "free and open spaces" framework offers the ends, ways, and means of reaching that objective.

These spaces span from Japan, South Korea, Taiwan, India, and Australia in the Indo-Pacific to Europe, North, East, West Africa, and Central Asia.

Connecting projects with expanding transhipping capacity through the Middle East would make the strategy of free and open spaces the most relevant.

With the dramatically expanding role of the Indian economy—not to mention the interests of Japan, South Korea, Taiwan, and the ASEAN states in broadening their connections to global markets—this makes perfect sense.

Recent developments around the Gulf of Aden and Houthi attacks on civilian maritime traffic in the Red Sea underscore the importance of redundancy in global transit routes, notwithstanding the volatility of key maritime chokepoints, like the Babel Mandeb, the Strait of Hormuz, the Malacca Strait, as well as both major maritime canals. Furthermore, based on the

pre-Houthi traffic flows, there is no way that the Suez Cannel can support the exponential increase in traffic projected to occur in the times ahead.

Again, small and medium-sized nations could play a leading role in reshaping the future. The Abraham Accords were once seen as a driving force in promoting the normalisation of relations between Israel and the Arab world. The war with Hamas will not kill this initiative, although it may delay it.

Linking free and open spaces extends beyond bringing Europe and Asia closer together. They also present the opportunity for new engagements and partnerships in Africa.

Partnering with Africa is already central to the Italian vision of building interregional cooperation with North Africa. The Italian government has articulated a positive vision for engagement with the Mattei Plan — named after the late Enrico Mattei, who founded Italy's state oil company Eni — a model that calls for "non-predatory cooperation."

In a December 2022 speech, Italian Prime Minister Giorgia Meloni called for an end to "predatory posture towards other nations," tying the planning explicitly to building a strong family of distinct national identities, "collaborative, valuing the identities, and open spaces will create new opportunities.

Western nations should support these initiatives, and global partners are essential. In the Indo-Pacific region, indispensable partners would include Japan, South Korea, and India. Other critical potential partners include Australia and the ASEAN states.





Peter H. Ilau

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Indonesia

A Comprehensive Summary of Indo-U.S. Collaboration

The "Six Thinking Hats" framework, developed by Edward de Bono, provides a structured approach to thinking and decision-making by encouraging individuals and groups to explore different perspectives. Each hat represents a distinct mode of thinking, allowing for a balanced exploration of complex issues.

This essay will apply the Six Thinking Hats framework to the context of Indo-US collaboration, particularly within the framework of the Quad nations (Australia, India, Japan, and the United States). By examining the dynamics of trade, cultural insights, innovative solutions, opportunities, risks, and strategic management, we can understand the potential and challenges of collaboration in the Indo-Pacific region.



Applying the Six Thinking Hats framework reveals key aspects of Indo-US collaboration within the Quad. By assessing trade, innovation, risks, and strategic management, we gain insights into its challenges and opportunities



White Hat: Objective Data and Facts

The White Hat represents a focus on objective data, facts, and information. Several key data points and trends are noteworthy in the context of Indo-US collaboration, particularly through the Quad framework.

Trade Dynamics

The trade relationship between the United States and India has seen significant growth over the past two decades. According to the U.S. Census Bureau, bilateral trade in goods and services reached approximately \$146 billion in 2019, making India one of the largest trading partners of the United States. This figure is expected to grow as both nations seek to deepen their economic ties.

In recent years, the Quad nations have recognised the importance of enhancing trade and investment among themselves. For instance, the U.S. International Trade Administration reported that U.S. exports to India have increased by over 50% since 2010, with key sectors including information technology, pharmaceuticals, and aerospace. Conversely, India has been exporting textiles, machinery, and agricultural products to the U.S., indicating a mutually beneficial trade relationship.

Future Projections

Looking ahead, several projections indicate continued growth in Indo-US trade. The U.S. Chamber of Commerce estimates that 2025 bilateral trade could exceed \$200 billion, driven by increased cooperation in technology, renewable energy, and defence sectors. Additionally, the U.S. and India have been working on trade agreements that aim to reduce tariffs and enhance market access, further solidifying their economic partnership.

Technological Collaboration

In the realm of technology, Indo-US collaboration has been particularly fruitful. The U.S. and India have established partnerships in areas such as artificial intelligence, cybersecurity, and space exploration. The U.S. National Security Council has emphasised the importance of technological cooperation in enhancing national security and economic resilience.

The White Hat perspective highlights the significance of data-driven decision-making in fostering Indo-US collaboration. By leveraging objective facts and trends, both nations can identify opportunities for growth and address challenges effectively.

Red Hat: Intuitive Insights and Emotional Perspective

The Red Hat represents intuition, emotions, and personal perspectives. Several emotional and cultural aspects come into play in the context of Indo-US collaboration.

Cultural Connections

Cultural ties between the United States and India have deep historical roots. The Indian diaspora in the U.S. is one of the largest immigrant communities, contributing significantly to American society's cultural and economic fabric. This connection fosters a sense of shared identity and mutual understanding, which is crucial for collaboration.

Emotional Resonance

The emotional aspect of Indo-US collaboration is also evident in the shared values of democracy, freedom, and human rights. Both nations are vested in promoting these values globally, creating a strong partnership foundation. The emotional resonance of these shared ideals can enhance cooperation in various sectors, including defence, education, and public health.

Public Sentiment

Public sentiment plays a crucial role in shaping the relationship between the two nations. Positive perceptions of each other can facilitate collaboration, while negative sentiments can hinder progress. Surveys conducted by organisations such as the Pew Research Center

indicate that a majority of Americans view India favourably, while Indians also hold a positive view of the U.S. This mutual admiration can be leveraged to strengthen ties and foster collaboration.

The Red Hat perspective emphasises the importance of understanding Indo-US collaboration's emotional and cultural dimensions. Both nations can build a more robust partnership by acknowledging and addressing these aspects.

Green Hat: Creative and Innovative Thinking

The Green Hat symbolises creativity, innovation, and new ideas. In the context of Indo-US collaboration, there are numerous opportunities for creative solutions to address existing challenges and capitalise on emerging trends.

Addressing Knowledge Gaps

One key challenge in Indo-US collaboration is the knowledge gap in various sectors, including technology and sustainable development. To address this, both nations can establish joint research initiatives and innovation labs that focus on solving pressing issues such as climate change, public health, and digital transformation.

Emerging Trends in the Indo- Pacific

The Indo-Pacific region is witnessing significant geopolitical shifts, with emerging trends such as the rise of digital economies and renewable energy. Indo-US collaboration can play a pivotal role in shaping these trends by investing in clean



From trade growth
to geopolitical risks,
the Six Thinking Hats
framework offers a
structured analysis
of Indo-US
collaboration



energy technologies, smart cities, and digital infrastructure. For instance, collaborative solar energy and electric mobility projects can address climate change and create economic opportunities for both nations.

Leveraging Startups and Entrepreneurship

The U.S. and India have a vibrant startup ecosystems that can be harnessed for innovation. By facilitating cross-border partnerships between startups, venture capitalists, and incubators, both nations can foster an environment conducive to creativity and entrepreneurship. Initiatives such as the U.S.-India Startup Hub can serve as a platform for collaboration, enabling knowledge sharing and resource pooling.

The Green Hat perspective encourages unconventional thinking and the exploration of innovative solutions. Indo-US partnerships that foster creativity and collaboration can address challenges and seize opportunities in the Indo-Pacific.

Yellow Hat: Optimism and Opportunities

The Yellow Hat represents optimism, opportunities, and the potential benefits of collaboration. Numerous success stories and opportunities for enhanced cooperation exist in the context of Indo-US collaboration.

Successful Case Studies

Several successful case studies highlight the potential benefits of Indo-US collaboration. For instance, the U.S.-India Civil Nuclear Agreement, signed in 2008, has paved the way for increased cooperation in nuclear energy, enabling India to access advanced technologies and fuel sources. This partnership has not only strengthened energy security but also contributed to India's commitment to reducing carbon emissions.



Blue Hat - Process

Thinking about thinking. What thinking is needed? Organizing the thinking. Planning for action.





Green Hat - Creativity

Ideas, alternatives, possibilities. Solutions to black hat problems.





White Hat - Facts

Information and data. Neutral and objective. What do I know? What do I need to find out? How will I get the information I need?





Yellow Hat - Benefits

Positives, plus points. Why an idea is useful. Logical reasons are given.



Red Hat - Feelings

Intuition, hunches, gut instinct. My feelings right now. Feelings can change. No reasons are given.





Black Hat - Cautions

Difficulties, weaknesses, dangers. Spotting the risks. Logical reasons are given.

Defence Cooperation

Defence cooperation between the U.S. and India has also seen significant advancements. The Basic Exchange and Cooperation Agreement (BECA) signed in 2020 has enhanced intelligence sharing and operational collaboration. This partnership strengthens national security and contributes to regional stability in the Indo-Pacific.

Economic Growth and Job Creation

Enhanced collaboration between the U.S. and India has the potential to drive economic growth and job creation in both nations. According to a report by the U.S.-India Business Council, increased trade and investment could create millions of jobs in sectors such as technology, manufacturing, and services. This economic partnership can lead to mutual benefits and prosperity.

The Yellow Hat perspective emphasises the importance of optimism and the potential for positive outcomes. Indo-US collaboration can pave the way for a brighter future by focusing on successful case studies and opportunities.

Black Hat: Caution and Critical Thinking

The Black Hat represents caution, critical thinking, and the identification of potential risks and challenges. In the context of Indo-US collaboration, several challenges must be addressed to ensure successful partnerships.

Geopolitical Tensions

One of the primary challenges facing Indo-US collaboration is the geopolitical tensions in the Indo-Pacific region. The rise of China as a dominant power poses significant challenges to both nations. Navigating these tensions requires careful diplomacy and strategic planning to avoid conflicts and ensure regional stability.

Economic Disparities

Economic disparities between the U.S. and India can also pose challenges to collaboration. While the U.S. has a highly developed economy, India is still classified as a developing nation. Addressing these disparities requires a nuanced approach that considers both nations' unique needs and capacities.

Regulatory and Bureaucratic Hurdles

Regulatory and bureaucratic hurdles can hinder collaboration in various sectors. Differences in legal frameworks, intellectual property rights, and trade regulations can create barriers to effective partnerships. Both nations must work towards harmonising regulations and streamlining processes to facilitate collaboration.

Overview of Analysis: Strategic Analysis of Indo-US Collaboration

This strategic analysis evaluates Indo-US collaboration within the Quad nations using PESTLE, SWOT, Five Forces, Risk Analysis, and Scenario Planning frameworks. PESTLE highlights key factors influencing this partnership: politically, both nations benefit from stable governments while addressing geopolitical tensions, particularly with China. Economically, the trade relationship is projected to exceed US\$200bn by 2025, driven by technology and renewable energy, though economic disparities pose challenges.

Socially, cultural ties and educational programmes bolster workforce development. Technological partnerships in AI, cybersecurity, and space are critical, while legal alignment on trade and defence regulations is essential. Environmental collaboration on climate change further strengthens ties.

A SWOT analysis reveals strengths like shared democratic values, robust trade, and technological alliances but weaknesses such as regulatory barriers and economic disparities. Opportunities include growth in the digital economy and renewable energy, while

threats range from geopolitical tensions to economic uncertainties. The Five Forces framework indicates moderate to high competition, with rivalry intensified by other global partnerships, though established Indo-US collaborations reduce entry threats.

Risk analysis categorises challenges into strategic (geopolitical tensions, regulatory shifts), operational (bureaucratic hurdles), financial (economic instability), and reputational risks (public sentiment). Scenario planning outlines potential futures: optimistic collaboration, escalated geopolitical tensions, global economic downturns, and cultural misalignment, each influencing the trajectory of the partnership.

From a management perspective (Blue Hat), a strategic framework is essential to enhance collaboration. This includes setting clear goals in trade, technology, and defence; engaging stakeholders across governments, private sectors, and civil society; establishing monitoring mechanisms to evaluate progress; and fostering communication and transparency through regular dialogues and information sharing. Forums, workshops, and virtual tools can facilitate effective discussions and ensure engagement.

Conclusion

The Six Thinking Hats framework provides a comprehensive lens through which to explore Indo-US collaboration within the context of the Quad nations. By examining objective data, emotional insights, creative solutions, optimistic opportunities, critical challenges, and strategic management, we gain a holistic understanding of the potential and complexities of collaboration in the Indo-Pacific region.

As the world faces unprecedented challenges and opportunities, fostering collaboration among the Quad nations is essential for addressing global issues such as climate change, security, and economic development. By leveraging each nation's strengths and embracing a collaborative mindset, the Indo-US partnership can pave the way for a prosperous and sustainable future in the Indo-Pacific.

Humanitarian Friction Arises During the Transition Period when a Land Power Transforms into a Sea Power



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China's transition from a Land Power to a Sea Power challenges global maritime norms. Viewing the ocean as "Blue Territory," China's expansionist claims in the South China Sea spark conflicts.

China, which had been a Land Power for thousands of years, began its journey towards becoming a Sea Power at the start of this century. The main difference between land and sea power is whether the main stage is continental or ocean. Land borders divide the sovereignty of each neighbouring country, and foreigners, vehicles and other objects are not allowed to cross the border and enter another country's territory without that country's consent.

The concept of absolute sovereignty, which is a nation's complete and unshared control over its territory and population, is significantly different in the maritime context. The sea for the international community is unique in its character and dynamics compared to the world of land.

The sea, shared by the Global Commons, is a domain where all nations can engage in activities and cooperation, even in the

territorial waters of any nation. Warships from different countries can enter these waters and navigate without approval by coastal countries, provided they adhere to certain international law principles.

China, which is developing into a Sea Power, does not understand the ocean as a global common. China refers to the sea as "Maritime Territory" or "Blue Territory" and shows its intention to monopolise the sea similarly to its land territory.

The nine-dash line controversy in the South China Sea and its exclusive claims to the Taiwan Strait are evidence of this.

Historically, the South China Sea has been an important trading route for vessels from Europe and the Indian Ocean, and in recent years it has become a major Sea Lane of Communication. It is also a rich fishing ground where fishermen from surrounding countries can cooperate.

The Taiwan Strait is an important shipping route connecting Northeast Asia and Southeast Asia. Even at its narrowest point, it is 70 nautical miles (about 130 km) wide, ten times the width of the Strait of Gibraltar.

China's perspective on the ocean as its land territory has led to conflict with the international community, particularly with its surrounding countries. Here, we will be discussing the humanitarian issue of fishermen.

The suspicious activities of Chinese fishing boats in the South China Sea, East China Sea, and Yellow Sea have caused the international community to suspect militia operations.

If China's maritime militia is a constitutional armed force, then its members must understand and respect "jus in bello." In other words, if the militia disregards its obligations as a combatant, it cannot be considered a legitimate part of China's naval power alongside the PLA Navy and the Chinese Coast Guard of the PAP.

As you know, China's militia is a genuine Chinese military force, as defined by the domestic laws of the People's Republic of China. From the perspective of military activities, the international community should understand that China's militia has the same military status as the People's Liberation Army sailors and soldiers and the People's Armed Police Force, which includes the China Coast Guard.

Of course, at the grassroots level in China, the militia forces and militia members would like the international community to recognise and respect them as an army and combatants with the same status as the People's Liberation



China's maritime militia blurs the line between civilians and combatants. Their aggressive actions threaten regional stability, raising concerns about adherence to international law and humanitarian principles

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Army and People's Armed Police Force. Unfortunately, China's maritime militia do not respect their obligations as combatants under international law, rules, and etiquette.

Under Chinese domestic law, the militia must wear uniforms and insignia as combatants. However, these are only used during training and exercises. When confronted with foreign vessels or fishermen, Chinese militia do not wear their uniforms, do not fly their militia flags, and are often indistinguishable from ordinary fishermen and fishing boats.

Chinese contacts note that militias lack training in essential international humanitarian law. Chinese media report that many profit-driven fishermen fail to grasp their duties as militia members. Military sub-districts and local governments struggle with their training and management. While operations are now tightly controlled via the Beidou Satellite Navigation System, the authorities can't control the individual sentiments of militia members.

As a result, the harassment of foreign fishermen and coast guards by the maritime militia is like a wild brawl on the streets of Chinese cities, street fighting by the Chinese mafia. Their performances are extremely barbaric, such as wielding a butcher's knife. There appears to be a lack of adherence to the principles of humanity that military personnel should uphold.

The main reason for the Chinese militia's behaviour is that they have not received sufficient education and training in international law, which is necessary for military personnel. The international community must strongly request that China provide education and training for its militia.

History has repeatedly shown that even professional soldiers who have received solid education can, in certain situations, lose sight of humanity and cause tragedy. Given the potential for all individuals, including those in the military, to be susceptible to such actions, it becomes imperative to emphasise the importance of education and training for part-time soldiers and the militia. This would ensure the protection of human rights and foster a more responsible and humane approach to handling situations that may arise.

Finally, I want to add one point about the rights of the militia themselves. China has deployed Chinese fishing boats as militia on the front line of the disputed waters of the South China Sea. The militia is deployed even further than the PLA Navy and the China Coast Guard.

These Chinese, who are ignorant of international law, have recklessly clashed with foreign maritime law enforcement agencies, resulting in casualties. The Chinese central and local governments and their official media have praised the militia soldiers who have been killed or injured in conflicts with foreign law enforcement agencies as "patriots and heroes" and have reported on them as examples to be emulated.

I call them "Human Shields at Sea".

China's maritime militia activities are a tragedy not only for the foreign fishermen who are being harassed by them and for the international community but also for the Chinese people and their community. 66

China's maritime militia, lacking legal training, endangers foreign fishermen and themselves.

Deployed as frontline forces, they face unnecessary risks, highlighting the urgent need for international oversight and accountability

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Suppose the Chinese Militia is not able to fulfil its duties as soldiers and military personnel. In that case, it may be appropriate for the international community to consider them as war criminals in wartime and as mere criminals in peacetime.

It is important to acknowledge that tragedies at sea, far from land, often go unnoticed by the international community and the public. We should consider making a concerted effort to encourage China to recognise the unique characteristics of the ocean. At the same time, we should gently remind the international community of China's inhumane behaviour at sea, making it more visible.





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The World of Regionalisms: Back to the Future

The shift from 'open' regionalism to diverse regional projects underscores how regionalism remains dynamic. It shapes identities, policies, and economic spaces, adapting to global transformations and geopolitical shifts.

The belief that 'new' or 'open' regionalism would (or should) supersede pre-existing models of economic integration has progressively lost its appeal since the turn of this century. This has not been the case concerning the idea of a 'world of regions' (Katzenstein, 2005) in the making.

Monitoring the construction or reconfiguration of regional spaces and territories have indeed been stimulated by the dissemination of the notions of regionalism and regionalisation at the expense of the more restrictive concept of regional integration (Fawcett and Hurrell, 1995; Hveem, 2000).

Regionalism can account for ideas or ideologies, programmes, policies, and goals that seek to transform an identified social space into a regional project. Regionalism also refers to the invention of regions by constructing identities and delineating mental maps.

Regionalisation is about the build-up of cross-border interactions driven by entrepreneurial diasporas, transnational corporations, and criminal networks. In such cases, regionalisation contributes to crafting regional spaces that thrive from the opportunities generated by the preservation of frontiers.

Globalisation: New Grammars in the Making

The days when trade liberalisation, multilateralism and a wave of democratic transitions contributed to entrenching a USled liberal international order are over. Current developments are a reminder that regionalism cannot be dissociated from globalisation and its shifting grammar (Bach, 2024). These refer today to a fragmented, multipolar, yet globalised world. As a result, concerns that were meant to be over are being revived and revisited. Import-substitution industrialisation and 'delinking' are back on the agendas, albeit dressed in new clothes, associated with a different lexicon, and within a profoundly transformed international environment.

In Latin America, the endorsement of open regionalism has been superseded by the rise of "post-hegemonic" regionalisms (Riggirozzi and Tussie, 2017). In the United States, Donald Trump's presidency brutally signalled a rehabilitation of protectionism: attacks were launched against the WTO, membership of new regional agreements was stalled, and, in the case of the North American Free Trade Agreement (NAFTA), forcibly renegotiated.

International trade negotiations have been increasingly entangled with geopolitical considerations as the concept of the BRICs, initially a clever acronym coined in the aftermath of 9/11, morphed into the tangible expression of a multipolar world.

In 2022, during the G20 Bali summit, the WTO director general voiced concern at the breakdown of the global economy into rival trading blocs as she made a plea for rolling back "trade fragmentation" and "export restrictions on food, feed and fertilisers" (WTO, 2022).

A broadening range of states perceive the web of interdependencies associated with the globalisation of chains of production as a source of strategic vulnerabilities and insecurity. The triggers vary: they include, inter alia, the disruption of global supply chains during the Covid pandemic, the mobilisation for renewable energy to combat climate change and, since 2022, the war in Ukraine.

Europe's belated awakening to the full implications of the "Nord Stream 2 trap" (Van Renterghem, 2023) has prompted a drastic reset of national, regional, and global policy agendas. The days of the Wandel durch Handel (change through trade) mantra are over.

In addition, the spillover effects of tensions between the U.S., China, and Europe translated into policies that aim to curtail interdependencies through 'decoupling' and, in the case of more 66

Trade liberalisation and multilateralism have waned, Regionalism and globalisation now intertwine within a fragmented, multipolar world, where economic security and geopolitical concerns redefine trade and integration

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selective approaches, 'de-risking'. Debates that were associated in the 1960s and 1970s with strategies of import-substitution industrialisation and 'delinking' are back on the agendas, albeit dressed in new clothes, associated with a different lexicon in response to profoundly transformed domestic and international contexts.

Protectionism is back and thriving with public subsidies to promote strategic autonomy and reindustrialisation. Extensive reliance on fiscal incentives is also generating new trade and financial tensions, not least among industrialised economies since the adoption of the U.S. Inflation Reduction Act (IRA) in 2022 and three years later, the global trade war stoked by Donald Trump's sweeping tariffs on friends and foes alike.

The erosion of multilateralism is but one of the outcomes of unfolding recompositions. In industrialised economies, the regionalisation of global value chains operates at the expense of its expansion towards China and other distant emerging countries (Mouhood, 2023).



In North America, as in the EU, decarbonisation, artificial intelligence, and the digital revolution stimulate the transformation of manufacturing processes, consumer behaviour, and work organisation. Due to their economic power, China and India, through the combination of economic and demographic assets, are increasingly boxing into a special category, resulting in an ability to shape international governance.

The World of Regionalisms: New Dynamics, Old Debates

The promotion of deeper global integration through 'defragmentation and connectivity' (Bach, 2016) is entangled with broadened new agendas, illustrated by China's Belt and Road Initiative, the India Middle East Europe Corridor (IMEC) or the EU's Global Gateway Initiative (GGI) guided by openly acknowledged geoeconomic and strategic considerations.

These mega- and inter-regional ventures breed their regional governance systems, as defragmentation (through constructing hard infrastructures and establishing *ad hoc* trade, finance, and investment regimes) entrenches asymmetrical interactions with

key stakeholders. This also confirms the ongoing relevance of the classic distinction between regionalism as a stepping stone to promote deeper integration within the world economy and regionalism as a buffer and a stumbling block (Hveem, 1999).

Old Issues, New Agendas: The EU

Throughout the 1990s, the assumption that the focus on new forms of regionalism meant that the EU would become an outdated model of region-building never materialised. The global revival of regionalism in the 1990s owed much to the EU's completion of a Single European Market (SEM), the adoption of the Maastricht treaty and the enlargement of the EU towards eastern and central Europe. Through active or passive support to region-building, the EU consolidated its status as the 'global script' for integration (Libman, 2019:247).

The EU's holistic and developmental ambitions concerning region-building have so far been sustained despite the surge of populist movements and illiberal regimes, Britain's decision to leave the EU, and increasingly pressing crises and challenges. Unlike what many feared or (as in the case of the Brexiters) expected, the cohesion of the EU-27 remained undented throughout the protracted negotiations that led to the conclusion of the Trade and Cooperation agreement with the UK on December 30, 2021.

The case that some scholars have made for a functional theory of (European) disintegration (Schmitter & Lefkofridis, 2016) was not validated. Since then, the test of the COVID-19 pandemic has been followed by Russia's invasion of Ukraine and rising uncertainties concerning U.S. commitment to European security within NATO. The EU is being compelled to consider far-reaching alternatives and prioritise its collective defence, an era of competence that was until recently the source of deeply seated disagreements among the EU-27.

The priority initially given to economic integration, the hallmark of the European construction template, owed much to bitter memories of the Stillborn Treaty were to establish a European Défense Community (EDC) in 1952. Such a legacy can no longer be treated as an impediment.

Colonial and Imperial Legacies: Resilience and Revival

The British coined the term amalgamation in 1914 to describe the merger into a single entity of what became then known as Nigeria. This is a reminder that colonial or imperial rule was as much about partition as region-building (Bach, 2016). Colonialism meant the establishment of boundary lines that often cut across pre-existing polities. The federations that colonial rulers usually established combined elements of centralisation and decentralisation is classically associated with federalism. However, key ingredients

were missing: they were created without consultation with the indigenous communities and were not sovereignty entities.

The post-Soviet space offers a particularly rich environment for studying the resilience and revival of imperial legacies and mental maps. Smith's suggestion of the railway (de)coupling metaphor also helps to draw parallels with debates on the future African colonial federations at the time of independence (Bach, 2016).

In the Soviet Union, decoupling started with the restoration of the sovereignty and independence of the three Baltic states and Georgia between 1988 and 1991. The formal proclamation of the end of the Soviet Union went along with the establishment of the Commonwealth of Independent States (CIS), which in 1993 included 11 out of the 14 former Soviet states.

The stated purpose of the CIS was to curb the effects of the disintegration of the Soviet Union through the establishment of an integrated space based on a free trade area,

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From Africa to the postSoviet space, historical
boundaries and identities
shape contemporary
governance, economic
integration, and
geopolitical tensions in an
evolving global order

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the establishment of a Eurasian Economic Union (EEU), a Collective Security Treaty Organisation (CSTO) and even, in the case of Belarus and Russia, a Political Union (Smith, 2019).

The CIS turned out to be more about alleviating the effects of decoupling than about promoting supranational integration. By 2014, Putin had failed to hold the majority of post-Soviet States together (Smith, 2022), and Russian claims to hegemony were being contested by the prospects of further EU and NATO extension into Russia's 'near abroad'.

In 2014, on the eve of the invasion and annexation of Crimea, Vladimir Putin voiced his disappointment with the dissolution of the Soviet Union "where millions of people went to bed in one country and awoke in different ones, overnight becoming ethnic minorities in former Union republics, while the Russian nation became one of the biggest, if not the biggest ethnic group in the world to be divided by borders". (Putin, 2014). Russia, the Russian

president concluded, was now a nation without a state, a depiction that mirrored some of the post-independence debates in Africa.

Such a parallel was to be explicitly drawn during the UN Security Council meeting of February 20, 2022, by the permanent representative of Kenya, as he warned Russia of the dangers of stoking the "embers of dead empires" (Kimani, 2022). Our borders, he recalled, were drawn

"With no regard for the ancient nations that they cleaved apart. At independence, had we chosen to pursue states based on ethnic, racial, or religious homogeneity, we would still be waging bloody wars these many decades later. We believe that all states are formed from empires that have collapsed or retreated have many people yearning for integration with people in neighbouring states. This is normal and understandable. We rejected irredentism and expansionism on any basis, including racial, ethnic, religious, or cultural factors" (Kimani, 2022).

What India's Defence Reforms Mean for Australia and India



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India's military is undergoing major reforms, including joint commands and a stronger defence ministry. These changes enhance its capabilities and open avenues for deeper collaboration with Australia in the Indo-Pacific.

India's military is likely to establish several new joint commands this year in one of the most significant restructure in its history. The country is one of Australia's closest partners, with one of the world's biggest militaries, so how it approaches its defence priorities matter deeply to us and the Indo-Pacific.

But India's proposed commands are just one part of a broader suite of reforms, including changes in its defence ministry. The reforms are designed to be mutually reinforcing and are best judged for their cumulative effects over decades.

In the interim, two implications for Australia are clear. First, the reforms could substantially heighten Indian defence capabilities—if implemented thoughtfully and with sustained political backing. Second, they are paving the way for deeper defence cooperation with Australia.

India established a new military position, the Chief of Defence Staff (CDS),

in late 2019. Before then, the navy, army and air force operated in parallel. Their chiefs coordinated with each other but reported separately to the defence minister (often through a tri-service committee, but not an overarching commander).



India's Chief of Defence Staff integrates military branches, drives reform, and strengthens civil-military cooperation. His position fosters strategic cohesion and provides Australia with a direct counterpart for defence collaboration



The CDS changed things. He doesn't command the service chiefs of the same rank as him. But he's a very experienced professional who drives policy and acts as a single point of military advice to the government.

He's also politically appointed. Current CDS General Anil Chauhan initially retired as a lieutenant general and was serving as a civilian defence adviser to the highly influential national security advisor before re-entering military service to take the CDS position on promotion in 2022.

Chauhan carries the implied weight of Prime Minister Narendra Modi's government to reform a complex system with many conflicting, if legitimate, priorities. In turn, he can shape the political discussion on national security better as CDS then he could if he were one of several service chiefs.

For Australia, the CDS represents a positional counterpart with which our chief of defence force engages. This goes a long way toward fostering rapport and sustaining momentum between two armed forces that operate differently and don't always have direct equivalents.



India's joint commands will streamline operations, improve efficiency, and facilitate military cooperation with Australia. Enhanced interoperability could lead to expanded exercises, humanitarian missions, and a more secure Indo-Pacific region.

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One of the CDS's primary responsibilities is to integrate the navy, army and air force capabilities to ensure their collective power is greater than the sum of their parts—to foster a joint approach to military affairs. Implied in that task is eliminating financial inefficiencies across the services.

India's forthcoming joint commands are at the heart of this process. They will be staffed by personnel from multiple services organised to fulfil core functions, such as defending India's contested borders with China and Pakistan and leveraging resources across all services to consolidate India's maritime power.

This is welcome. India's three services already collaborate, particularly at the tactical level. However, the strategic process of forming shared objectives, culture, and approaches to military operations is endless, as are the potential capability dividends.

The modestly sized Australian Defence Force is well-placed to collaborate on this. It relies heavily on leveraging all three services and its international partners to achieve its objectives. Some of its approaches won't be relevant to India, but they offer useful test cases for what worked and didn't work for us.

Once established, India's joint commands could facilitate more defence cooperation with Australia. Amphibious exercises or cooperative humanitarian assistance missions, which depend on interservice collaboration, should be easier to plan if the need to liaise with multiple siloes on either side is eliminated.

But India's journey to a joint approach is more than integrating military capabilities. Civil-military cooperation is also key. New Delhi's new government department within its defence ministry deserves as much attention as military commands.

Led by the CDS, the Department of Military Affairs (DMA) is primarily staffed by military officers seconded to the ministry.

It exists to integrate military better and civilian perspectives within the defence bureaucracy.

This is significant. The military has sometimes been instrumental in shaping India's national security conversation. But its early political leaders were cautious about becoming too reliant on military advice, lest serving officers exert undue influence. Simultaneously, conventional appraisals of Indian military capabilities emphasised the need for civilian leaders to respect military expertise.

According to this logic, the military would perform best when given space to conceive and execute operations without unhelpful meddling from above. Strategic policy, senior appointments, and defence budgets were a civilian domain; operations were for military personnel.

This approach arguably helped consolidate civilian supremacy over India's armed forces while preserving space for the military to achieve its missions. But it also created siloes between civilian defence officials and their uniformed counterparts, in a dynamic that Anit Mukherjee calls an 'absent dialogue' in his excellent book.

Military and civilian officers collaborate daily in Delhi. However, when frustrated, a civilian ministry official might complain that military officers lack political or strategic nuance. Their uniformed peers might retort that civilians often assigned to the defence ministry from unrelated portfolios don't have the expertise required to wield their enormous power over priorities and budgets. These perspectives are likely familiar to the world.

Establishing the DMA hasn't been India's first attempt to better integrate military and civilian voices within the military, and its impact will take time to judge. But any progress matters. Military operations work best when civilian perspectives are incorporated within the government and civil society. And no national security strategy can be taken seriously if it isn't underpinned by robust military advice.

The CDS's success will hinge on his ability to translate India's political appetite for change into tangible results. In turn, he will leverage the military's heightened profile to consolidate itself as a source of robust, apolitical advice to the government.





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The Evolution of India-US Defence Relations: A Keystone of Indo-Pacific Security

The India-US defence partnership is a cornerstone of Indo-Pacific security, fostering regional stability, multilateral cooperation, and innovation in defence technologies while shaping a resilient, rules-based order.

Introduction

In the contemporary international arena, the strategic partnership between India and the United States has emerged as a cornerstone of peace and stability in the Indo-Pacific region. This partnership, deeply rooted in shared democratic values and



Evolving from cautious
engagement to strategic
alignment, India-U.S. defence ties
have deepened through
agreements, joint exercises, and
rising trade, solidifying their role in
shaping the Indo-Pacific's security
architecture



mutual interests, has witnessed a significant transformation over the past few decades.

The evolving defence relations between these two nations are not merely bilateral. Still, they are intricately linked with the broader objectives of promoting multilateral cooperation, involving key players such as Australia, Japan, the United Kingdom, France, and Germany within the framework of the Quad and beyond.

This article endeavours to delve into the dynamics of India-US defence relations, highlighting their significance in the context of the Indo-Pacific's security architecture and the innovative pathways these relations pave towards sustainable development in the region.

In the vast expanse of the Indo-Pacific, the defence relationship between India and the United States stands as a pivotal force, promoting peace, stability, and a rules-based order. This partnership, evolving over decades, now forms the bedrock of regional security architecture, significantly influencing the strategic landscape. It transcends bilateral interests, fostering

multilateral cooperation and innovation in defence technologies. Through a closer examination, including data and illustrative examples, the nuanced dynamics of this partnership and its implications for the Indo-Pacific region becomes evident.

Strengthening Ties: Historical and Recent Developments

The defence relationship between India and the U.S. has experienced a paradigm shift since the end of the Cold War. Initially characterised by caution and hesitance, the relationship has evolved into one of mutual trust and strategic partnership. The turning point in this evolution can be traced back to the signing of the New Framework for the India-U.S. Defence Relationship in 2005, which laid the groundwork for increased cooperation in defence trade, joint exercises, and technology transfers.

Defence cooperation between India and the U.S. has steadily intensified since the early 2000s. Bilateral defence trade, nearly negligible in 2008, escalated to over \$20 billion by 2020. The landmark defence

agreements—LEMOA (2016), COMCASA (2018), and BECA (2020)—have not only facilitated logistics exchanges and secure communications but also underscored the strategic alignment of both nations.

Significant milestones have been witnessed in recent years that illustrate this deepening relationship. The Quad summits, for instance, have evolved from dialogue forums to platforms orchestrating strategic military exercises like Malabar involving the Quad nations. These exercises underscore a collective resolve to ensure a free and open Indo-Pacific. These exercises have been pivotal in enhancing interoperability and showcasing a united front against challenges to regional security and freedom of navigation.

A Tapestry of Multilateral Engagements

India's inclusion in the Quad, alongside the U.S., Japan, and Australia, reflects a mutual recognition of its central role in the Indo-Pacific's security. The Quad's commitment was further solidified during



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India's role in the Quad, alongside the U.S., Japan, and Australia, underscores a collective commitment to regional security, economic resilience, and addressing emerging global challenges through strategic collaboration

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the historic first in-person Quad Leaders' Summit in 2021, where initiatives to expand vaccine diplomacy, climate change actions, and secure supply chains were key highlights. Such multilateral engagements, underpinned by defence cooperation, signify a collective endeavour to address both traditional and non-traditional security threats, thereby reinforcing the strategic autonomy of the Indo-Pacific nations.

Moreover, Indian Prime Minister Narendra Modi's invitation to the White House in 2021, amidst the global reorientation post-COVID-19, underscores the strategic significance of India-US relations. The discussions to bolster defence and technology partnerships reflect a shared vision for the region's future. Similarly, the dialogue surrounding the U.S.'s engagement with India in seeking assistance during the Western boycott of Russia highlights India's nuanced diplomatic balance, showcasing its strategic importance to U.S. interests in the region.

Defence Initiatives: A Catalyst for Development

The defence cooperation between India and the U.S. extends beyond strategic posturing, contributing directly to regional development. The Technology Safeguard Agreement (TSA), signed in 2019, facilitates the launch of U.S. satellites from Indian spaceports, exemplifying how defence-related agreements can foster technological and economic growth. Such initiatives enhance military capabilities and drive innovation, offering tangible benefits to the broader society.

The collaboration in defence manufacturing, with major US defence firms setting up joint ventures in India, exemplifies the 'Make in India' initiative's success in attracting foreign investment and technology transfer. These ventures bolster India's defence industrial base and contribute to job creation and skill development, underlining the defence sector's role in economic development.

Conclusion: Forging Ahead

The India-US defence relationship, amidst the complex tapestry of the Indo-Pacific's strategic environment, serves as a beacon of collaborative strength and mutual respect. It safeguards regional security and fosters economic prosperity through technological innovation and multilateral cooperation. As the partnership continues to evolve, it will undoubtedly play a critical role in shaping the future of the Indo-Pacific, making it a region of peace, stability, and flourishing development.

The India-US defence partnership exemplifies how strategic alliances can transcend traditional military cooperation, embodying regional prosperity and development goals. As we navigate the challenges and opportunities of the 21st century, the continued collaboration between India and the U.S. will be pivotal in realising the vision of an inclusive, secure, and prosperous Indo-Pacific region.

India's Position in the Indo-Pacific and QUAD Regions and Strategies for its Strengthening



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India's economic partnerships in the Indo-Pacific and QUAD regions are crucial for regional stability, fostering trade agreements that enhance supply chains, technological collaboration, and investment opportunities in key sectors.

India's strategic position in the Indo-Pacific and the QUAD region necessitates robust economic and trade partnerships to bolster its influence and foster regional stability. As geopolitical dynamics shift and economic interdependencies grow, India should actively pursue comprehensive trade agreements that enhance its bilateral and multilateral relationships.

By focusing on strategic trade agreements, India can deepen its engagement with key partners such as Japan, Australia, and the United States and explore opportunities within regional frameworks like ASEAN and the CPTPP. These efforts will secure supply chains, attract foreign investment, and promote technological collaboration, infrastructure development, and digital trade, ultimately strengthening India's role as a pivotal player in the Indo-Pacific and QUAD regions.

India's strategic importance in the Indo-Pacific and QUAD regions cannot be overstated. As global power dynamics evolve, the significance of robust economic and trade partnerships grow, particularly for a nation as pivotal as India. The government should take note of these and actively pursue comprehensive trade agreements with key partners to bolster its influence and foster regional stability.

This essay explores how India can leverage such agreements to enhance its bilateral and multilateral relationships, secure supply chains, attract foreign investment, and promote technological collaboration, infrastructure development, and digital trade.

Bilateral Trade Agreements

Japan: India and Japan share a strong economic partnership underpinned by the Comprehensive Economic Partnership Agreement (CEPA). To further strengthen this bond, India can work towards addressing non-tariff barriers that hinder

trade. Enhancing technology, infrastructure, and digital trade cooperation can open new avenues for economic engagement. Japan's expertise in high-tech industries and infrastructure development can be synergised with India's growing market and manufacturing capabilities, creating a mutually beneficial relationship.

Australia: The Economic Cooperation and Trade Agreement (ECTA) between India and Australia represents a significant step towards deepening economic ties. Expanding this agreement to cover a broader range of sectors, including critical minerals, agriculture, and education services, can provide substantial benefits. Australia is rich in vital resources for India's industrial growth. At the same time, India offers a large market and a skilled workforce that can benefit from Australian educational institutions and agricultural technology.

United States: India's potential for a bilateral free trade agreement (FTA) with the United States presents a promising opportunity. While negotiations have faced challenges, focusing on sector-specific trade deals in high-tech industries,

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Expanding trade
agreements with Japan,
Australia, and the U.S.
will strengthen India's
economic influence,
secure supply chains,
and promote innovationdriven growth

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pharmaceuticals, and services can pave the way to create a broader FTA in the future. The U.S. is a key player in global technology and innovation, and stronger economic ties can facilitate technology transfer and investment in India's burgeoning tech sector.

Regional Trade Agreements

ASEAN: The ASEAN-India Free Trade Area (AIFTA) serves as a critical platform for India's engagement with Southeast Asia. India can deepen its economic integration with ASEAN member states by improving market access, reducing trade barriers, and enhancing investment flows. This region offers immense trade opportunities due to its rapid economic growth and strategic location along key maritime routes.

RCEP Participation: India's hesitation to join the Regional Comprehensive Economic Partnership (RCEP) is driven by concerns over trade imbalances and the protection of sensitive sectors. However, re-evaluating participation in RCEP with a focus on addressing these concerns could provide significant long-term benefits. As the world's largest trade bloc, RCEP offers access to a vast market and the potential for economic collaboration.

Multilateral Initiatives

CPTPP: Exploring membership in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) can further integrate India into the Asia-Pacific trade network. The CPTPP covers a wide range of economic sectors and sets high standards for trade practices, which can help India enhance its trade policies and regulatory frameworks. Membership would also signal India's commitment to free trade and economic cooperation in the region.

IPR and Standards Harmonisation: Promoting the harmonisation of intellectual property rights (IPR) and standards across



the Indo-Pacific can facilitate smoother trade and investment flows. Standardising regulations can reduce trade barriers and increase market access for Indian products. Additionally, stronger IPR protections can encourage innovation and attract foreign investment in research and development.

Sector-Specific Agreements

Digital Trade: Establishing digital trade and e-commerce agreements is crucial for capitalising on the growing digital economy. Ensuring secure cross-border data flows and protecting digital infrastructure can enhance India's position as a hub for digital services. Collaboration with countries like Japan, Australia, and the U.S. in this sector can drive innovation and growth in India's tech industry.

Infrastructure Development: Promoting collaboration in infrastructure projects like the Blue Dot Network can enhance connectivity and investment in critical infrastructure. By partnering with countries with advanced infrastructure capabilities, India can improve its infrastructure, vital for economic growth and regional integration.

Supply Chain Resilience

Quad Supply Chain Initiative: The Quad's Supply Chain Resilience Initiative (SCRI) aims to diversify and secure supply chains for critical sectors, including semiconductors, pharmaceuticals, and rare earth minerals. India can play a key role in this initiative by developing its manufacturing capabilities and ensuring a stable supply of essential goods. This can reduce dependency on single-source suppliers and enhance economic security.

Trade Facilitation: Enhancing trade facilitation measures to reduce logistical bottlenecks and improve the efficiency of cross-border trade is essential for seamless economic integration. Implementing advanced customs procedures, improving transportation infrastructure, and adopting digital solutions can streamline trade processes and reduce costs.

Investment Promotion

FDI Incentives: Offering attractive incentives for foreign direct investment (FDI) in key sectors such as technology, manufacturing, and renewable energy can

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Enhancing supply chain resilience, promoting FDI incentives, and fostering digital trade agreements will bolster India's economic leadership, ensuring sustainable development and integration within the Indo-Pacific and QUAD regions

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drive economic growth. Simplifying regulatory frameworks, providing tax benefits, and ensuring policy stability can attract foreign investors and foster long-term partnerships.

Joint Ventures: Encouraging joint ventures and partnerships between Indian companies and firms in the Indo-Pacific region can facilitate technology transfer and innovation. Collaborative ventures can leverage the strengths of both Indian and foreign companies, leading to the development of new products and services.

Strategic Dialogues and Forums

Economic Dialogues: Active participation in economic dialogues and forums such as the East Asia Summit (EAS), ASEAN Regional Forum (ARF), and APEC (if membership is pursued) can enhance India's economic diplomacy. These platforms provide opportunities for dialogue on economic policies, trade facilitation, and regional cooperation.

Trade Missions: Conducting high-level trade missions to promote Indian businesses and explore new market opportunities is crucial for expanding economic ties. These missions help identify potential partners, understand market dynamics, and showcase India's strengths in various sectors.

Capacity Building and Technical Assistance

SME Support: Providing technical assistance and capacity-building programmes for small and medium-sized enterprises (SMEs) can help them compete in the international market. SMEs play a vital role in India's economy, and supporting their growth can enhance overall economic resilience and competitiveness.

Skill Development: Collaborating on skill development programmes to enhance the workforce's ability to meet the demands of global trade is essential for sustaining economic growth. Partnering with countries that have advanced educational and training systems can help develop a skilled workforce capable of driving innovation and productivity.

Conclusion

In conclusion, India's strategic position in the Indo-Pacific and QUAD regions offers significant opportunities for enhancing its economic and trade partnerships. By pursuing comprehensive trade agreements, India can deepen its bilateral and multilateral relationships, secure supply chains, attract foreign investment, and promote technological collaboration, infrastructure development, and digital trade.

These efforts will strengthen India's economic position and contribute to regional stability and prosperity. Through strategic engagement and proactive diplomacy, India can emerge as a key player in the Indo-Pacific and QUAD regions, driving economic growth and fostering regional cooperation.

India's Rising Defence Exports: What Needs to be Done in the Future



Rajinder Singh Bhatia
Chairman, Kalyani Strategic
Systems Limited, Bharat Forge

With record defence exports of ₹21,083 crores in FY 2023-24, India's military-industrial capabilities are strengthening. Achieving ₹50,000 crores in exports by 2028-29 requires strategic reforms and investments.



Dnyanada Palkar Manager, Policy Advocacy & Government Relations, KSSL

efence exports are an important measure of a nation's military prowess and military-industrial capabilities. With the value of total defence production coming in at ₹1,27,000 crores for FY 2023-24 India stands on the cusp of exponential growth in its defence industrial capabilities. Upon assuming charge as Raksha Mantri for a second consecutive term, Shri Rajnath Singh stated that a major target would be to export over ₹50,000 crores (approximately US\$5bn) worth of defence equipment by 2028-29. Defence exports for FY 2023-24 stood at a record ₹21,083 crores (approximately US\$2.5bn), making this target attainable.

It must be noted that even the Government of India has acknowledged that private industry in India has contributed 60 percent to the ₹21,083 crores of defence exports – making it integral to the growth

of India's defence exports. While India has come a long way from being entirely import-dependent for defence platforms and equipment needs, the journey ahead must be navigated carefully. All defence industrial stakeholders in India could take a lesson or two from the experience of nations that have trod the path to increasing defence exports.

The U.S., Russia, France, China, and Germany have dominated the top of the list as major global arms and defence equipment exporters since 2015. With contributions to global arms exports ranging from 42 percent (U.S.) to 5.6 percent (Germany), they account for 75 percent of total defence exports worldwide.

U.S. dominance in global defence production is owed to a plethora of factors – though the primary driver was investments in technology and R&D for World War II

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Strengthening policy support, credit instruments, and global collaborations will enhance competitiveness, fostering innovation and sustainable growth in the global defence market



(WWII) and later during the Cold War arms and space races. Russia diminished in the post-Cold War era due to the breaking up of the Soviet Union but maintained its larger defence production capabilities.

France and Germany had invested in their defence industries during WWII and always incentivised technology development domestically. China played the long game in terms of catching up and streamlining its previously fragmented state-owned enterprises into behemoths of efficient production and continuous innovation.

South Korea, Turkey, and Australia are countries whose defence exports have grown exponentially over the past two decades. Therefore, they serve as good examples of what countries can do to fulfil the aim of increasing defence exports. South Korea and Turkey each increased their defence exports six-fold, while Australia increased their defence exports three-fold from 1996-2009 to 2010-2023 (refer to Table 1).

South Korea's total defence exports went up from approximately US\$1.4bn in 1996-2009 to US\$6.35bn in 2010-2023. South Korea was ranked as the 9th largest arms exporter in the world from 2018-2022 by SIPRI, one of just 2 Asian nations to be ranked in the top 10. It has achieved this feat through a long-term focus on bolstering its defence industrial capacities, with policy reforms being put in place from the early 2000s and continuing through the 2010s.

Table 1: Top Countries for Global Defence Exports – Evolution from 1996 to 2023						
Country	Rank (1996-2009)	Rank (2010-2023)	Value of Defence Exports (1996-2209)	Value of Defence Exports (2010-2023)	% Share of Global Defence Exports	% Change from 1996-2009 to 2010-2023
United States	1	1	119.8	142.3	36	19
Russia	2	2	67.5	76.9	19	14
France	3	3	26.3	31.9	8.10	21
China	6	4	7.7	23.04	5.80	199
Germany	4	5	25.3	21.9	5.50	-13
South Korea	16	11	1.4	6.35	1.60	363
Turkey	25	14	0.5	3.67	0.90	572
Australia	28	18	0.4	1.69	0.40	281

Note: 'Value' figures are approximately US\$bn. The figures given are the average value over the given time periods.



Apart from efficiently using existing production lines and expediting the setting up of new production lines to meet demand, South Korean defence companies have been authorised to pursue localisation through limited technology transfers by setting up local production in the countries they export to, such as Egypt (for the K9 and K10 ammunition resupply vehicles) and Australia (for IFVs and howitzers).

More importantly, the Korean government will invest an estimated KRW 1tn (US\$725mn) in further innovation, including transferring defence technologies from the state-owned to the private sector and allocating a minimum of 10 percent of the Defence Ministry's annual budget to R&D.

India's own defence industrial landscape is undergoing steady change for the better, with a dedicated focus on *Atmanirbharta* or self-reliance. The government's interest in and support for the private domestic defence industry to build its export

capabilities has proved beneficial, and the results are clear in terms of the growth of India's defence exports.

A more formal framework is required to achieve the defence exports target set by the Raksha Mantri and ensure that the upward trend of Indian defence exports is maintained. The government has lately focused on technology innovation and exchange, with programmes like iDEX and ADITI and even a specific focus on Indigenous design. However, further policy reforms must be introduced and implemented sooner to capitalise on the existing window of opportunity in the global defence market.

Private defence firms in India actively pursue business in friendly countries but require credit instrument support. Establishing lines of credit and providing support through foreign desks is crucial in this regard and can be provided by institutions like EXIM Bank. Finally, taking a leaf out of South Korea's book – all defence

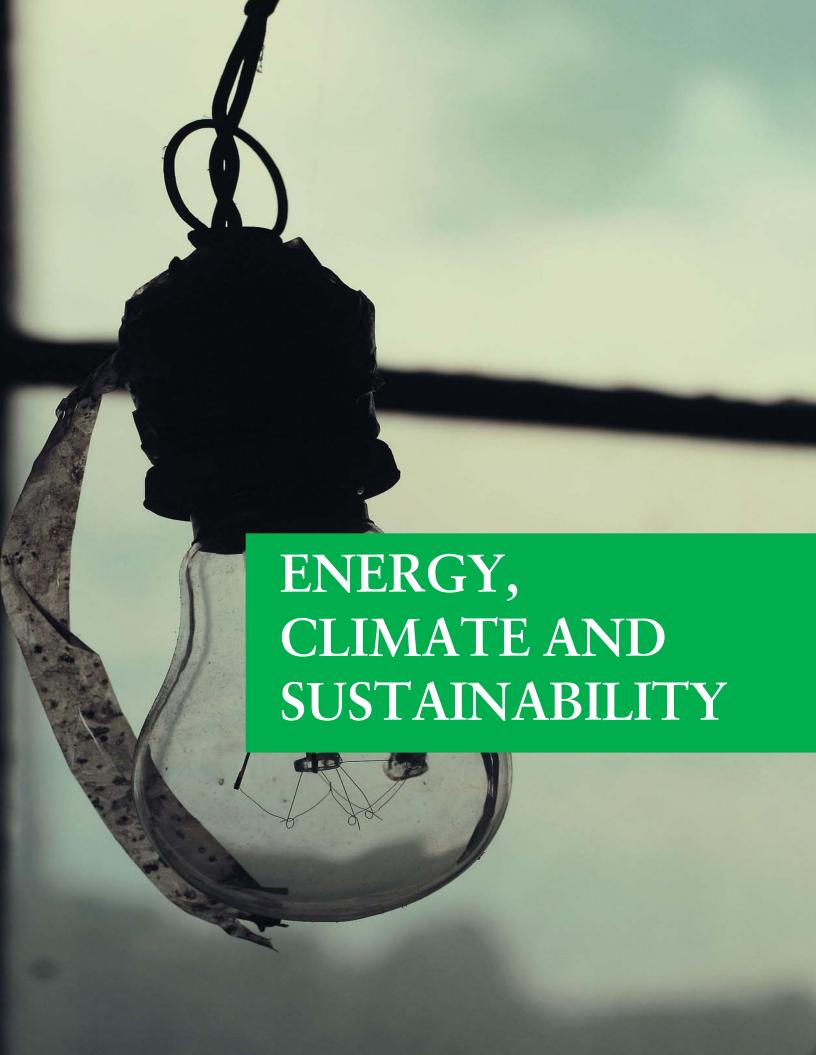


Countries like South Korea and Turkey scaled defence exports exponentially through innovation, R&D, and localisation. India must adopt similar long-term strategies to solidify its position in the global arms market

industry stakeholders need to concentrate efforts on IP creation and talent development, both of which are crucial to maintaining competitiveness in the global arms market.

A long-term framework is necessary to reduce reliance on technology transfers, licensed production, and domestic assembly. Bolstered by policies that encourage investment in technology and R&D for IP creation and skill development in defence manufacturing, India will not only meet but potentially surpass its defence export targets.

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Korea's Climate Endeavour Should Complement Other Climate Initiatives in the Indo-Pacific



Kyungjin Song
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The Korean summer of 2023 was hotter and longer than usual. Summer-like weather continued even during the Chuseok (Full Moon) holiday when the weather usually cools. For many experiencing the effects of climate change firsthand, this was a wake-up call to pay attention to rapid climate change response and specific measures.

In October 2021, the Korean government announced its commitment to reducing greenhouse gas emissions by 40 per cent from 2018 and achieving net-zero emissions by 2050. This commitment is well enshrined in law through the Carbon Neutrality Act 2021.

At the 78th session of the United Nations General Assembly in September 2023, President Yoon Suk Yeol proposed a Korealed global "Carbon-Free Alliance" (CFA) to promote the adoption of carbon-free energy such as small modular reactors (SMRs) and hydrogen to expedite carbon neutrality. The COP28 in December 2023 was on the same page by calling for the promotion and facilitation of the use of low-emission technologies.

It is a positive step in the right direction, given that climate response is urgently needed. The global goal of carbon neutrality

should not be delayed for the survival of Earth and humankind.

Also, the first phase of the European Union (EU) Carbon Border Adjustment Mechanism (CBAM) took effect on October 1, 2023, and will enter into full implementation in 2026. Carbon taxes will be imposed on products imported into the EU that emit more carbon than EU products. This will likely drive up the price of carbon-intensive products and thus significantly influence consumer choices.

The first phase requires exporters to the EU in six carbon-intensive industrial sectors to report their emissions to EU authorities. These sectors include iron and steel, cement, fertilisers, aluminium, electricity generation, and hydrogen industries, which produce significant greenhouse gases.

Korea, a major manufacturer and exporter of these products, is facing an



Korea's Carbon-Free Alliance, proposed in 2023, champions carbon-neutral energy solutions like SMRs and hydrogen. Aligning with COP28, it aims to accelerate low-emission technologies for a sustainable future

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immediate challenge to reduce carbon emissions for both environmental trade and economic purposes. The steel industry is predicted to be heavily affected by the EU's CBAM.

The Korean government should ensure that the CFA's promotion of carbon-free energy, particularly SMRs, comes as a package with nuclear waste reprocessing in place. For instance, nuclear energy is classified as green energy equipped with reprocessing facilities in the EU taxonomy. Added to it, as of 2025, existing and new build projects must use accident-tolerant fuel.

France, another nuclear giant with whom Korea wishes to collaborate for the CFA, is proceeding with nuclear projects following the requirements in the EU taxonomy. Without satisfying these internationally accepted requirements, the Korea-led CFA can go only so far as a carbon neutrality initiative. Therefore, President Yoon's idea of establishing a global joint research centre on carbon-free energy should be a concurrent project under which technological innovation necessary for reprocessing is encouraged and expedited.

It should also complement the efforts of other initiatives, such as RE100, which aims

at 100 per cent renewable energy, and vice versa. For instance, Korea needs to increase the share of its electricity from renewables, currently standing at 2 per cent, far lower than the levels of China (32 percent), Singapore (26 percent) and Japan (15 percent). Korea aims to ratchet up the share of renewables in its total energy mix to 108.3 GW by 2036 (46.7 percent) from 29.2 GW in 2022 (21.9 percent).

There seems to be a suspicion, or a distorted view, that the Korean government is attempting to replace RE100 with the new initiative. This is far from true. The global community should mobilise all available resources and mechanisms and ensure they work in harmony and alignment to achieve the net-zero goal. Many large Korean corporations are already members of RE100. A Korean cosmetics giant was chosen as one of the six RE1000 Leadership Awards 2023 winners.

Korea is set to extend its goodwill and assistance to the Global South as part of its CFA. Carbon neutrality is an even greater challenge for developing countries with shortages of resources and expertise to build the necessary infrastructure to reduce carbon emissions. Korea's official development assistance can provide financial and technical assistance to developing countries to reduce carbon emissions in alignment with their carbon neutrality goals.

The same principle should be applied to global and regional collaboration in renewable energy. Funding is a major concern for many countries. For example, the International Energy Agency (IEA) estimates that India will need US\$239bn in financing to triple renewable energy capacity by 2030 and US\$101bn to reach net-zero greenhouse gas emissions in line with the IEA's proposed scenario. A lack of expertise and a shortage of skilled workers are persistent problems, especially in manufacturing and constructing renewable projects, slowing the energy transition.

According to Boston Consulting, the global renewable sector will face a shortage of seven million skilled workers needed to serve as solar panel installers, wind farm operators, welding and metal technicians in large-scale solar farms, and engineers for battery technologies.

Korea may not have sufficient sunlight and wind to capitalise on for a quicker energy transition, but it may have some funding and expertise to share with friends and partners worldwide. Korea should, therefore, more proactively engage with them to support their energy transition while simultaneously benefiting from such collaboration by introducing a renewable energy certificate (REC). It is worth trying for the Indo-Pacific to introduce a REC scheme for mutual benefits. A successful implementation in the Indo-Pacific will set an example for other countries and regions.

To this, and also as a clear expression of its commitment to carbon neutrality, Korea should join the International Solar Alliance (ISA), a treaty-based intergovernmental organisation, as soon as possible. The ISA, jointly led by India and France and launched in 2015, aim to cooperate to reduce dependence on fossil fuels and encourage efficient solar energy consumption. It has more than 120 signatory countries, including the U.S., Japan, France and India. Korea should not miss the opportunity for international collaboration. Taxpayers would like to see the money well spent for the existential global cause.

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As the EU's Carbon
Border Adjustment
Mechanism takes
effect, Korea's
industries must swiftly
reduce emissions.
Strategic investment in
renewables and
international
cooperation are crucial
to remain competitive
and meet climate goals

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Food Systems, the Agenda 2030 and the Paris Agreement

Food security concerns have evolved beyond shortages to food systems' broader role in health, climate, and governance. Integrated policies are crucial to address these challenges and ensure sustainable global food production.

Since they existed, human beings have been understandably concerned about the availability and access to food. Malthusian concerns about the lack of food for a growing population have reemerged from time to time, particularly during price spikes such as those of the mid-1970s, in 2008 and 2011, and, more recently, after the Russian invasion of Ukraine in February 2022.

In the last decade, concerns have broadened from potential food shortages to the functioning of food systems, recognising that they are crucial for a variety of objectives related to health and nutrition, growth and employment, poverty alleviation and equity, climate change, environmental sustainability and biodiversity, and even social cohesion, peace, and stable governance.

These developments relate to the 2030 Agenda agreed upon in 2015 and the Paris Agreement, which includes climate mitigation, adaptation, and resilience goals. During COP28, the importance of articulating the "National Pathways" of the

2021 UN Food Systems Summit (linked to the 2030 Agenda) with the Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) of the climate negotiations was recognised.

However, designing and implementing these integrated programmes, particularly for developing countries, is difficult. To be operationalised, these programmes should include 1) quantitative objectives and time frames, 2) policy instruments (in a broad sense), 3) technological considerations, 4) detailed institutional arrangements, 5) estimates of costs, and 6) adequate financing.

Unfortunately, many developing countries are not designing and implementing integrated programmes with all those components. For example, the UNFSS+2 "Stock Taking Moment" (STM) showed that among developed and developing countries surveyed, only 29 percent mentioned having an "Investment plan/implementation plan."

Without functioning national programmes, efforts to generate and direct

hundreds of billions of dollars in funding will be useless. One of the main issues is how to provide developing countries with the specific financial and methodological support they need to establish the internal institutional machinery necessary to prepare and implement those programmes.

In other publications, I have discussed objectives, instruments, and financing (Díaz-Bonilla, Swinnen and Vos, 2021; Díaz-Bonilla, 2023a, b, and c). Here, I will briefly focus on some aspects of the institutional challenges of these complex programmes.

Some Considerations About Institutional Arrangements

The summary by the UN Secretary-General after the 2023 UNFSS+2 STM asked for "...food systems governance with a whole-of-government, whole-of-society approach...". The COP28 Declaration calls for "strengthen collaboration between our respective ministries (including agriculture, climate, energy, environment, finance and health) and with various stakeholders."

But what does that imply, and how can it be done?

A Historical View: From Ministries of Agriculture to Food Systems and Beyond

Long ago, agriculture ceased to be confined only to primary production; rather, farm activities were incorporated into sophisticated processing chains, logistics of flows of inputs and products, and distribution and articulation with increasingly segmented and specific markets.

Considering this new reality, various objectives, including growth, employment, economic development, food safety, nutrition, environmental sustainability and regional/territorial development, have been proposed for the agricultural sector.

Figure 1 shows different levels: a) agricultural policies for the primary producer (which, in turn, can be divided into subsistence, intermediate/family, and commercial producers); b) rural/territorial development policies, considering the geographical space; c) policies for value chains, which consider both inputs and services, as well as processing and distribution to the consumer; or d) policies for the agrifood system as a whole, which considers other aspects of the consumer and their environment, including more general macroeconomic policies.

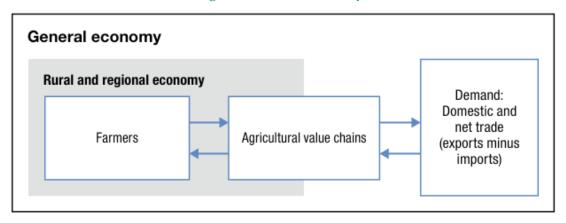


Figure 1: Levels of Analysis

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Effective food system policies require clear objectives, financing, and institutional coordination. However, many developing nations lack investment plans, highlighting the urgent need for financial and methodological support to implement national programmes

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To the extent that agricultural activity has been visualised as part of broader food systems, the type of demands and scope of policies related to the agricultural sector have been modified with varied implications for the institutional organisation.

However, the institutional and organisational models of the Ministries of Agriculture in most developing countries are associated with the requirements of expanding the production of certain products and have been adjusting slowly to these new demands.

Traditional Ministries with Sectoral Focus: The traditional Ministries of Agriculture and Livestock (MAL) continue with their general services, such as Planning and statistics, agricultural technology research and extension (transfer), sanitary and phytosanitary aspects, irrigation and drainage, land management, marketing infrastructure, support for associative organisations, trade, and other related topics and services.

Territorial approach and small producers: The approach of the Integrated Rural Development (IRD) programmes of the 1970s and 1980s, which combined the emphasis on small producers and a territorial development approach with investments in infrastructure, health, education, and other aspects at the local level, led to the creation of the Secretariats of IRD or equivalent. In several cases, these new organisations depended on the Presidency or Prime Minister of the country or on some high authority who could convene and coordinate the different Ministries and agencies that were supposed to work together.

Differentiated producers: The IRD highlighted the clear differences between subsistence producers, more or less competitive family producers, and commercial producers, leading to approaches that focused on different types of producers. Therefore, other institutional innovations appeared, such as separate units for small/family producers within the Ministry of Agriculture, differentiated Ministries of Agriculture for small/family farms and commercial farms (such as happened in Brazil), and transferring the attention of small/family farms to the Ministry of Social Development.

Value-chain approaches: A different debate has been whether agro-industry should be in the Ministries of Agriculture or those of Industry or similar, emphasising generating coordinated policies for the various components of value chains. A related mechanism is structuring Competitiveness Councils by Value Chains, with the participation of relevant public agencies and private sector organisations. There, financing, taxes, infrastructure, regulatory and international trade issues could be analysed, considering the impacts on producers, consumers, and the economy as a whole.

Bioeconomy: The term refers to those parts of the economy based on products, services, and processes derived from biological and renewable resources (such as crops and plants, terrestrial and marine animals, micro-organisms, and forests) that are related to the production of food, health items, chemicals, materials, textiles, and energy (CRS, 2022). The bioeconomy concept may also change how traditional agricultural ministries and related governmental functions are organised soon.

Coordination of cross-cutting issues: Along with the greater complexity of production systems linked to agricultural production, there have also been growing concerns regarding environmental sustainability and health issues.

In some cases, Ministries for the Environment were created and strengthened,

with powers and responsibilities that frequently overlap or collide with Ministries of Agriculture and Mining, Energy, and Infrastructure, among others. The Ministries of Agriculture have absorbed forestry, fishing, and/or natural resource management issues in several cases. In contrast, in other cases, it has been the Environment Ministries that have expanded their responsibilities.

The dilemmas and demands linked to the construction of sustainable and competitive production systems increasingly require agreements and coordination between the Ministries involved.

Similarly, topics related to health and nutrition have become increasingly relevant. In particular, the Ministries of Health and Agriculture's responsibilities concerning food safety entail significant levels of coordination and articulation in defining



policies and operating the monitoring and control mechanisms for these problems.

Another important problem of malnutrition is obesity, which requires policies and regulations to promote healthy diets. The different objectives and levels of intervention have led to the establishment of inter-sectoral coordination mechanisms in which the Ministers of Agriculture, Health, and the Environment, as well as others such as Public Works, Finances, Energy and Mining, may participate.

In the case of rural development and territorial programmes, national and local authorities are included in the search for inter-sectoral coordination mechanisms.

In summary, the complexity of the relationships and articulations of agricultural production and its productive, social, and economic components cannot be administered solely from an exclusively sectoral authority and institutionality.



Transforming food systems
demands inter-ministerial
coordination and stakeholder
collaboration. Governments
must integrate agriculture,
health, and environment policies
while fostering private-sector
engagement to build resilient,
sustainable, and inclusive food
systems worldwide

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Furthermore, there are various nonpublic organisations, such as cooperatives and groups of producers, agro-industrial private councils and associations, nongovernmental organisations (NGOs), and other types of civil society entities. They may fulfil functions of technical and commercial advice, innovation and management, credit support, environmental care, etc.

In many cases, their operations involve the provision of (semi) public goods. Therefore, an adequate definition of the mechanisms of articulation and cooperation between this type of organisation and public agencies would benefit the whole society.

What to do?

Faced with the complexity of objectives and activities, governments usually resort to changes in organisational charts. But activities will always cross more than one of the defined blocks in the organogram. Therefore, in a broad sense, institutional innovations that address the complexity of the agenda for the agrifood sector will need to go beyond approaches based only on adjustments in organisational charts.

The institutional mechanisms need to consider at least three levels:

- a. An operational multiyear programme with objectives and time frames that can be separated into shorter-term programmes (the "brain").
- b. A clear organisational chart and functions (the "skeleton").
- A programmatic budget aligned with

 (a) periodic revisions of execution against the objectives defined (the "nerves and muscles").

The components (a) and (c) will have to be implemented as a Programming, Execution and Control (PEC) cycle in a disciplined manner based on the multiple objectives pursued and tracking the activities programmed. This implies strengthening the capabilities of the ministry, secretariat or coordinating group that drafts the budget and the corresponding entities in the executing ministries.

A mandatory outcome-oriented programming and coordination meeting should be established (at least once a year), and an execution/control mechanism should be established (at least every six months). This coordinating/operations centre must establish the budgetary and operational programming together with the executing ministries. It should be placed at a high level in the governmental hierarchy, as happened with the IRD programmes, to ensure the ministries' participation. The periodic planning/control events must have concrete and verifiable targets and a monitoring system for carrying out the scheduled activities.

The component (b) should include clear mechanisms of direct execution at the local and social group levels, with integrated beneficiary registries, digital monitoring instruments, and direct consultation with the population participating in the programmes to track advances and the effective implementation of the activities envisaged. Execution will also benefit from broad multi-stakeholder consultation mechanisms.

Conclusion

Food systems are crucial for a variety of SDGs and for the mitigation, adaptation, and resilience objectives of the Paris Agreement. Countries must prepare and implement integrated and operationally viable programmes across those dimensions. As noted, these programmes should include:

- 1) quantitative objectives and time frames,
- 2) policy instruments (in a broad sense),
- 3) technological considerations,
- 4) detailed institutional arrangements,
- 5) estimates of costs and
- 6) adequate financing.

Here, I presented some ideas about the crucial components of the institutional arrangements for their design, execution, monitoring, and evaluation.



Emily Rees
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Agricultural Innovation: A Route to Sustainable Development

At the same time as world trade flows are fragmenting, climate change will have a deeper impact on our food systems than the various geopolitical shifts.

The signing ceremony of Uruguay Round in Marrakech in April 1994 represented the culmination of a monumental effort, taking the first step along the envisaged route to sustainable development. In the intervening years, the trade rulebook hasn't managed to keep pace. And now, thirty years later, we are surveying a very different landscape ahead of us.

At the same time as world trade flows are fragmenting, climate change will have an even deeper impact on our food systems than the various geopolitical shifts. A recent poll of 380 scientists from the Intergovernmental Panel on Climate Change (IPCC) found that almost 80 percent of respondents foresee at least 2.5°C of global heating above preindustrial levels. At the same time, nearly half anticipate at least 3°C. Only 6 percent thought the internationally agreed 1.5°C limit would be met.

These temperature increases already result in droughts, wildfires, and extreme rainfall, which impacts agricultural production and lead to more 'geosecuritisation' of food. Countries will either need to produce more food within their borders (through more innovation and productivity) or diversify their industrial value chains to increase resilience.

Climate shocks are affecting agricultural production and challenging trade routes. Drought in the Panama Canal has disrupted global shipping by limiting the number and size of ships able to pass through the canal. As delays and disruptions to trade routes due to environmental events become more common in a warming world, we can expect prices to rise accordingly, challenging countries that are not food-sufficient.

However, this is also a major concern for agricultural exporting countries, such as Kenya, Brazil, and Canada, which depend on their trade in farm produce to keep their economies flowing. It can also impact a country's resiliency since the importation and price of other goods are affected when the export of commodities is limited.

In addition, significant international conflicts and tensions in Europe, the Middle

East, Africa, and Asia are adding to global instability and volatility.

The well-documented fragmenting trade and rising tensions will require new, different, and more effective policies to address food security. These could include developing new plurilateral or multilateral agreements to maintain trust between nations and new set of actors stepping forward to take leading roles on the international stage.

Aside from being extremely costly in economic terms, trade fragmentation is starting to unwind the growth and development benefits that economic integration has delivered for people worldwide. Worse, it is harder for the international community to address the challenge of feeding an increasing population while tackling climate change and improving biodiversity.

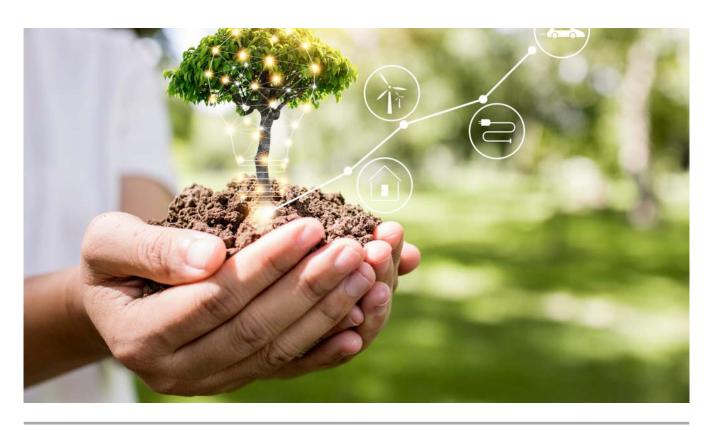
According to the United Nations, more than 800 million people around the world are facing hunger, and 345 million are facing acute food insecurity. Global food

security depends not only on being able to grow sufficient food but also on being able to move it around the world quickly and easily to where it is needed: almost 25 percent of food crosses at least one international border.

To move food globally, international trade must remain open, fair, and rules-based whatever the geopolitical storms playing out around it. This is not just true for trade in farm produce but also to ensure that innovations in agriculture, both those that exist today and those of tomorrow, remain accessible to the farmers who need them. Non-tariff barriers have affected the use of certain plant science technologies and limited market access for farmers who would choose to employ them.

These innovations will enable countries around the world to produce more food and to do so in ways that are sustainable for the planet, its people, and national economies.

New techniques in plant breeding, for example, have the power to transform world agriculture. They offer enormous potential





30 years after the Uruguay Round, trade fragmentation and climate change threaten food security. Sustainable innovation, resilient supply chains, and modernised trade policies are crucial to ensuring a stable, equitable global food system

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for sustainable farming while simultaneously also helping to address some of the impacts of climate change. These new plant breeding technologies enable the development of crops that have enhanced resilience to environmental stresses such as drought, salinity, or extreme temperatures.

Through genomic selection and genetic engineering, crops can be optimised for higher yields per hectare, helping to meet the increasing demand for food without the need for additional land. As a result, they also require fewer inputs, such as water, fertilisers and pesticides.

They can also be designed to sequester carbon. They can even be bred to enhance the nutritional quality of crops, for example, increasing levels of essential vitamins and minerals, addressing malnutrition and improving the health of populations. And they can be developed to be disease—and pest-resistant.

Finally, when combined with other technologies such as remote sensing and data analytics, farmers can optimise their use of resources by tailoring inputs such as water, fertilisers, and pesticides to specific

crop needs, meaning higher efficiency and reduced environmental impact.

The Asia Pacific region is one of the fastest-growing markets for agri-tech, with falling technology costs and labour shortages driving its adoption. In the region, AI and big data are powering robots and drones to improve farming techniques and boost crop yields and farmer incomes.

The potential benefits of digital agronomy are huge. However, these technologies come to the fields with a large caveat: they require significant infrastructure investment by governments to give farmers access to them. Farmers worldwide should not shoulder the full financial costs of this transformation.

Moreover, all this sustainable agricultural innovation can only occur if it is supported by policy environments that encourage plant science innovation and commercialisation. It also needs predictable and science-based international trading standards that facilitate the movement of food and farming innovations worldwide.

Examples of these crops that are being successfully grown in different parts of the world include a new cassava strain in Kenya, which is resistant to the cassava brown streak disease.

Previously, farmers in the major cassava-growing areas struggled to produce enough food for their families and communities. But this new cassava, Kenya's staple food crop, promises to be a complete game-changer for the country.

Around the world, other gene-edited plants range from salt-tolerant rice varieties to soybeans enriched with oleic acid. In the Middle East, an international group of farmers and crop scientists has developed a new drought-tolerant durum wheat, widely eaten across North Africa and the Middle East. There is ongoing research and development in the field of tea genetics to create new varieties of tea plants that can

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better withstand the environmental challenges of climate change, pests, and diseases.

Agricultural innovation can also result from adopting new cultivation practices and crop management. For example, projections by the International Rice Research Institute (IRRI) anticipate that rice production will need to increase by 25 percent over the next 25 years to meet global demand. To achieve this sustainably, the additional rice will need to be grown more efficiently using less labour, water, energy, and crop inputs.

40 percent of the world's irrigation water is currently used for rice production. However, rising water scarcity due to climate change and competition from urbanisation require a different approach.

Direct-seeded rice (DSR) is a new cultivation method that sows rice seeds directly into the field rather than growing seedlings in a nursery and then transplanting them into flooded fields. It is considered to be a more efficient, sustainable, and economically viable rice production system, resulting in savings on irrigation water of between 12 percent and 35 percent.

However, while DSR offers enormous advantages, the seedlings face more competition from weeds and pests, so



Rising temperatures and extreme weather disrupt agriculture and trade. Science-driven policies, plant breeding innovations, and open markets will help farmers adapt, boosting productivity while safeguarding food security and global economic stability

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additional management is required to ensure productivity and yield. Moreover, new cultivation methods must also consider different countries' local growing conditions and climates.

As an industry, we are constantly innovating to develop new and improved technologies to help farmers be both productive and resilient.

Climate change, extreme weather events, and the spread of unfamiliar pests and diseases mean farmers need access to a complete toolbox of new products and technologies. In some cases, this means accessing existing, proven technologies while advancing access to new innovations.

Today, food is produced along global value chains—one-third of agricultural commodities cross borders at least twice, and the number of countries depending on imports is growing fast. But in this era of unpredictable climate shocks, a country can turn from net exporter to net importer almost overnight.

The theme of future international trade must be about 'building resilience'. To do that, countries must diversify their trading markets for exports and imports. Policymakers in every region of the world will be crucial to building this resilience. The role of policy is more than merely setting boundaries; it can also stimulate progress by incentivising development and growth. What is needed is open, fair and predictable global trade that incentivises investment in research and development.

Farmers and traders worldwide rely on transparent and science-driven standards to ensure an equitable and non-discriminatory trading system for the produce they grow. Now more than ever, we must modernise international regulatory frameworks to improve access to plant science innovation for every region and every farmer.

Complex and disparate regulatory processes can result in non-tariff barriers that slow access to new agricultural innovations and delay these products from getting into the field where they can make a difference. By contrast, a multilateral, rules-based system unlocks innovation and creates availability for all. This, in turn, harnesses the power of a horizontal approach – embracing productivity, climate and biodiversity – and so sustainability.

As we work towards the shared goals of food security, climate resilience, and equality, the frameworks that underpin our vision must be enabling ones: they must foster innovation, protect investment, and provide proportionate and future-proof regulatory certainty.





One Year of India-U.S. iCET*: Looking Ahead



Lt. General (Retd.) Anil Ahuja
Former Deputy Chief, Integrated Defence Staff
(Policy Planning and Force Development)
Distinguished Fellow, CUTS Global Affairs

"iCET is about much more than technology cooperation, it's a platform to accelerate our strategic convergence and policy alignment". – Jake Sullivan

Jake Sullivan's statement, made a year ago before the launch of the India-US Initiative on Critical and Emerging Technologies (iCET), underscores its role as a new pillar of the India-US relationship, complementing defence and security ties. Since its inception in May 2022, it has accelerated multifaceted cooperation between the two nations, involving governments, defence establishments, businesses, investors, innovators, educators, and think tanks.

Evolution and Scope of iCET

Initially focusing on semiconductors, Artificial Intelligence (AI), space, next-generation telecommunications, quantum, high-performance computing, and defence innovation, iCET's scope was expanded during a midterm review in December 2023 to include biotechnology, critical minerals

and rare earth processing technologies, digital connectivity, digital public infrastructure, and advanced materials.

Objectives

From the U.S. perspective, the aim is to harness Indian talent to accelerate technological advancements, broaden the innovation base, make supply chains resilient, and leverage India's large civil and defence market.

For India, the partnership seeks to attract investments, acquire cutting-edge technology, create opportunities for innovators and entrepreneurs, gain access to advanced R&D facilities, integrate into global value chains, and stimulate job creation and economic growth.

A vital objective for India is to use this partnership to achieve greater self-reliance and develop capabilities for national defence

^{*} Now renamed as TRUST (Transforming the Relationship Utilising Strategic Technology)

and regional stability, leveraging the overlap between civil and military R&D for dual-use applications.

First Year Activities

iCET has dovetailed existing arrangements like the Defence Technology and Trade Initiative (DTTI), the Defence Industrial Roadmap, and the INDUS-X initiative. Key collaborative activities have been in semiconductors, INDUS-X, and space.

Semiconductors

The semiconductor supply chain partnership is guided by a Memorandum of Understanding (MoU) to create a complementary semiconductor ecosystem. Several U.S. companies announced investment plans in India, including Micron Technology (US\$825mn), Lam Research, Applied Materials (US\$400mn), Microchip Technology (US\$300mn), and Advanced Micro Devices (US\$400mn).

These investments are expected to establish R&D and engineering centres,

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From semiconductors to AI and space, iCET is accelerating India-US collaboration. Investments, joint R&D, and talent exchange are driving cutting-edge advancements, boosting economic growth, and expanding global value chain integration

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train skilled personnel, and lay the foundation for Outsourced Semiconductor Assembly and Test (OSAT) and System-in-Package (SIP) facilities. This will help India integrate into global supply chains and create direct and indirect jobs.

The net outcomes include creating R&D and engineering centres in India, training highly skilled human resources, and laying the groundwork for future semiconductor facilities. This initiative is expected to generate approximately 350,000 jobs over the next decade, with an immediate requirement for 70,000 to 90,000 personnel once new semiconductor fabs become operational.

The investments announced by various U.S. companies have already started to materialise. For instance, Micron Technology has conducted a groundbreaking ceremony for its facility in Sanand, Gujarat. This project and others signify a major step forward in establishing India as a significant player in the global semiconductor ecosystem. The collaboration focuses not just on assembly and testing but also advanced stages like design and R&D, which are crucial for sustaining long-term growth and competitiveness in this sector.

INDUS-X

INDUS-X is designed to be an "Innovation Bridge" connecting U.S. and Indian defence start-ups, focusing on expanding strategic technology partnerships and defence industrial cooperation. Academic partnerships, such as those between the Council of Indian Institutes of Technology (IIT Council) and the Association of American Universities (AAU), have been established. Joint programmes have been launched between academic institutions, such as IIT Kanpur and Pennsylvania State University, and joint innovation challenges under the Mutual Promotion of Advanced Collaborative Technologies (IMPACT) programme.



Initiatives under INDUS-X include an educational series (Gurukul), a mentor-protégé programme, and the creation of a joint innovation fund. These efforts aim to identify and nurture scientific talent to address national security challenges and create a collaborative partnership among innovators, startups, investors, major defence companies, and the armed forces.

The focus on defence startups includes creating new pathways for innovation and collaboration between both countries' industries and academic sectors. This initiative also emphasises expanding the strategic technology partnership and defence industrial cooperation between governments, industry, and educational institutions. Programmes such as Hacking 4 Allies (H4X) and the Joint Accelerator Programme for startups have been particularly noteworthy.

The INDUS-X initiative has significantly expanded its activities, including hosting joint hackathons, innovation challenges, and accelerator programmes designed to promote start-ups that can contribute to national defence and security. These initiatives are fostering a new era of defence innovation, focusing on dual-use technologies that have applications in both civilian and military domains.

Space

Substantial cooperation is also being undertaken in the space sector. A sub-working group on space commerce has been set up under the India-US Civil Space Joint Working Group, led by NASA and ISRO.

India has joined the Artemis Accord for joint space exploration with the U.S. It is set to join the Space Mission Planning Advisory Group (SMPAG) and the International Asteroid Warning Network (IAWN). Plans for 2024 include finalising a strategic framework for human spaceflight cooperation, a joint mission to the International Space Station, and launching the NASA-ISRO Synthetic Aperture Radar (NISAR) satellite.

In the military domain, the bilateral Advance Domain Defence Dialogue (AD3) was initiated in May 2023 to address issues related to space and AI. Space situational awareness and the security of national space assets are areas of mutual interest. The cooperation extends to both civilian and military domains, aiming to enhance the technology and commercial collaboration between the U.S. and Indian public and private sectors in the entire value chain of the space economy.

The collaboration extends to establishing a joint mission to the International Space Station and the launching of new satellites that combine the technological strengths of both nations. This partnership aims to bolster space situational awareness and secure space assets, ensuring that both countries



iCET lays the foundation for deep India-US cooperation in defence, technology, and trade. By harmonising policies and fostering innovation, it ensures long-term strategic stability and shared prosperity in an evolving global landscape.



are better equipped to handle emerging threats in this increasingly critical domain.

Other Collaborative Fields

In defence, commercial negotiations are underway between GE Aerospace and Hindustan Aeronautics Ltd (HAL) for coproducing GE-414 jet engines in India with substantial technology transfer. This collaboration signifies a deepening of the defence industrial base in India. In telecommunications, joint task forces are working on collaboration in Open RAN and developing 5G/6G technologies.

Collaborative activities have also begun in quantum computing, AI, and small modular reactor technologies. Google is investing in AI models to support 100 Indian languages through its India Digitization Fund and Research Centre.

These collaborative activities are steered through various dialogues, including the Strategic Trade Dialogue, Commercial Dialogue, Defence Policy Dialogue, and the 2+2 Dialogue. Joint Working Groups (JWGs) and Task Forces (TFs) have been set up for each vertical, with an inter-agency

monitoring mechanism created under the Strategic Trade Dialogue.

The telecommunications and quantum computing collaborations are particularly significant as they lay the foundation for future technological advancements. Joint efforts in developing 5G and 6G technologies will ensure that both countries remain at the forefront of global telecommunications advancements. Moreover, Google's investment in AI models to support Indian languages demonstrates a commitment to making technology accessible and beneficial to a broader population.

Looking Ahead

iCET is a transformative initiative comparable to the India-US civil nuclear deal. The first year has witnessed significant activity and progress, particularly in semiconductors and INDUS-X. Investments have started flowing in, infrastructure development has commenced, and research and engineering centres are being established. This is driving the growth of India's semiconductor industry, creating high-tech jobs, and integrating Indian industry into global supply chains.

Efforts are also underway to promote talent and support innovators and start-up entrepreneurs through initiatives like INDUS-X, hackathons, innovation challenges, and academic interactions. The potential for continued investments, talent promotion, and job creation appears bright. However, for India to avoid being permanently slotted as a low-tier partner, the vision of the iCET partnership must ensure that Indian skills are combined with U.S. computing power and co-developed technology benefits flow into India.

Short-term business interests should not overshadow long-term strategic goals. Partnerships should be built at the upper ends of the value chain, sharing Intellectual Property Rights (IPRs) and application benefits in both commercial and defence

sectors. This evolutionary process will need sustained collaborative funding and robust coordination mechanisms.

The first year has seen the initial stages of infrastructure development and the establishment of research and engineering centres. This process is critical for driving the growth of India's semiconductor industry and integrating it into global supply chains. Creating high-tech jobs and training skilled personnel is a significant achievement, reflecting the potential for continued investments and talent promotion.

To achieve these ambitious goals, robust mechanisms for intellectual property rights (IPRs) sharing and ensuring that the benefits of co-developed technologies are equitably distributed are essential. This will foster innovation and strengthen the overall strategic partnership between India and the U.S.

Recommendations

Robust Coordination: Establish strong internal and bilateral coordination mechanisms, guided by an overarching strategic perspective beyond technical intricacies.

Formalise Progress: Institutionalise progress under iCET to maintain continuity beyond administration changes. The experience of formalising India's Major Defence Partner (MDP) status through the National Defence Authorization Act (NDAA) 2017 is relevant.

Manage Expectations: Avoid setting unrealistic trade and technology transfer expectations, ensuring long-term strategic convergence over short-term commercial interests.

Regulatory Alignment: Address challenges related to the U.S. International Traffic in Arms Regulations (ITAR) and export control restrictions, and align Indian acquisition procedures with U.S. norms to create a predictable regulatory environment.

Develop Trust: Build trust to maintain the exclusivity of the relationship while balancing other international partnerships.

National Defence Strategy Alignment: Align national defence science and technology strategies on both sides for capability development.

Early Results: Focus on achieving early demonstrable results to sustain engagement momentum.

Additionally, setting realistic expectations and aligning regulatory frameworks between the two nations is crucial. The U.S. must address issues related to the International Traffic in Arms Regulations (ITAR) and other export control restrictions, while India should streamline its acquisition procedures to facilitate smoother collaboration.

Conclusion

iCET represents a bold initiative with the potential for a significant leap in the India-US relationship. The first year has seen intense activity and meaningful progress. This momentum requires addressing regulatory barriers, aligning strategic interests, and fostering high-level collaboration.

The Indo-Pacific region can achieve sustainable and inclusive development by integrating impact investment funds into bilateral and trilateral cooperation frameworks, focusing on social entrepreneurship, and prioritising SDG achievements. The multifaceted cooperation, with multiple stakeholders united by investments, technology partnerships, and interlinked supply chains, will provide the necessary ballast and momentum to this relationship.

By embracing these innovative approaches, the Indo-Pacific can achieve a more equitable and prosperous future aligned with broader goals of sustainable development and global cooperation. This strategy addresses immediate development needs and builds a foundation for long-term resilience and growth, ensuring the benefits of development are shared broadly and inclusively.



Sean Randolph
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India, Supply Chains, and Indo-Pacific Alignment

India's relationship with the U.S. has been transformed in the last ten years from wary interest to an optimistic alignment (but not alliance) based on a range of shared interests. This realignment, which may be the most consequential economic and geopolitical shift in recent years, isn't an isolated case but instead reflects a reaction across democratic democracies to the growing challenge posed by China.

That challenge isn't just economic something that would ordinarily fall within the bounds of classic economic competition – but is also strategic. This stems from a confluence of developments that have changed perceptions of China's objectives and its relationship with other countries.



As companies reassess China's investment climate, India emerges as a top alternative, offering a vast market, skilled workforce, and technological strength—positioning itself at the heart of global supply chain realignment



Among the issues are the increasing concentration of political power inside the Communist Party, the growth of the state sector and the slowing of market reforms, the return of ideology, territorial claims to the South China Sea, the suppression of democracy in Hong Kong, and (not least) destabilising military activity on India's border.

A key response in many market democracies has been to reduce their dependence on China by diversifying and realigning supply chains toward partners considered aligned, secure and reliable. This is different from decoupling, which suggests a deeper break. However, it points to a change in the pattern of globalisation toward one with more distributed production and closer cooperation between aligned countries and economies on the development of critical and emerging technologies.

Like other significant geostrategic shifts in history, this one will take place over time

but, will lead to new patterns of opportunity for research, trade and investment.

India is playing a central role in this shift. While not all U.S. companies are leaving China, many are shifting their investments to other countries. Recent surveys of U.S. companies in China indicate that, in many cases, China is no longer the number one destination of choice for global investment.

In light of political pressures in the U.S. and a heavier hand by China's government, most are re-evaluating their long-term future there. For those companies, the leading alternatives for investment are Vietnam, Mexico and India.

Vietnam offers geographic and cultural proximity to China and lower costs. Mexico has an ample supply of engineers and the advantage of the shortest possible supply lines. The US-Mexico-Canada Trade Agreement (USMCA) provides a legal framework that provides a secure and stable

cross-border environment for trade and investment as part of an increasingly integrated North American market.

India, though more distant, offers a potentially massive market, large numbers of engineers, and technological sophistication not matched in Mexico or Vietnam. This places India in a unique position.

The Quad (which links India, the U.S., Japan and Australia) is an important strategic frame in the Asia-Pacific region that supports the US-India relationship but doesn't define it. Under the Quad, multiple dialogues are underway on topics ranging from defence to industrial cooperation and entrepreneurial development.

ICET provides a key framework for collaboration on strategic and emerging technologies. Cooperation on semiconductors is advancing as part of a broad effort to develop secure supply chains





Through iCET and the Quad, India is leveraging strategic partnerships to drive technological advancements, secure supply chains, and accelerate economic development, reinforcing its position in the evolving Indo-Pacific landscape.



for advanced chips. These and other initiatives integrate security objectives with economic goals in ways that can accelerate India's economic advancement.

This presents an opportunity for India to leverage Indo-Pacific cooperation to support economic development in fields ranging from defence to advanced manufacturing and quantum research. The impressive growth of iPhone production in India and surging mobile phone exports, where iPhones last year accounted for 65 percent or US\$10bn in sales, suggests the possibilities.

Tesla's entry into the Indian market should have similar stimulative effects. Long-term success will depend partly on India's ability to raise educational standards across the board to levels needed to support foreign investment and an advanced technological economy, as well as its willingness to stimulate competition and productivity by further opening its markets to international trade and investment.



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Managing Innovation: The Key to a Sustainable Indian-U.S. Partnership

The US's past miscalculations on China's tech rise offer lessons for India. As India builds its high-tech future, can it avoid a trajectory of rivalry and instead foster lasting US-India cooperation?

During U.S. President Bill Clinton's tenure, I often wondered why Washington cared so little about high technology being sold to China. Once, while visiting the RAND Corporation in Santa Monica, I asked a group of researchers why this did not concern their strategic community. They said the technologies being transferred were marginal; moreover, they felt if the Chinese did not get it from the U.S., they would develop it themselves.

It was a facile argument, I thought and explained that the transfer of this supposedly "marginal" technology could have a substantial impact on the security of other countries in China's periphery. At that time, I recalled, the Chinese had got U.S. technology to enhance the capabilities of their fighter aircraft engines in high-altitude regions. This, perhaps trivial to the Americans, was not so for us since it allowed Chinese fighter aircraft in the high-altitude Tibet and Xinjiang regions to take off with much higher payloads than before. What was marginal to the Americans was a game changer for Indians.

I left without convincing anyone there of the need to have some control over the flow of high technology, particularly dualuse technology, to China, which, even in those days, was exhibiting hegemonistic traits. China would later become a global threat, but for the Americans, then everything was hunky dory. Americans were making a tonne of money selling goods and technology to China, which was buying whatever it -could lay its hands on and biding its time.

We were not shocked when, some years later, a Clinton bigwig like Sandy Berger (his National Security advisor) was accused of keeping quiet on espionage that helped the Chinese get hold of U.S. nuclear warhead designs. The allegations did not stick; Berger was a grand champion of US-China ties, and business between the two nations was booming to the benefit of millions of ordinary Americans, who suddenly found their supermarkets flooded by first-rate but cheap made-in-China products.

The penny dropped many years later when American business, political and



military leaders realised China had become a global rival. Military and strategic experts have been talking about the alarming strides China has made in acquiring and developing military, space and computer technologies. By then, China had also begun staking extra-territorial claims and openly proclaiming itself to be the master of Asia. It was, however, the only alarm on Wall Street that spurred Washington's politicians into action.

The proximate cause was the Chinese telecom giant Huawei, which was about to claim the top-notch in the mobile phone industry. Now, everyone on Wall Street knows that the United States' dominance of the world economy depends on two main factors: the U.S. dollar and tech innovation.

The "magnificent Seven" corporations that tower over everyone else in the U.S. stock market and are responsible for the maximum wealth creation are all tech companies. This clutch of innovators, which include Microsoft, Apple, Nvidia, Amazon, Alphabet, Meta, and Tesla, not only contribute more than a quarter of the total market value of the top 500 US companies, but their market cap is also more significant than the entire stock market of most countries. Today, tech companies power American growth and prosperity.

Huawei constituted a clear and present danger. It had to be cornered. In 2018, Canada arrested Huawei founder's daughter, Meng Wanzhou, and later, the company was effectively barred from the West. That was just the beginning. In 2022, the FBI claimed Huawei equipment could be used not only to snoop on secret U.S. communications but also to disrupt them, including the control of the country's nuclear weapons.



India's push for technological self-reliance raises critical questions. Will its rise challenge US dominance, or can strategic collaboration prevent another US-Chinastyle standoff?



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To avoid repeating history, the U.S. and India must establish a framework for cooperation in high-tech industries. Early alignment is crucial to ensuring a future of mutual benefit, not competition

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As businesses and politicians realised how close China was to challenging American technological dominance, measures were implemented to block Chinese access to cutting-edge U.S. technology. These measures, first implemented by President Donald Trump, were followed up with greater vigour by President Joe Biden, who even banned the sale of high-performance computer chips to China. A technology Iron Curtain had been drawn across the world. No matter that the horses had long bolted, the world, particularly Asia, was left with a big mess.

The US-China technology war is particularly instructive because it is clear that India is embarking on a journey similar to that of the U.S. India is just at the threshold of a similar process but is expected to cross into a significant technology partnership in the coming months and years. India also has great ambitions to develop indigenous capabilities in high technology, including semiconductors, space, military systems, and electronics in general.

The "Make in India" mantra is a pointer to longterm goals. The avowed aim of making India a "semiconductor superpower" is among its many components. Over India could quickly ramp up its capabilities over the next decade or so. Therefore, the question is whether these developments could eventually threaten American technology dominance, as was the case with China. If so, is eventual long-term antagonism the only possibility?

The problem is that most business and political leaders everywhere focus on the short and middle terms. The long term is hazy, theoretical, and often fraught with negative possibilities. There is never much percentage in thinking long term. If there is money and an advantage to be gained now, then now is the priority. Moreover, in India's case, everything is in the air, and India, the world believes, is in no hurry to get anywhere.

Technologically, India, despite possessing enormous intellectual talent, has little to show, especially in the fields critical for developing a robust global technology manufacturing ecosystem. It lacks mid-level managerial talent, skilled workers, and an enabling scientific environment. In all these years, while south-east Asia, China, and other parts of the world have succeeded in setting up a small or a great number of high-tech industries in the areas of electronics, semiconductors, and communications, India has had virtually zero success until now

Fundamental scientific research in physics, chemistry and related fields is weak at best and non-existent in many places. Indian managers also don't have the experience to build or run agile, innovating corporations. The country's large entrepreneurs are money managers, their wealth arising from financial expertise, close government connections and oligopolistic conditions. Most India watchers, therefore, are sceptical about India's high-tech ambitions. Even India optimists aver it will take years for India to get into the big picture.

But all that, apart from being speculative, is not the point at all. The question is not if but when India will develop sizeable and competitive high-tech industrial capabilities. What then? Will India and the United States go down the same way it was with China?

Unfortunately, this is ineluctable. Unless the two countries can sit together at this nascent stage to develop patterns and systems of cooperation that lead not to long-term rivalry but symbiosis. Only then will both nations reap the most significant benefits from this amazing partnership that is only taking off.

Creating a Resilient Supply Chain Framework

The India-Australia Economic Cooperation and Trade Agreement and its Significance for the G20



Natasha J Bhaskar

Executive Director, Newland

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External shocks from the pandemic and geopolitical upheavals have disrupted supply chains, causing production delays and rising manufacturing costs for essential goods and services.



Rahul Sen

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This Article analyses how bilateral trade agreements like the India-Australia Economic Cooperation and Trade Agreement (INDAUS ECTA) can enhance supply chain resilience in vulnerable sectors. Examples from this agreement provide insights for G20 members to strategise future actions.

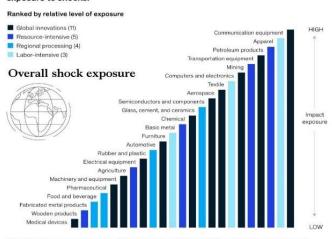
The Article proposes recommendations for the G20 to establish a resilient supply chain framework based on robust control, visibility, flexibility, collaboration, technology, and sound governance. A key recommendation is to explore creating a Rapid Response Forum (RRF) for vulnerable, critical, and essential goods to aid preparedness for unforeseen disruptions.

The Challenge

Global trade conflicts, the COVID-19 pandemic, and the Russia-Ukraine war have exposed G20 members and businesses to unprecedented supply chain disruptions, resulting in significant production delays and rising manufacturing costs. These external shocks have disproportionately affected industries based on their supply chain complexity and exposure to international trade. Figure 1 illustrates the global impact on supply chains

Figure 1: Global Impact on Supply Chains Across 23 Major Industries

Geographic footprint and factors of production determine a value chain's exposure to shocks.



Note: Chart considers exposure to shocks our not actions taken to data resilience or imagate impact. Demand or elects included only for parademics. Source: Federal Reserve Bank of St. Louis; INFORM; Observatory of Economic Complexity, Telegeography; US Bureau of Economic Analysis; US

McKinsey & Company across 23 major industries, categorised by exposure to potential disruptions.

Three risk categories impacting supply chain resilience include a) geopolitical risks from locating production in countries with security threats, b) climate and natural disaster risks in global shipping route hubs, and c) ongoing pandemic-related risks.

The Need for Supply Chain Resilience

Business surveys estimate that a single production shock can reduce firm earnings by 30-50 percent. A May 2021 report by the Economist Intelligence Unit (EIU) on supply chain disruption costs, based on a survey of U.S. and EU executives, noted average revenue losses of 6-10 percent. Furthermore, prolonged response delays can harm the brand's reputation.

Building resilience to future supply chain disruptions is a top priority for global executives over the next five years. The World Economic Forum (WEF) defines resilience as the ability of supply chains to withstand shocks and deliver core functions effectively. Businesses are exploring strategies such as digital technologies (3D printing, blockchain, AI) to manage future disruptions. A policy mix facilitated



Establish a resilient supply chain framework based on robust control, visibility, flexibility, collaboration, technology, and sound governance



through intergovernmental forums like the G20 is necessary to strengthen supply chain resilience without undermining value-chain-based trade gains.

Policy Action Tools for Supply Chain Resilience

The Organisation for Economic Cooperation and Development (OECD) identifies four key policy action tools for supply chain resilience: risk management, domestic policy, public-private partnerships, and international economic policy coordination.

G20 governments recognise the need to design trade and investment policies that make supply chains agile and sustainable, mainly through new-age bilateral and regional trade agreements (RTAs). The India-Australia Economic Cooperation and Trade Agreement (INDAUS ECTA) between G20 members Australia and India, effective December 2022, exemplifies such an effort. This agreement is a building block toward a full-fledged Comprehensive Economic Cooperation Agreement (CECA).

INDAUS ECTA and Supply Chain Resilience

Reconfiguring Pharmaceutical Supply Chains

Australia imports over 90 percent of its medicines, posing a risk of shortages due to external manufacturing, trade, and transportation factors. In December 2022, the Therapeutic Goods Administration (TGA) confirmed a shortage of medications, including 50 critical ones. The U.S., Australia's main medicine supplier, largely depends on India and China for generic drugs.

INDAUS ECTA provisions for the pharmaceutical sector include duty-free entry, a preferential tariff system, and regulatory collaboration between TGA and

India's Central Drugs Standard Control Organisation (CDSCO). The agreement aims to fast-track approval for patented, generic, and biosimilar medicines, facilitating cheaper and swifter access to Indian medicine brands.

Furthermore, the INDAUS ECTA provisions underscore the necessity for comprehensive regulatory cooperation to enhance supply chain predictability. The agreement ensures mutual recognition of Good Manufacturing Practices (GMP) reports and facilitates premarket evaluations for medical devices. This collaborative framework aims to mitigate shortages and provide a stable supply of essential pharmaceuticals.

Securing Critical Minerals Supply Chains

"Critical minerals play a crucial role in various industries, including telecommunications, electronics, energy, healthcare, defence, aerospace, and transportation. Developed G20 members like Australia have reserves of critical minerals essential for developing G20 members like India to achieve business competitiveness and transition to Industry 4.0.

INDAUS ECTA reduces customs duties for critical minerals, facilitating risk diversification in the value chain trade. India's international exploration programme, Khanij Bidesh India Ltd (KABIL), aims to acquire critical minerals to meet domestic demand and safeguard future supplies. The agreement encourages private sector engagement in securing critical mineral supply chains.

Private sector partnerships, such as the memorandum of understanding (MoU) between Technology Metals Australia Limited and Tata Steel Limited, exemplify how businesses can collaborate to secure the supply of essential minerals like vanadium. These partnerships are crucial for stabilising supply chains and managing price



The INDAUS ECTA highlights how bilateral trade agreements can strengthen supply chains. The G20 can adopt similar strategies to enhance resilience through robust governance, technology, collaboration, and flexible, well-controlled frameworks

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volatility, ensuring a steady supply of critical inputs for high-tech and green industries.

Reimagining Talent Supply Chains

Labour mobility restrictions during the pandemic exposed countries to severe talent shortages. Australia's skilled migrants programme fills workforce gaps, but shortages persist in manufacturing, construction, engineering, transport, logistics, and healthcare sectors. The INDAUS ECTA contains provisions to improve mobility outcomes, address skill shortages, and protect industries from supply chain risks.

The Migration and Mobility Partnership Arrangement facilitates cross-border movement for professionals and students, enhancing cooperation in recognising qualifications, licensing, and registration procedures. This initiative minimises future skill shortages and secures industries against supply chain risks.

To address the growing demand for skilled workers, the INDAUS ECTA focuses on streamlining visa processes and improving mutual recognition of professional qualifications. This approach aims to create a more fluid talent exchange between the two countries, ensuring that critical industries can access the skilled labour necessary for maintaining and expanding operations.

The G20's Role

The G20 focuses on creating jobs, sustaining innovation, and achieving development goals. Minimising future supply chain disruptions is critical to this mission. INDAUS ECTA offers insights for G20 members to enhance supply chain resilience.

Enhancing Medical Supply Chain Visibility

The G20 can adopt voluntary and mandatory approaches to improve visibility within the medical supply chain. Standardising regulations, defining shortages and criticality, and enhancing interoperability can ensure better

coordination, transparency, and stakeholder communication.

The G20 can also facilitate the establishment of common databases and information-sharing platforms to track pharmaceutical supplies in real time. By standardising definitions and regulations across member countries, the G20 can create a cohesive system for rapid identification and response to potential disruptions.

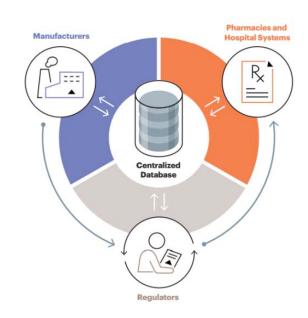
Securing Critical Minerals Supply Chains

The G20 can set policy principles to accelerate discussions on collective economic gains in critical minerals supply chains. Measures include enabling access to finance for early- to mid-stage projects, binding offtake agreements, and standardising the global market for necessary minerals.

The G20 can promote the development of international agreements that ensure stable and diversified supply chains for critical minerals. By fostering collaboration between mineral-rich and manufacturingheavy countries, the G20 can create a balanced and sustainable resource utilisation and trade approach.

Figure 2: Transparency Across the Supply Chain

Transparency across the supply chain Manufacturers should track and share information about: Types of medical products and at what volume they are produced Sources of raw ingredients and other ntial materials (such as for packaging) Information about distributors and distribution channels Regulators should: Have access to insights about manufacturers' sites, products, volume, and capacity Be able to share with other regulatory authorities Pharmacies and hospital systems should track and share information about: Prescription data from electronic health records (EHRs) Granular details about the medications dispensed and drug shortages encountered



Addressing Skill Shortages

Through redesigned migration policies, the G20 can stimulate discussions on talent mobility for innovation and growth. Approaches to democratising access to training and skills development can enhance the global talent movement.

In addition, the G20 can support initiatives that align educational programmes with the evolving needs of global industries. By fostering partnerships between academic institutions and businesses, the G20 can ensure that the workforce has the skills required to meet future challenges and drive economic growth.

Recommendations to the G20

A resilient supply chain framework should be based on visibility, flexibility, collaboration, technology, sound governance, and robust control. This framework should ensure trust, transparency, security, timeliness, and sustainability and provide sound global governance in trade regulation, facilitation, logistics networks, MSME support, and global talent movement.

Creating a Rapid Response Forum (RRF)

An RRF can provide real-time data on supply chains, advance information on disruptions, identify supplier risks, and enhance control across the value chain. The G20 should establish an RRF with stakeholders that has direct visibility of supply chain challenges and employs predictive data analytics and AI platforms for real-time data.

Benefits:

- Provides real-time data on supply chains
- Ensures advance information of an impending disruption

Figure 3: Resilient Supply Chain Framework



- Identifies potential supplier risks in real-time across all parties
- Enhances control across the value chain
- Helps organisations better identify demand-supply intersections
- Secures products more effectively and sustainably

Action Points:

- Establish an RRF that includes stakeholders with direct visibility of supply chain challenges.
- Utilise predictive data analytics and AI platforms to generate real-time data.
- Form an expert committee to identify RRF's building blocks and address trade issues for vulnerable, critical, and essential goods.
- Base the RRF on trust, timeliness, and transparency to ensure it functions effectively as a capacity-building forum.



Key recommendations include a
Rapid Response Forum, Best
Practices Portal, Track 2 Dialogue,
and Digital Trade Facilitation
Framework. These initiatives will
boost preparedness, efficiency,
and global supply chain resilience
for all G20 members



Securing Collaboration Through a Best Practices Portal (BPP)

Visibility in a supply chain is tracking products, components, and material inputs from production to destination. The G20 can create a task force to build a BPP, providing reference-class information on navigating supply chain disruptions. This task force should standardise regulatory procedures for critical, vulnerable, and essential sectors, removing barriers to smooth product delivery.

Benefits:

- Improves resource utilisation and mobilisation.
- Aids 'building back better' through readiness measures and customised solutions.
- Identifies vulnerabilities at each production stage, both upstream and downstream.
- Lessons from INDAUS ECTA can inform resilience strategies.

Action Points:

- Create a task force to build the BPP and provide reference-class information.
- Standardise regulatory procedures to remove barriers in critical, vulnerable, and essential sectors.

Deepening Collaboration Through Track 2 Dialogue

A Track 2 Dialogue involving key stakeholders from the private sector, academia, public policy, and research organisations can maximise understanding supply chain resilience factors. The G20

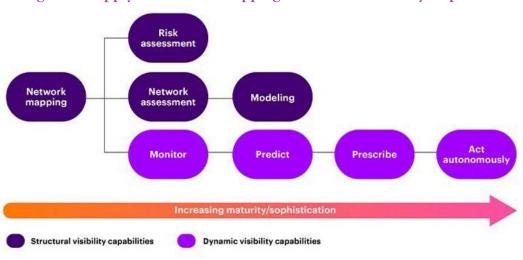


Figure 4: Supply Chain Risk Mapping to Enhance Visibility Capabilities

should create a Track 2 Dialogue to develop a time-bound, outcome-led framework based on data from the proposed RRF.

Benefits:

- Proactively assesses and evaluates supply chain risks.
- Better understanding of sectoral vulnerabilities for effective future strategies.
- Invigorates discussions on supply chain monopolies and restrictive practices.
- Initiates responsible measures for sound governance of supply chains.

Action Points:

- Create a G20 Track 2 Dialogue to develop a time-bound, outcome-led framework.
- Base the framework on sectoral vulnerabilities identified by the proposed RRF.

Creating a Digital Trade Facilitation Framework (DTFF)

The G20 should establish a DTFF to address gaps between developed and developing members. The DTFF should build capacities for using digital technologies like blockchain and AI to manage future supply chain disruptions, with lessons from the Pan Asian eCommerce Alliance (PAA) and smart infrastructure-led initiatives.

Benefits:

- Improves operational resilience, reducing costs of product and service delivery.
- Provides greater certainty in planning and production processes.
- Enhances cross-border connections and reduces customs clearance times.

• Supports smart infrastructure initiatives to improve port-handling capacity and resilience.

Action Points:

- Establish a DTFF to build capacities for using digital technologies to manage supply chain disruptions.
- Invest in innovative infrastructure-led initiatives to enhance operational resilience.

All recommendations emphasise the importance of harnessing shared capabilities among G20 members. The call to action involves delivering measurable outcomes based on strong commitment and dependable partnerships.



The G20 must lead in setting global supply chain standards. By fostering trust, transparency, and cooperation, it can ensure stability, resilience, and sustainable growth in an increasingly interconnected world



Conclusion

The INDAUS ECTA exemplifies how bilateral trade agreements can enhance supply chain resilience in vulnerable sectors. Adopting similar strategies, the G20 can build a resilient supply chain framework based on robust control, visibility, flexibility, collaboration, technology, and sound governance.

The creation of a Rapid Response Forum (RRF), a Best Practices Portal (BPP), a Track 2 Dialogue, and a Digital Trade Facilitation Framework (DTFF) are key recommendations. These initiatives will ensure preparedness for future disruptions, improve resource utilisation, and enhance global supply chain resilience, benefiting developed and developing G20 members.

The G20's role is pivotal in setting global standards and ensuring cooperation among member countries. Implementing these recommendations requires a concerted effort and strong leadership.

By fostering an environment of trust, transparency, and collaboration, the G20 can help build resilient supply chains capable of withstanding future shocks and ensuring the continuous flow of essential goods and services across the globe. This proactive approach will safeguard economic stability and promote sustainable growth and development in an increasingly interconnected world. The sense of urgency has never been higher with increasing geopolitical risks, as well as trade and military conflicts that are adding to the uncertain business environment.



Digital Innovation in the Asia-Pacific's Least Developed Countries



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Despite challenges, digital technologies offer transformative opportunities for LDCs, from economic growth to social services. Asia-Pacific LDCs lead in accessibility and affordability, driving digital progress.

Introduction and Context

The 45 least developed countries (LDCs), the most disadvantaged group, are home to 13 percent of global humanity. The potential of digital technologies to help these countries leapfrog traditional development pathways and achieve the Sustainable Development Goals is well documented.

Specific opportunities for economic transformation include the digitalisation of the manufacturing and services sectors, the digitisation of supply chains, and the rapid adoption and use of frontier technologies that have the potential to fuel a green economic transformation. The total market value of the latter technologies alone is likely to increase from US\$1.5tn in 2020 to US\$9.5tn in 2030.

Even in the social sector, adopting digital technology can be beneficial. For example, the global telemedicine market, valued at US\$60.8bn in 2022, is expected to reach

US\$225bn by 2030. Similarly, the demand for online education, worth around US\$217bn in 2022, is likely to hit the US\$475bn mark by 2030.

However, the LDCs are unable to take full advantage of these opportunities because 64 percent of their population is not connected to the Internet — the very foundation of digital technology. While the overall situation in the LDCs is still challenging when it comes to enhancing accessibility, affordability, and the application of digital technologies, the Asia-Pacific LDCs are in a much better position compared to other LDCs.

For example, two indicators of accessibility — access to electricity and access to the internet — foundational infrastructure that powers digital technology — are much better in the Asia-Pacific LDCs, including two recently graduated countries (Bhutan and Vanuatu), compared to the overall LDC average.



From paperless trade in
Vanuatu to Al-driven training
in Bangladesh, digitalisation
is enhancing efficiency,
reducing costs, and boosting
economic competitiveness in
Asia-Pacific LDCs

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According to the World Development Indicators, access to electricity in the Asia Pacific LDCs is 93 percent, better than the global average of 91 percent and much better than the overall LDC average of 56 percent. Similarly, access to the internet is much higher in the Asia Pacific LDCs (53 percent) compared to the LDCs average (30 percent), although certainly lower in comparison to the global average (63 percent).

Similarly, the indicator of affordability, which the International Telecommunication Union measures as a mobile broadband basket as a percentage of GNI, is 4.3 percent in the Asia-Pacific LDCs, compared to the LDC average of 5.8 percent and the global average of 1.5 percent. Although there is a lot of room for improvement in ensuring meaningful use of digital technologies, many Asia-Pacific LDCs and recently graduated countries have effectively utilised them to reduce trade costs and enhance their competitiveness, as the stories below demonstrate.

Stories of Digital Innovations

Building on the foundational elements highlighted above, various initiatives from the private sector, the public sector, development partners and any combination thereof have been implemented with considerable success. Some of these are highlighted below:

Paperless Trade Facilitation

Digitalisation of border trade procedures and moving towards paperless trade can make trade and supply chains not only climate-friendly but also inclusive. For example, UNESCAP estimates that fully digitalising regulatory procedures around trade could save between 32 and 86 kg of CO₂ equivalents per end-to-end transaction. Extrapolating these numbers to the Asia-Pacific region where the study was conducted implies potential savings of 13 million tons of CO₂, equivalent to planting 439 million trees.

The specific example from a recently graduated country, Vanuatu, which has been implementing an Electronic Single Window (ESW) project, is quite instructive. The project helped digitalise procedures for the issuance of bio-security security certificates, which contributed to reducing the time taken for the issuance of bio-security certificates from 6 days to 10 minutes and achieved a 95 percent reduction in paperwork and an 86 percent reduction in physical trips for certification processes, resulting in a reduction of over 5,827 kgs of CO₂ in emissions.

A final positive fiscal result following the installation of the ESW includes a four-fold increase in revenue from US\$33.5mn to US\$134mn from the start of the project in 2016 to 2022.

In Cambodia, the Universal Postal Union, UNCTAD, the Global Alliance for

Trade Facilitation, and SwissContact worked together to support the Electronic Advanced Data Interface between customs and postal services, which aims to ensure the speedy completion of e-commerce (tradein parcels) transactions for micro-, small-, and medium-sized enterprises.

Digitalising Business Processes

Several business processes in the LDCs are still managed through analogue technology, showing the extent of opportunity. For example, in the manufacturing sector, many LDCs still use analogue technology for nearly 70 percent of the manufacturing process, which could be digitalised by converting paper-based systems into digital formats using smart technologies. Indeed, some Asia-Pacific LDCs have trailblazing these changes both through private public-sector-led initiatives.

An example of initiatives led by the public sector is that of Bhutan, where the ambitious "e-infrastructure for trade and services" project not only supported the transition towards a digital ecosystem but also machine grading and electronic auction of potatoes to increase price transparency, prevent cartelisation and reduce transaction costs, thus resulting in lower waiting times and faster payments (from four days to four hours) and savings of US\$420 per truckload of potatoes auctioned for farmers.

An example of a private sector initiative is seen in Bangladesh, where the EIF supported the establishment of the Centre of Innovation, Efficiency and Occupation Safety and Health Improvement on the premises of the Bangladesh Garment Exporters and Manufacturers Association. The centre's purpose is to train owners, managers, and workers on the latest digital technologies, such as AI, blockchain, and 3D printing, with a view to reducing production and trade costs and complying with environmental and social norms.

The Centre also acts as a clearinghouse for the latest knowledge, information, and trends on the fashion market and supply chain practices. The project was useful in the context of Bangladesh's impending graduation from the LDC category, which may result in extensive preference erosion.

Supply Chain Transparency

Since consumers and importers, particularly in the markets of advanced countries, are increasingly becoming aware of the social and environmental implications of the production process, they are starting to demand full transparency of the supply chain. This is even more so for agricultural produce that is labelled and marketed as "green", "bio", "organic", and "sustainable", and for which digital technology offers enormous opportunities. Various public, private and joint initiatives have been implemented in the Asia-Pacific LDCs.

In Nepal, a recent digital innovation in the form of traceability of the orthodox tea value chain has facilitated enhanced supply chain transparency for orthodox tea. Orthodox tea is considered premium quality,



Scaling successful digital initiatives requires strong policy support, investment, and capacity building. Asia-Pacific LDCs are setting examples in sustaining and replicating impactful innovations

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as it follows traditional processing methods and offers numerous health benefits compared to modern methods. Accordingly, the tea products on sale now must have a barcode attached that provides the customers with all the necessary information about the product. This is expected to help Nepal diversify its tea exports away from India, traditionally the predominant destination.

In Cambodia, with support from the Netherlands Enterprise Agency (RVO) and Oxfam Novib and in collaboration with several partners, including a major private sector rice exporter (AmruRice), an initiative called BlocRice has been launched to make the supply chain of organic Cambodian rice transparent, sustainable and fair.

During the BlocRice implementation phase (2020-2022), field training was provided to increase income and reduce costs at the farm level. In addition, all supply chain partners are linked to the blockchain to ensure a fully transparent supply chain.

Sustainability and Replication

Since the stories presented above are stand-alone initiatives, they can produce an even more significant impact if sustainability is ensured by the public sector or the main implementing entity taking charge of the initiative after the initial project concludes. In some cases, if these initiatives are found to deliver results, they are also replicated elsewhere, as shown below:

One clear example of sustainability, which has been assured through additional government contribution, is the ESW project of Vanuatu. The government allocated resources to ensure continued implementation of the project by allocating budget from its treasury after the external funding ceased in 2022.

Similarly, in Bhutan, the Food Corporation of Bhutan Limited, which is the main implementing entity of the potato online auctioning project, is poised to replicate the system at the production source in Wangdue, Bumthang and Trashigang districts by June this year for which the Government will provide the necessary funding.

Conclusion

While accessibility to relatively better infrastructure and affordability of digital services has been a boon for the Asia-Pacific LDCs, their meaningful utilisation requires considerable planning and investment from various actors.

This is, in part, hampered by perceived weaknesses in regulatory framework, digital skills and the inability of various stakeholders to make meaningful use of digital technology – which may be areas for further research.

However, as the stories highlighted above show, the efforts made to sustain the benefits derived from the initiatives and even their replication in a few cases offer a tremendous opportunity for the Asia-Pacific LDCs to harness the potential of digital innovations. Any initiatives aimed at scaling up these successful initiatives so that benefits can be widely shared would be welcome.

The Ancient Roots of Global Bharat



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(2014-2024)

Transcending the vagaries of empires, invasions, dynasties, and governments, an idea of a 'global Bharat' runs deep in Indian strategic thought. While its ancient and diverse traditions have long shaped this civilisational state's diplomacy and negotiation traditions, recent years have seen an increasing commitment by Indian leaders to "own" its intellectual past.

India's G20 presidency, built around the theme of Vasudhaiva Kutumbakam (one earth, one family, one future), is a powerful illustration of how the country systematically reclaims the global approach inherent in its traditions. This strategy of ownership and reclaim has domestic and international ramifications.

Even as the term finds greater usage and traction with global leaders and people on the ground, it is now important to ensure that this profound and far-reaching idea is not reduced to just another glib catchphrase. In this article, I start by unpacking the full meaning of the phrase, highlighting a key aspect often lost in current applications of the term.

In the second section, I draw out its implications for a Bharatiya vision of global order. In the third and final section, I explain why a global order based on this idea is not some "mere" utopian vision; rather, while taking a clear ethical stand, it

can be reconciled with a robust realism that will advance the country's interests as well as those of other like-minded partners.

Vasudhaiva Kutumbakam: Recognising the Reach of this Concept

The phrase Vasudhaiva Kutumbakam comes from the following Sanskrit verse:

अयं निजः परो वेति गणना लघु चेतसाम। उदारचरितानां तु वसु धैव कुटुम्बकम।।

This is mine, this is yours – only meanminded people indulge in such calculations, For the generous-minded, the entire earth is one family.

Mahopanishad, 6.71

Even as references to this verse find greater popularity within India and internationally, two points are worth emphasising. 66

India's G20 presidency, rooted in Vasudhaiva Kutumbakam, reclaims an inclusive global vision — bridging tradition and modernity to shape a more just, sustainable, and interconnected world

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First, most engage with the idea of "the entire earth is one family" on the understanding that this refers to all the world's peoples. As per this interpretation, we should be looking beyond our national borders and acting in the interests of our shared humanity. This well-intended interpretation, however, stifles the much more ambitious and inclusive nature of the concept.bThe fact is that Vasudhaiva Kutumbakam refers to not just people of the earth but all the "more than human" beings as members of this global family. In this Bharatiya vision of a global family, those without a vote or voice matter just as much as those who have them.

Second, that this phrase has gained popularity in Indian diplomacy (and public discourse) should not lead cynics to assume *The Making of a Global Bharat* that its supporters have cherry-picked an exception in Indian thought. Multiple Sanskrit sources offer us a non-anthropocentric, trans-species, global perspective similar to the one that Vasudhaiva Kutumbakam exemplifies. This is true not only of esoteric texts that a small number of religious scholars have the language skills to read but also of the living traditions and stories passed on from grandparents to grandchildren even today.

For instance, the Mahabharat — India's famous epic that deals with some of the

most fundamental questions about politics, negotiation, and war — contains within it a story of one of its heroes, Yudhishthir, who is clear that he would renounce paradise rather than abandon a stray dog who has faithfully accompanied him on his final journey. In the argument that he offers Indra — the king of the gods — Yudhisthir's adamant refusal to accept a distinction between humans and animals is especially striking. Instead, he effectively attributes personhood and rights to all beings.

Several other stories in this epic offer similar lessons on the importance of treating one's fellow beings — human or not — with dignity and respect. Notably, the Mahabharat is not alone in offering a holistic concept of the global; the Ramayan similarly emphasises the importance of trans-species cooperation, epitomised in the successful alliance Lord Ram establishes with the monkey-king Sugriva.

Schoolchildren in India are similarly exposed to lines that remind them of equality that extends across all species (e.g., आत्मवत् सर्वभू तेषु, यः पश्यति स पण्डितः, He who looks upon all creatures as he looks upon himself, he is the truly wise one).

The idea of Vasudhaiva Kutumbakam is thus a shorthand for a rich, non-anthropocentric globalism. Accept and embrace the philosophy of its unique universalism, inclusiveness, and pluralism, and the Bharatiya vision of global order becomes especially relevant today.

Implications for Global Order and Governance

As policymakers turn much-needed attention to urgent issues, including climate change, Bharat offers a more original and timelier vision than dominant ones in the West

Take, for example, the narrative about climate change mitigation. Schoolchildren have been taking to the streets in Europe (and beyond) with their 'Fridays for Future' demonstrations. Greta Thunberg's call inspired these "school strikes for climate": "You have stolen my dreams and my childhood...You are failing us. But the young people are starting to understand your betrayal. The eyes of all future generations are upon you.

And if you choose to fail us, I say: We will never forgive you". This is a narrative primarily about intergenerational justice, as one would expect if we apply Western tenets of liberalism.

But if we draw on Bharat's approach, we get a much more inclusive, global narrative for climate action. Such a narrative requires not only intergenerational justice but also trans-species justice. It attaches urgency to the cause of biodiversity preservation but also to save the lives of individual animals within species. And such differences in narratives matter because they lead to potentially different policies and outcomes.

As part of its G20 presidency, India has already begun to shape the global narrative. For instance, the Delhi Declaration

highlights its respect for the environment: "It is with the philosophy of living in harmony with the surrounding ecosystem that we commit to concrete actions to address global challenges".

This commitment is explicit in the text via its attention to questions of sustainability and just energy transitions, circular economy, and the idea of LiFE (Lifestyle for the Environment). Reflecting the impact of India's frame of Vasudhaiva Kutumbakam, the preamble also accords importance to the "planet" in its own right. These developments are not to be scoffed at.

That said, and despite its many merits, the Delhi Declaration is primarily a "human-centric" one. For instance, point six states: "Through these actions today, we are building towards a system that better empowers countries to address global challenges, is human-centric, and brings prosperity and well-being to humanity."

To apply the philosophy encapsulated in the phrase Vasudhaiva Kutumbakam, the next step will be to focus on "human-





Beyond diplomacy,
Vasudhaiva Kutumbakam
embodies trans-species
justice, urging a global
order where human and
non-human lives matter—
advancing ethics,
sustainability, and
realpolitik alike

"

centric" and planet-centric development. The Bhartiya vision of global order would require us to pay attention to human suffering (as the Delhi Declaration does) and more-than-human suffering.

Similarly, when speaking of 'one health', besides all the key issues that the Delhi the Making of a Global Bharat Declaration raises, Bharat would also push for a focus on protecting the health and welfare of other species (not least in the context of zoonotic jumping and pandemic prevention).

A global Bharat, as it advances such a vision of global order, would also lead the way in reforming global governance. It is already walking its talk on making international institutions more inclusive, which because the African Union acquired membership in the G20 during India's presidency.

Apply the non-anthropocentric global vision to multilateralism, and India would be pushing for a worldwide ban on trophyhunting, joining countries like New Zealand in banning the live export of animals, and also toughening up its domestic laws such as PCA 1960 on prevention of cruelty to animals.

Bharat has powerful cultural traditions (inspired by Hinduism, Buddhism, and Jainism but also cross religious barriers to enter the cultural ethos) that could inspire a new form of global order. This would enable not only a greater 'voice of the Global South' but also transspecies compassion and respect.

Ethics and Realpolitik

The Bharatiya global agenda that I have presented here has the potential to offer fresh, innovative ideas to deal with existential crises (including climate change, declining biodiversity, and pandemics), to reboot and re-energise the system of multilateral rules, to inject new levels of fairness — and a much more inclusive transspecies understanding of justice — in a way that has never been done before. However, an immediate comeback to the argument I presented above will likely be: How will adopting this value-based globalism advance Indian interests?

As I have argued elsewhere, Indian strategic thought shows us some interesting ways to overcome the values vs. interest dichotomy:

धर्म एव हतो हन्ति धर्मी रक्षति रक्षितः।

When Dharm (duty/values) is destroyed, it also destroys; Dharm protects those who guard it. Mahabharat, III.313.128

This is not a shallow understanding of values but a deep one that suggests that values and interests are reflexive, with one shaping the other. Attention to values is



thus not a "soft" issue; rather, an effective use of ethics can be crucial for Realpolitik.

India's expansive, non-anthropocentric globalism will be advantageous to the country and its people. It originates in Bharat. It is an approach that Bharat can use to offer thought and action leadership. This will matter not only regarding Bharat's status and growing influence but also in the selection of its trade and security partners.

Just as democratic values and shared histories have offered countries from the Global South and Global North to find commonalities with each other, Bharat's planet-centric focus can offer another significant line of like-mindedness. This, in turn, would translate into closer ties with such partners — and also diversified supply chains from others—with important geoeconomic and security implications.

Via closer cooperation with a critical mass of countries that come to share the same respect for life across species, a global Bharat would play a significant role in building a more sustainable, secure, and kinder world.

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What Comes Next? Innovation and Regulatory Forbearance

Our societies will not meet our ambitions and fail spectacularly without rapidly introducing innovations across a broad range of technologies, policies, and processes. How societies react to innovations with unknown benefits and risks will determine how well our children live. And yet, our regulators are not changing quickly enough in a period of rapid innovation.

We must start by appreciating how important innovation is to the quality of our lives. Present-day technologies cannot resolve the challenges ahead. A country must be a highly innovative country to succeed. Time and again, innovation has solved looming disasters and lifted our societies to new standards of welfare and living quality.

However, regulation works best when there is zero innovation because regulators can design precise solutions that will continue to work without facing the uncertainty of change. Regulation becomes less effective as the rate of innovation increases, ultimately becoming the story of a dog chasing its tail.

How can regulators navigate those pressures? This Article argues that societies today need "problem solvers" rather than "regulators" to develop solutions "that seek to find a path between the hopes of some and the fears of others," to use a phrase from the French Health Minister.

Breaking Down the Innovation

It is essential to distinguish between two kinds of innovation and the role of regulation in each one. The first is incremental innovation, and the second is transformative innovation.

The Problem of Incremental Innovation

Innovation comes from incentives to solve problems. Every innovation, no matter how small, addresses some problem. Most innovations are very small, such as changing the formula of paint so that it lasts 16 rather than 15 years or making a printer that uses two percent less energy.

These incremental innovations don't get headlines, but they are the heart of progress cumulatively because they gradually reduce the inputs needed to produce a unit of output. The market economy motivates these dayto-day incremental innovations by connecting innovators with consumers, creating incentives for innovation.

Though the risks of incremental innovations are low, regulatory systems handle them poorly because the rate of regulator, increasing than the rate of incremental innovation. This gap renders some regulations obsolete. Because incremental innovation is almost invisible, regulators do not generally question existing regulatory frameworks even as the gap increases. This increases the efficiency costs of regulation.

Examples of Incremental Innovation Issues

In the 1980s, British reformers examined an 18th-century regulation prohibiting the sale of game meats other than in December, January, and February. This regulation became obsolete with the advent of commercial icemaking in the 1850s, yet it stayed on the books for another 130 years.

Railroads in the United States suffered from high labour costs due to regulations adopted in the 1880s. For example, railroad employees were paid a day's wage for every 100 miles travelled, based on the daily range of a steam locomotive. Diesel locomotives had greater range, but unions refused to allow changes to work rules, forcing railroads to continue stopping trains at 100-mile intervals for crew changes.

Pandemic stresses revealed regulatory rigidities. For instance, home COVID tests in the U.S. were initially regulated as medical devices, causing high costs and slow availability. Regulatory changes during the COVID emergency, like the switch to telework, telemedicine, and online education, showed how outdated regulations can impede innovation.

Incremental changes, like those prompted by COVID-19, can reveal inefficiencies. Permanent regulatory



Innovation has consistently driven societal progress, improving living standards and solving critical challenges. However, rapid technological change challenges traditional regulation, requiring adaptive strategies to balance innovation's benefits with managing its risks

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improvements include telework, telemedicine, and public-private partnerships for rapid vaccine development. Systematic and independent reviews of regulations against innovative changes are necessary, exemplified by South Korea's proactive approach.

Creeping regulatory obsolescence is costly. Some percentage of regulations on the books today are obsolete, and more will become obsolete tomorrow, actively slowing the innovative process. The total cost of this unintended anti-innovation inertia is significant. Consider the cost of not allowing telework earlier despite available technologies. These costs include individual flexibility, unnecessary commercial office buildings, environmental costs, and health and safety costs.

We should not wait for external crises to discover regulatory obsolescence. Proactive experimentation, such as sandboxes, and continual, systematic reviews of regulations are needed. No country is doing this well, though South Korea is leading the way.

The Essential Unknowability of Transformative Innovation

Transformative innovations propel us into the unknown, presenting high benefits and risks. These include the digital revolution, self-driving cars, AI, the metaverse, customised medicine, new energy sources, GMOs, nanotechnology, robotics, and space transport.

Challenges for Regulators

1. Asking the Wrong Questions: Sandboxes, controlled experiments with innovations, cannot capture large-scale benefits or evolving risks of transformative innovations. The



Traditional frameworks
often lag behind
technological
advancements, highlighting
the need for flexible,
outcome-focused regulation
that enables progress
while ensuring public
welfare and safety



sandbox design cannot answer the actual questions regulators need to control risks and increase benefits.

- a. Scale and Time Frame: The sandbox is short-term and small-scale. It cannot be experimental with large-scale innovations like cars or electricity. Small-scale experiments emphasise short-term risks rather than long-term benefits.
- b. Innovation Spawns Innovation: The sandbox focuses on a specific innovation but risks change as innovations mature. Early forms of technology don't have the same risks as later forms. No sandbox could have predicted the development of the internet and its vast applications.
- 2. Bias in Risks Toward the Status Quo: Regulatory cultures prefer control, overemphasising risks over benefits. Political pressures and societal technophobia amplify this bias.
 - a. Regulatory Culture Prefers Control: Regulators view innovation suspiciously, fearing the unknown and overreacting to early problems. This bias leads to premature regulation of short-term risks.
 - Political Economy: Politicians blame regulators for problems, increasing risk aversion. Calculated risks should be encouraged, not condemned.
 - c. Relative Risks: Societies do not consider risks in relative terms. Known risks are more acceptable than unknown risks, even if they are higher. For instance, autonomous vehicles face resistance despite human error, causing 94 percent of road accidents.
- Speed of Innovation Outstrips Regulatory Capacities: Rapid technological adoption outpaces regulatory capacities, leading to the "pacing problem."

Figure 1: Source: As displayed in Rita Gunther McGrath, "The Pace of Technology Adoption is Speeding Up," November 25, 2013, Updated September 25, 2019, Harvard Business Review, https://hbr.org/2013/11/the-pace-of-technology-adoption-is-speeding-up

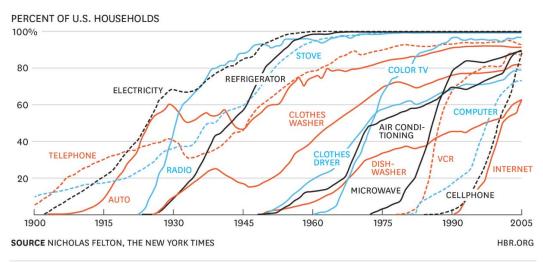


Figure 1 shows electricity took over 40 years to reach 80 percent of households, while cell phones achieved the same in just over 10 years. The pace of innovation is not slowing down.

Self-Driving Cars: The market for self-driving cars is growing rapidly. By the time regulators complete experiments, the technology has changed. Regulators must decide what to regulate and when.

Examples of Successful Regulatory Approaches

- 1. Autonomous Vehicles: U.S. regulators use informed surveillance and voluntary standards, delaying strict regulations to allow technology to mature. The National Highway Traffic Safety Administration requires companies to report serious crashes, maintaining a non-regulatory approach to encourage innovation.
- **2.** Car Safety: Consumer information, such as the 5-Star Safety Rating system, enables informed choices and aligns consumer and government interests. The

- system is based on standardised and mandatory testing by manufacturers.
- 3. Medical Device Regulation: A risk management approach categorises innovations by risk level, balancing innovation with safety. Low-risk innovations move to the market faster, while high-risk innovations require more tests and regulatory approvals. Postmarket surveillance ensures safety.
- 4. Nanotechnology in Canada: Health Canada monitors developments and collaborates internationally to manage risks. The approach includes collecting information for risk assessment, issuing policy documents, and requiring reporting from manufacturers.

Recommendations for Future Regulation

Global Sandbox: International regulatory cooperation accelerates learning and adapts to global innovations. Governments should learn on a larger scale and see the world as a sandbox.



Regulatory Flexibility: Free innovations from outdated regulations and introduce flexible frameworks. For example, South Korea recognises delivery robots as "cars" under current laws, but restrictions will be eased to speed up the mass market debut of sidewalk robots.

Informed Surveillance: Regulators should wait and learn through market surveillance and operational learning, understanding benefits and risks before intervening. Deliberative waiting and informed surveillance are crucial.

Stakeholder Collaboration: Governments must involve societal stakeholders to monitor and adapt to innovations. Collaboration with government, corporations, and civil society set broad principles applicable across the economy and utilising organisations is key to boosting prosperity.

Outcome-Focused Regulation: Emphasise voluntary standards d become

educators, generating information to help society make informed decisions.

General Authorities: Utilise broad principles of competition, fraud, and consumer protection to provide predictability for innovators. General authorities set broad principles applicable across the economy.

Conclusion

Regulating innovations should be the final step. Experimentation with transformative innovations must occur on a broad scale over time. Rather than traditional regulators, we need "risk managers" who wait, watch, assess, and use various tools to guide innovations toward higher benefits and lower risks. By adopting these strategies, societies can harness the full potential of innovation while managing their risks effectively.

Innovation has always been the driving force behind societal progress, leading to improved living standards, increased welfare, and resolving major crises. However, the rapid pace of technological advancement presents a unique challenge for regulatory systems. Traditional regulatory frameworks, designed in an era of slower innovation, struggle to keep up with the speed and complexity of modern technological developments. As a result, there is a growing need for a new approach to regulation that can effectively balance the benefits of innovation with the need to manage its risks.

One of the key challenges in regulating innovation is the inherent uncertainty associated with new technologies. Unlike incremental innovations, which are relatively predictable and manageable, transformative innovations can fundamentally alter industries and societal structures.

These innovations, such as AI, self-driving cars, and advanced biotechnology, carry significant potential benefits and substantial risks. Regulators must navigate this uncertainty without stifling innovation, which requires a flexible and adaptive regulatory approach.

The concept of regulatory sandboxes has emerged as a potential solution to this challenge. Sandboxes allow regulators to create controlled environments in which new technologies can be tested and evaluated in real-world conditions without being subject to the full weight of existing regulations. This approach can help regulators gather valuable data on the benefits and risks of new technologies, allowing for more informed decision-making.

However, sandboxes are not without limitations. They are typically small-scale and short-term, which may not fully capture transformative innovations' long-term impacts and broader societal implications. Furthermore, the rapid pace of

technological change means that by the time a sandbox experiment is completed, the technology being tested may have already evolved

Regions must adopt a more holistic approach to innovation governance to address these challenges. This includes continuous monitoring and adaptation of regulatory frameworks to keep pace with technological advancements. It also involves fostering collaboration between government agencies, industry stakeholders, and civil society organisations to ensure that various perspectives and expertise inform regulatory decisions.

International cooperation is also crucial in the era of globalisation, as technological innovations often transcend national borders. Harmonising regulatory standards and sharing best practices across countries can help create a more consistent and predictable environment for innovators while ensuring that risks are effectively managed.

Ultimately, the goal is to create a regulatory ecosystem that supports



Rather than rigid control, regulators must embrace informed surveillance, regulatory sandboxes, and international cooperation. By evolving into proactive "problem solvers," they can foster innovation while mitigating risks effectively

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innovation while safeguarding public interests. This requires a shift from traditional regulatory paradigms towards more dynamic and flexible approaches that can adapt to the evolving landscape of technological innovation. By embracing these strategies, regulators can help ensure society reaps innovation's full benefits while minimising its potential downsides.

In conclusion, the rapid pace of technological innovation presents both opportunities and challenges for regulators.

To navigate this landscape effectively, regulators must evolve from enforcers of static rules to facilitators of dynamic innovation ecosystems. This involves adopting new tools and approaches, such as regulatory sandboxes and informed surveillance, and fostering greater collaboration and international cooperation. By doing so, regulators can help balance promoting innovation and protecting public welfare, ensuring a prosperous and sustainable future for all.



To Keep the Indo-Pacific Partnership on Track of Globalisation



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The world economy has been deeply interconnected via global value chains (GVCs) since the 20th century. Especially for developing countries, GVC participation opened a door to the pursuit of economic prosperity.

With digitalisation and the Internet of Things (IoT) extending the boundary of international fragmentation of production, GVCs have been evolving toward an ecosystem that is better connected, smarter and more efficient. Adopting digital solutions helps smear out boundaries between different links of the value chains and increase information transparency to all participants. Moreover, digital-empowering service links, either digitally enabled or digitally born, can improve the capacity of GVCs coordination and motivate network extension.

This essay discusses how the Indo-Pacific Partnership (IPP) can best accommodate this global tendency in shaping a route to development. From the economic perspective, a "good" route to sustainable development that IPP aims for must be the one that will enable the progress of globalisation and digitalisation to mutually reinforce and generate a joint force on promoting innovation.

Digital Innovation Calls for International Partnership and Cooperation

As a new gene of the 21st-century GVCs, digital is reshaping the innovation landscape, making it faster, more collaborative, and more data-driven. Embracing digital technology into R&D activities, such as using big data, cloud computing and AI analytics, makes it easier for researchers and engineers to identify



trends and opportunities for innovation more effectively. This can shorten the time cycles needed for new products and services and lead to more frequent and impactful innovations.

Above all, connectivity is a fundamental enabler of innovation in the digital age. Digital tools and applications can enhance collaboration and foster the emergence of innovative solutions by enabling a seamless flow of information, data, and ideas across various platforms, devices, and networks. Better connectivity facilitates real-time collaboration, data sharing, and the integration of various technologies and systems regardless of their physical location.

As a result, global collaboration becomes common on innovative projects, ranging from cutting-edge scientific experiments to industrial process improvements. Digitalisation can create a joint force fostering innovation and creativity by facilitating partnerships among startups, research institutions, and government agencies to promote interdisciplinary collaboration.



The IPP must embrace digitalisation to enhance global value chains.

Strengthening economic ties and promoting rule-based competition will foster sustainable development and innovation-driven growth



To date, it is not unusual to see the development team of a new application consisting of architects in the United States, programmers in Asia, and quality testers in Europe. A good example is how GitHub, a platform for software development and collaboration, has achieved significant success in enabling developers worldwide to work together on open-source projects.

Strengthening IPP's "Pro-Globalisation" Features

IPP was born when the centre of the world's economic gravity was (re)orienting to the East. In this regard, IPP has some genetic relationships with the Trans-Pacific Partnership. Behind the scenes is the rapidly expanding international production-sharing network that fuels rising Asia and digital transformation that fosters the global shift. The White House (2022) has made a clear statement that "[i]n the long term, economic competitiveness will be largely defined by our ability to harness technology, promote innovation, participate in the digital economy..."

Indeed, accelerating the digital transformation to harness gains from technology progress is of all IPP members' common interests. IPP should aim for a platform that enables the U.S. to advance its interests in digital trade and take the lead in developing the global rules of the digital economy in line with domestic laws and norms, and meanwhile, increase the inclusivity for other member states to participate in international rule-setting for the digital economy.

Nevertheless, tension/conflicts between rapid technological changes and social values such as privacy, consumer protection and competition are also quickly emerging. Rulemaking can eliminate barriers to digital trade and support the achievement of various regulatory goals, including consumer protection and privacy.

(Nakatomi 2019, 2024), The World

Bank (2016) suggested five policy areas to promote the development of the digital economy, such as (i) establishing a digital favourable and competitive business climate, (ii) developing substantial human capital, (iii) ensuring good governance, (iv) improving digital infrastructure, and (v) raising digital literacy. These World Bank guidelines could be a good reference for IPP in establishing a regional policy framework in the Indo-Pacific.

Economic interdependence between the U.S. and Asia is vital for global stability and development. IPP should work on strengthening economic links among member states and set the tone for market openness and rule-based competition, which will lead to a development-friendly region that will ultimately contribute to an open, inclusive global environment for sustainable development. By doing so, IPP can benefit all its participating parties.

Asia represents a large market to the US and, therefore, a primary source of job creation and economic growth. American firms believe IPP can strengthen their links with Asia by securing the GVCs of their business with better access to foreign markets and supply bases. Other advanced IPP economies like Japan and Australia have similar economic interests. To many others, a deeper partnership with the U.S. will facilitate access to the American market, capital, and technology and secure the U.S. as an external anchor for safeguarding domestic regulatory reforms.

IPP to Promote Global Rule Setting on Digital Trade

IPP's effort to promote global consensus on regulating digital trade seems to be a low-hanging fruit that shows IPP'S potential in delivering accurate results to its member states, whose commitment to high-standard trade rules will not only accelerate the



IPP can lead in global digital trade rule-setting by balancing market openness, data security, and policy goals. Building trust among members is essential for an inclusive, high-standard agreement

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digital transformation but also facilitate their integration into GVCs in the digital era. This will require more beyond-the-border measures (modification of domestic laws and regulations to meet international commitment needs).

The consequent social and economic adjustment and policy intervention in response call for collaboration between the administrative and legislative agencies and cooperation amongst different government branches, particularly between foreign affairs departments and those in charge of domestic market regulation (Kimura and Chen, 2016).

This is very much relevant to the four pillars that the White House (2022) has highlighted - (i) trade, (ii) supply chains, (iii) clean energy, decarbonisation, and infrastructure, and (iv) tax and anticorruption. From a broader perspective, this is consistent with America's longstanding strategy of promoting a free, open, rule-based global market (with the

extension to cyberspace) as the top priority of its foreign policy.

Despite the wide gaps between countries' desirable regimes on digital trade, IPP should see the current disagreement among member states as a driving force rather than a hindering factor when levelling the playing field for digital trade to maximise complementary and competing interests among stakeholders, especially in the areas such as setting the common floor of data security and privacy legislation, balancing trade-off between market openness, free flow of data and policy with other social-economic goals, and the accommodation of different standard-setting practices with global reach.

The agreement's scope and quality largely depend on how much countries trust each other. In this regard, IPP's top priority is trust building to pave the way for achieving a high-standard agreement that is "consistent with US domestic constraints, while providing sufficient benefits to attract US Indo-Pacific partners" (Meltzer 2022).

Finally, IPP should stick to the principle of openness and inclusivity if its original intention is to explore an innovative route to development. The short-term political temptation might tend to drive IPP towards an exclusive regional block, which can only hinder the progress of innovation and global growth in the long run.



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