INDO-PACIFIC DEFENSE

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FORUM

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Indo-Pacific Allies and Partners work together to protect sea lines of communication and assure economic prosperity in the region.

FORUM ILLUSTRATION

Dear Readers,

Welcome to Indo-Pacific Defense FORUM's issue on strategic shifts.

The United States and its Allies and Partners continuously adapt their combined and joint strategies, tactics and capabilities to face emerging security challenges. As threats rapidly become more complex, cooperative relationships among militaries and nations prove increasingly important for achieving a secure and prosperous Indo-Pacific.

This edition of FORUM strives to illuminate some of the key problems related to shifts in the region, from demographic, economic and geopolitical changes to trends in technology and warfare, and the importance of like-minded nations staying ahead of adversaries by constantly improving defense capabilities — especially those critical to collaboration.

In the opening feature, Dr. Alfred Oehlers, a professor at the Daniel K. Inouye Asia-Pacific Center for Security Studies, explains how and why the U.S. and its Allies and Partners must focus on achieving an integrated deterrence to uphold the international rules-based order and a Free and Open Indo-Pacific. A FORUM staff article closely tied to this theme examines how the Australian Defence Force is adapting to the shifting strategic landscape by employing whole-of-government approaches that embrace all domains of defense — air, land, sea, cyber and space. In a piece based on his presentation at the 2023 Land Forces Pacific (LANPAC) Symposium & Exposition in Hawaii, Armed Forces of the Philippines Chief of Staff Gen. Romeo Brawner shares his views on the importance of multilateral training for enhancing interoperability and strengthening bonds among partners to prepare for future engagements.

Also in this edition, Dr. Jinghao Zhou, an associate professor of Asian studies at Hobart and William Smith Colleges in New York, examines Chinese Communist Party (CCP) General Secretary Xi Jinping's emergent Global Security Initiative and why Allies and Partners must respond with a steady and clear security policy to counter CCP influence in the Indo-Pacific and beyond. Meanwhile, a FORUM staff article probes how another strategic competitor, Russia, undermines global laws and norms by stealthily employing a fleet of aging ships to deliver oil or transfer cargo at sea to avoid international sanctions, emulating methods used by Iran and Venezuela.

The edition offers an array of innovative solutions to many of these escalating challenges. A FORUM staff article, for example, details how cybersecurity partnerships are maturing in the Indo-Pacific. Allies and Partners are teaming up to detect cyberattacks, share information with governments and industry, and protect civilian infrastructure and defense networks. Cyber-focused military exercises are a crucial part of the security response to this threat.

We hope these articles encourage regional conversations on the significance of strategic shifts for security. We welcome your comments. Please contact the FORUM staff at **ipdf@ipdefenseforum.com** to share your thoughts.

All the best,

FORUM Staff

IPD FORUM

Strategic Shifts

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DR. JAKE WALLIS formerly led the Information Operations and Disinformation program with the Australian Strategic Policy Institute's (ASPI) International Cyber Policy Centre, where he worked with international government entities, civil society and social media platforms to counter disinformation by state and nonstate actors. His doctorate explored how politically motivated groups mobilize across online networks. He has researched extremist groups' use of social media under the Australian Army Research and Development Scheme and contributed to NATO's Innovation Hub. His analysis of large-scale disinformation and propaganda campaigns linked to the People's Republic of China has been featured in publications worldwide. Featured on Page 52

AUSTRALIA, JAPAN, U.S.

To Fund Undersea Cable Connection in Micronesia

Japan announced in June 2023 that it has joined Australia and the United States in a $95 million undersea cable project that will connect East Micronesian island nations to improve digital networks in the Indo-Pacific.

To be completed by 2025, the cable, which is about 2,250 kilometers long, will connect the state of Kosrae in the Federated States of Micronesia, Tarawa in Kiribati, and Nauru to the existing cable landing point in Pohnpei, Micronesia, according to Japan's Ministry of Foreign Affairs.

Leaders of Australia, India, Japan and the U.S. weeks earlier emphasized the importance of undersea cables as a critical component of communications infrastructure and the foundation for internet connectivity.

Tokyo-based NEC Corp., which won the contract, said the cable will ensure high-speed, high-quality and more secure communications for residents, businesses and governments, while contributing to economic development.

The cable will connect more than 100,000 people across the three Pacific Island Countries, according to Kazuya Endo, director general of the international cooperation bureau at the Japanese Foreign Ministry.

The Associated Press

INDO-PACIFIC PARTNERS

STRENGTHEN SECURITY TIES AMID PRC, NORTH KOREA TENSIONS

Japanese and Philippine coast guard forces conduct enforcement and search and rescue drills with the United States in the South China Sea during the inaugural Kaagapay exercise in June 2023. REUTERS

National security advisors for Japan, the Philippines and the United States held their first joint talks in June 2023 and agreed to strengthen defense cooperation, as Indo-Pacific partners reinforce their alliances to address growing tensions over North Korea, the People's Republic of China (PRC) and Russia's unprovoked invasion of Ukraine.

The three officials discussed the "turbulent regional security environment and how we can collectively work to enhance peace and stability" in areas including freedom of navigation and economic security, U.S. National Security Advisor Jake Sullivan said.

In a joint statement, Sullivan, Takeo Akiba of Japan and Eduardo Ano of the Philippines emphasized the importance of enhancing trilateral cooperation, building on the longtime Japan-U.S. and Philippines-U.S. alliances to maintain peace and stability in the Indo-Pacific, especially in the Taiwan Strait.

Sullivan said the new framework underpins multiple alliances involving the U.S. in the region, including three-way cooperation with Japan and South Korea, and the Quad partnership with Australia, India and Japan.

The national security advisors said they also discussed joint naval exercises in Indo-Pacific waters and agreed to deepen military cooperation in humanitarian assistance and disaster relief.

Japan in December 2022 adopted a new National Security Strategy that calls for doubling defense spending to $310 billion through 2027, including for developing counterstrike capabilities.

Japan will also provide security assistance for other militaries and is likely to supply Japanese-made nonlethal equipment such as radar, antennas and patrol boats, and infrastructure improvements. The Philippines is a candidate to receive assistance. The Associated Press

Protecting Sea Lines of Communication

Allies, Partners Tap into Technology to Monitor Maritime Domain

Vessels sit at anchor in the congested Singapore Strait, one of the world's busiest trade routes and a vital sea line of communication. AFP/GETTY IMAGES

FORUM STAFF

The oceans and seas that dominate the Indo-Pacific present a challenge of immense proportions to safeguarding sovereignty and upholding freedom of navigation and commerce — an obstacle that military planners call the "tyranny of distance."

Increasingly, satellites, sensors, uncrewed aerial and surface vessels, and other technologies — combined with comprehensive information-sharing endeavors among like-minded nations — are key to bridging these distances to monitor the maritime domain.

"Maritime domain awareness (MDA) in the Indo-Pacific is moving from an abstract aspiration to a functional collective security approach for managing the region's dynamic offshore spaces," noted an April 2023 article in PacNet, a publication of Pacific Forum, a Hawaii-based foreign policy research institute. "Much of the cost-savings in maritime enforcement activities is due to emerging technologies including access to satellites that provide clearer and more accurate images, as well as artificial intelligence and big data platforms dedicated to vessel tracking, prediction, and anomaly detection."

HawkEye 360, for example, uses space-based radio frequency technologies to detect and monitor vessels, including "dark vessels" that disable their automatic identification system responders to conceal illegal fishing and other illicit activities. The United States-based company provides data and analytics to assist the U.S. and partner nations in securing their exclusive economic zones and other maritime spaces. The U.S. and its Allies and Partners assure economic prosperity via safe and secure sea passageways.

More than 60% of global maritime freight is unloaded in Indo-Pacific ports, while over 40% is loaded, according to the United Nations Conference on Trade and Development. With seaborne trade a lifeline for the region, the risks of disruption are magnified "whether due to shipping accidents, piracy and armed robbery incidents, sanctions evasions through ship-to-ship transfers, illegal, unreported and unregulated fishing, or, of increasing concern, unilateral sea grabs or a naval blockade at vulnerable chokepoints," Ariel Stenek, a doctoral student at the National Graduate Institute for Policy Studies in Tokyo, wrote for PacNet. "These threats, many of which are transnational in nature, have motivated the search for a networked and cooperative solution among like-minded states," Stenek noted.

Those efforts include the Indo-Pacific Partnership for Maritime Domain Awareness, unveiled by the leaders of the Quad partner nations — Australia, India, Japan and the U.S. — during their May 2022 summit in Tokyo. The initiative seeks to employ commercially available data and technology and extend information sharing among regional fusion centers to "transform the ability of partners in the Pacific Islands, Southeast Asia, and the Indian Ocean region to fully monitor the waters on their shores and, in turn, to uphold a Free and Open Indo-Pacific," the leaders said in a statement.

The ability of those fusion centers, including in India, Singapore and Vanuatu, to tap into high-quality data will boost regional MDA, according to Dr. Arnab Das, a retired Indian Navy commander and founder of the Maritime Research Center in Pune, India. "Automation and machine learning are critical for real-time identification of suspicious behavior from diverse data sources," he wrote in FORUM.

For the region's navies, coast guards and other maritime enforcement agencies, unfettered access to vital sea lines of communication is being tested by the Chinese Communist Party's (CCP) aggressive posturing, including in the contested waters of the East China and South China seas. In late October 2023, for instance, a convoy of CCP coast guard, navy and maritime militia vessels tried to block two Philippine Coast Guard ships and two other boats from delivering food and supplies to Philippine forces stationed at Second Thomas Shoal in the South China Sea. CCP vessels struck a Philippine Coast Guard ship and supply boat during the incident, prompting a diplomatic protest by Manila over what U.S. officials called Beijing's "dangerous and unlawful actions."

"By using gray-zone tactics such as maritime militias, a militarized coast guard, and prosecution of legitimate competing commercial vessels and platforms, China has slowly attempted to challenge the existing free-and-open maritime commons in the first island chain, referring to Taiwan as 'essential strategic space for China's rejuvenation' and a 'springboard to the Pacific' in official military writings," U.S. Navy Lt. j.g. Samuel Heenan Winegar wrote in the December 2022 issue of Proceedings, a journal of the U.S. Naval Institute.

That is heightening the need for a network of sensors to detect and deter such activities "in times of peace as well as war," Winegar noted. Satellites and sensors can "provide strike assets with battlespace awareness well beyond their individual tactical horizons and can offer ISR [intelligence, surveillance and reconnaissance] capabilities at essentially global ranges," Winegar wrote. "Sensors employed by ships and other strike resources may not be able to offer sufficient organic targeting data on potential targets without accepting undue risk to their host platforms. The placement of networked sensors along the first island chain would be a logical extension of current and planned U.S. and Japanese operational planning in the region."

ALLIANCES AND PARTNERSHIPS

MOVING STRATEGIC RELATIONSHIPS TO THE NEXT LEVEL

DR. ALFRED OEHLERS/DANIEL K. INOUYE ASIA-PACIFIC CENTER FOR SECURITY STUDIES
PHOTOS BY THE ASSOCIATED PRESS

We often hear that alliances and partnerships are a vital asset. These relationships distinguish the United States from its competitors. They also confer decisive advantages, especially at crucial moments. As the U.S. faces future challenges, it likely will again turn to Allies and Partners for support. It is in our collective interest to ensure these relationships are sustained and remain vigorous.

Improving on an enviable track record is no easy task. What might we change in these relationships? Where and how might we innovate? What opportunities remain to be discovered and seized? These are important questions to repeatedly ask. In the current strategic competition, the stakes are high. It behooves us to continuously challenge ourselves, consider what else our alliances and partnerships might encompass, and seek out the game-changing benefits they might deliver at crucial junctures.

The Indian Air Force's aerobatic team performs during an aviation technology demonstration at Yelahanka air base in Bengaluru. India's partnerships are enhancing its defense capabilities.

ABOVE: Australian Prime Minister Anthony Albanese, from left, U.S. President Joe Biden, Japanese Prime Minister Fumio Kishida and Indian Prime Minister Narendra Modi attend a meeting of the Quad partnership in Tokyo in May 2022.

Five factors speak to broad opportunities for Allies and Partners. Together these offer the potential to catalyze our networks, rendering them more resilient and relevant to the tactical and strategic challenges of today and the future. First, we must refresh the relationships we have. Second, we should expand these established networks. Third, we need to innovate how we configure our connections. Fourth, we must deepen our integration. Fifth, we need to exercise these networks and relationships with increasing focus and intensity.

REFRESH

Many of our alliances and partnerships have existed for years. These relationships reflect past conditions and priorities. We have tried to keep pace with changes by periodically updating relationships and the activities conducted under their frameworks. Arguably, however, with growing strategic competition, the ground has shifted dramatically. Punctuated by developments such as Russia's illegal invasion of Ukraine, we find ourselves at a historic turning point. Are our alliances and partnerships up to this?

Our strategic context, though increasingly competitive, is muddied by deep economic bonds and interdependencies, often with potential adversaries. The threats we face are increasingly multidimensional and complex. Conflict no longer just spans traditional air, sea and land domains. Newer domains such as cyber, space and information are fast emerging as pivotal.

With so much changing, there is reason to reevaluate whether our alliances and partnerships are still fit for purpose. Reassessing our agreements and their relevance to contemporary challenges will be beneficial. In conjunction, frank conversations around potential pathways forward, to address gaps or seize opportunities, might be needed.

EXPAND

If we examine alliances and partnerships solely in terms of connections among militaries in the region, the situation appears encouraging. Our alliances and partnerships are impressive numerically and in terms of geographic coverage. Yet there is room to grow and improve. Addressing gaps, such as the omission of nations without militaries, might be a case in point. Still, on the whole, there is reason to be satisfied.

Things look less satisfactory, however, if a different metric is applied. What if, instead of only military interfaces, we evaluated our alliances and partnerships on their ability to marshal more effective responses to the threats now faced? Our networks, after all, possess a powerful convening authority to assemble military partners. They could potentially be harnessed to bring aboard other key national, regional and international players for valuable contributions to the battlespace. Doing so would acknowledge an important point. In our current strategic competition, with its hybrid or gray-zone challenges, the military remains a key figure. Increasingly, however, it will not be the only figure. In some instances, it might not be the most vital. Who or what else should our networks include?

At one level, this could involve the familiar issue of assembling the right interagency partners. That's a start. But it could be more. Whole-of-society approaches have been proposed to more comprehensively address gray-zone and hybrid challenges. The important roles of nonstate actors such as the private sector or nongovernmental organizations are frequently mentioned in this regard.

Somewhere in the conduct of our alliance and partner relations we must bring aboard additional nonmilitary partners with important contributions to resilience against gray-zone and hybrid threats. Differing missions, priorities and organizational cultures can make this a daunting proposition. Progress is essential, however. In expanding participation by these additional partners, the relevance and effectiveness of the entire network will be amplified. This will be a worthwhile investment of time and effort.

A Republic of Korea tank disembarks during Cobra Gold 2023 in eastern Thailand.

INNOVATE

Our alliances and partnerships are largely founded on bilateral agreements. Often, however, the solutions we seek may require a multilateral approach. In the context of intensifying state-on-state strategic competition, alongside gray-zone or hybrid transnational threats, coalition-based solutions may make more sense. These need not be huge coalitions. Whether for reasons of agility and timeliness, geographic focus, efficiency in resource-sharing, complementary coalitions or the unique nature of the problems addressed, they might number just three or four nations. The term "minilaterals" often is used to describe these smaller-scale multinational efforts.

The Quadrilateral partnership, or Quad, brings together Australia, India, Japan and the U.S. to discuss shared strategic concerns. Meanwhile, the trilateral partnership among Australia, the United Kingdom and the U.S., known as AUKUS, focuses on defense science and technology sharing and development. Many other configurations are possible to address broad-based and more specialized topics or geographical concerns. Some might be informal or ad hoc while others are codified by formal pacts. An encouraging trend is the increasing diversity of nations convening or participating in minilaterals, including Australia, Canada, France, India, Indonesia, Japan, the Philippines, South Korea and Vietnam.

Our alliances and partnerships are ideal foundations for exploring novel minilateral configurations, which hold the potential for imaginative ways to address challenges. They also strengthen the latticework of relationships across the region, helping to deter and constrain malign activities by the governments of countries such as the People's Republic of China (PRC) and Russia. Where possible and appropriate, opportunities merit investigation.

DEEPEN INTEGRATION

The COVID-19 pandemic exposed a major vulnerability. When global supply chains were disrupted, economies ground to a halt. When we realized the outsized control that one country, the PRC, exercised on international supply chains, the prospect of economic collapse, already a national security concern, acquired another alarming dimension: How did a strategic competitor gain such influence?

It was against this backdrop that alliances and partnerships gained further significance. Economic vulnerabilities spawned an intense debate over the need to "decouple" or "de-risk" from the PRC. Homeshoring or reshoring industries are often cited as solutions. With reference to Allies and Partners, "friend-shoring" is another option, whether in terms of locating sensitive industries in safer havens or diversifying sources of critical materials, components or technologies.

Allies and Partners also have deepened industrial and economic integration, most prominently in industries vital to national defense. This integration seeks to fuse partners' relative strengths, bringing collective capabilities to bear throughout the supply chain in key industries. Terms such as "allied by design" describe this deeper level of collaboration and integration from basic research to product deployment. The collaboration among Australia, the U.K. and the U.S. on defense science and technology is an example of such ambitious integration. Many opportunities exist, potentially involving a wider range of partners across diverse high-tech areas. Cyber, space and information operations are examples, as are artificial intelligence and quantum computing.

Such collaboration and integration is not easy. It reflects a qualitatively deeper level of commitment among partners. Yet the benefits contribute to a more resilient industry and economy, addressing vulnerabilities exposed by the pandemic, fostering economic strength, and better equipping Allies and Partners for the multidomain, multidimensional challenges of the future. It represents the next momentous step forward for our alliances and partnerships.

EXERCISE NETWORKS

Practice makes perfect. Military exercises test operational readiness, and crucial to the preparedness and effectiveness of a joint force. For coalitions, exercises are indispensable for interoperability among diverse joint force partners. The ability of militaries to work seamlessly alongside each other is a hallmark of our alliances and partnerships. It presents a compelling integrated deterrence to potential adversaries.

The Indo-Pacific is home to many multinational exercises, including Balikatan, Cobra Gold, Garuda Shield, Malabar and Talisman Sabre. This dense network presents an excellent foundation. There are encouraging signs that such exercises are expanding and strengthening alliances and partnerships as forces innovate to face modern challenges. The number of participating nations has been consistently rising. The range of scenarios addressed has grown in number, sophistication and complexity. Increasingly, newer domains such as space and cyber are featuring prominently, with the information domain not far behind. In all, progressively deeper levels of interoperability and integration are being tested and accomplished.

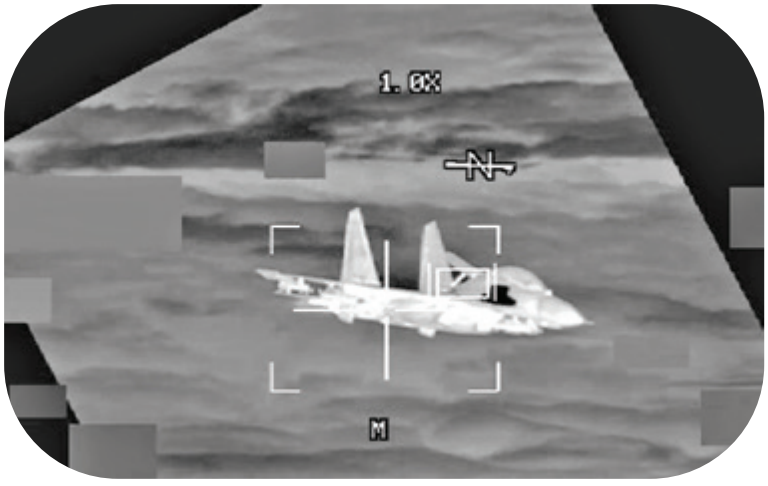
While this speaks volumes for our alliances and partnerships, we should remain alert to the progress of potential adversaries. We must continuously seek to outpace them despite any constraints in time or resources. This means raising the bar after each exercise, and requires an incessant search for new ways to stress test and strengthen capabilities crucial to working together.

What we do next with our alliances and partnerships will be consequential. We cannot be content with the status quo. Instead, a certain restlessness is healthy. Our networks are an essential pathway toward an integrated deterrence crucial to upholding the international rules-based order and a Free and Open Indo-Pacific. There is much riding on our actions. □

UPHOLDING INTERNATIONAL NORMS *in the Skies*

U.S., Allies and Partners Promote Air Safety Amid Beijing's Reckless Intercepts

FORUM STAFF



A People's Liberation Army Air Force (PLAAF) fighter jet intercepted a Canadian Armed Forces CP-140 Aurora aircraft multiple times in international airspace in October 2023 in a "dangerous and reckless" manner, yet another example of Beijing's disregard for freedom of navigation and aircrew safety, officials said.

Such unsafe and unprofessional activities risk midair collisions and escalation. The nonstandard intercepts are part of a larger effort by the People's Republic of China (PRC) to assert excessive jurisdictional control in the Indo-Pacific, especially over the South China Sea, international legal experts explain.

"We're solidly in international airspace," Royal Canadian Air Force Maj. Gen. Iain Huddleston told reporters also aboard the patrol plane when the PLAAF fighter jet, armed with air-to-air missiles, came within 5 meters. The CP-140 Aurora was on a routine patrol to monitor shipping lanes in the East China Sea for violations of international oil sanctions against North Korea. "That last sequence was an unprofessional intercept. … It was very aggressive," Huddleston said.

A Chinese People's Liberation Army Air Force (PLAAF) fighter jet conducts a risky intercept of a U.S. military aircraft operating lawfully in international airspace above the South China Sea in June 2022.

THE ASSOCIATED PRESS

INSET: A PLAAF J-11 pilot executes an unsafe intercept of a U.S. Air Force B-52 aircraft on October 24, 2023, in international airspace over the South China Sea.

U.S. INDO-PACIFIC COMMAND

Royal Canadian Navy Capt. Rob Watt, the nation's defense attache to Japan, was also aboard, according to CBC News, Canada's publicly owned news service.

Nonstandard intercepts of United States, Ally and Partner aircraft by China's PLAAF are increasingly frequent. Such close intercepts, conducted for longer than necessary to identify aircraft, constitute a form of gray-zone harassment that creates unnecessary risk for crews, as well as third-party aircraft in the vicinity.

A day after the Canadian incident, U.S. defense officials said they had documented more than 180 such instances of "coercive and risky" behavior by Chinese military pilots against U.S. aircraft over the East China and South China seas since 2021, more than the total during the previous decade. "That's nearly 200 cases where PLA operators have performed reckless maneuvers or discharged chaff, or shot off flares, or approached too rapidly or too close to U.S. aircraft — all as part of trying to interfere with the ability of U.S. forces to operate safely in places where we and every country in the world have every right to be under international law," Ely Ratner, U.S. assistant secretary of defense for Indo-Pacific security affairs, said at an October 17 news conference. "And when you take into account cases of coercive and risky PLA intercepts against other states, the number increases to nearly 300 cases against U.S., Ally and Partner aircraft over the last two years."

U.S. officials released newly declassified images and video showing PLAAF fighter pilots trying to intimidate U.S. military pilots in international airspace, in some cases flying within 7 meters of the aircraft. "It's a centralized and concerted campaign to perform these risky behaviors in order to coerce a change in lawful U.S. operational activity," Ratner said.

All nations may conduct air operations including lawful surveillance activities in international airspace for the purpose of understanding the operating environment, maintaining readiness, upholding navigational freedoms, and identifying and mitigating threats, according to legal experts. The PLAAF's frequent nonstandard intercepts impede and infringe upon navigational freedoms.

The PLAAF "can and must stop this behavior, full stop," U.S. Navy Adm. John Aquilino, Commander of U.S. Indo-Pacific Command (USINDOPACOM), said at the news conference.

Just a week later, however, a PLAAF J-11 pilot executed a dangerous intercept of a U.S. Air Force B-52 conducting lawful, routine operations over the South China Sea. The Chinese military pilot "flew in an unsafe and unprofessional manner, demonstrated poor airmanship by closing with uncontrolled excessive speed, flying below, in front of, and within 10 feet of the B-52, putting both aircraft in danger of collision," USINDOPACOM stated, noting that the PLAAF pilot seemed unaware of how close he came to causing a collision.

In addition to creating unsafe conditions and increasing risks to aircraft operating legally, the PLAAF intercepts contradict recommendations of the International Civil Aviation Organization (ICAO), a United Nations agency established in 1947 to provide guidance for the safe operation of aircraft in international airspace, including the interception of civil aircraft by state aircraft. This includes maintaining adequate distance to avoid a collision. Professionalism is characterized by nonprovocative maneuvers and proper airmanship that refrains from overtly aggressive actions, words or gestures. The PRC is a member state of the ICAO Council that governs the organization.

Although ICAO rules do not govern military air-to-air encounters, they serve as a basis for understanding normal and safe behavior globally. The PRC's intercepts run counter to a memorandum of understanding it signed with the U.S. in 2014 to operate in a manner consistent with ICAO conventions and related tenets during air-to-air encounters.

The U.S., its Allies and Partners continue to promote the need for all countries to abide by internationally recognized standards for aerial intercepts to ensure the safety of personnel and assets and to preserve every nation's right to operate in international airspace, including to conduct legal surveillance and maintain freedom of navigation. □

Fit for Purpose

Australian Defence Force Adapts for a Rapidly Shifting Strategic Landscape

FORUM STAFF | PHOTOS BY AUSTRALIAN DEFENCE DEPARTMENT

The mission was critical; the timeline telling: Conduct a comprehensive review of Australia's defense strategy and force posture — perhaps the nation's most consequential such analysis in more than three decades — and issue recommendations within six months, rather than the 18 months typical for such an undertaking. "Now that's a tall order," said retired Air Chief Marshal Sir Angus Houston, co-lead of the Defence Strategic Review, who served as head of the Australian Defence Force (ADF) and the Royal Australian Air Force (RAAF) during his 41-year military career. "But such is the urgency of our strategic circumstances, we needed to do this very, very quickly."

Those conditions "have been going downhill for a long time, and I would characterize them as the worst strategic circumstances certainly in my lifetime," Houston told an audience at the Center for Strategic and International Studies (CSIS) in May 2023, weeks after the release of a 110-page unclassified version of the review. Among the factors fundamentally reshaping Australia's defense: a regional giant's opaque military buildup; growing use of coercion as a state tactic; rapid transformation of emerging technologies into military capabilities; proliferating nuclear weapons; and the heightened risk of a catastrophic miscalculation.

That combustible combination threatens to upend "40 years of peace, stability and prosperity" in the Indo-Pacific, Houston said at the Washington, D.C.-based think tank. Meanwhile, in an age of long-range missiles and hypersonic weapons — let alone cyber and space-based threats and attacks — Australia's natural defensive barriers of distance and ocean no longer seem so insurmountable, and "warning time for conventional conflict for the first time in my experience had been assessed as going below 10 years," Houston said of ADF projections of how long an adversary would need to launch a major attack against the country from the time intent is established.

U.S. Army High Mobility Artillery Rocket Systems (HIMARS) fire guided missiles during Talisman Sabre 2023 at Shoalwater Bay Training Area in Queensland, Australia.

A Republic of Korea Air Force KF-16U Fighting Falcon and a Royal Australian Air Force F-35A Lightning II participate in exercise Pitch Black 2022 in Australia.

For a half-century, Australia's defense policy has been "aimed at deterring and responding to potential low-level threats from a small or middle power in our immediate region," Houston and former Defence Minister Stephen Smith wrote in their review. "This approach is no longer fit for purpose." The ADF "must be able to hold an adversary at risk further from our shores."

"The strategic risks we face require the implementation of a new approach to defence planning, force posture, force structure, capability development and acquisition," noted the review, which was presented in classified form to the government in February 2023, six months after Houston and Smith began their assessment. "We aim to change the calculus so no potential aggressor can ever conclude that the benefits of conflict outweigh the risks. This is how Australia contributes to the strategic balance of power that keeps the peace in our region, making it harder for countries to be coerced against their interests."

'STRATEGY OF DENIAL'

The review presents whole-of-government recommendations encompassing all domains of defense — air, land, maritime, cyber and space — including transitioning from a joint force designed to respond to a range of contingencies to an integrated force focused on the most significant risks and more reflective of the emergence of cyber and space as arenas for potential conflict.

"The development of a strategy of denial for the ADF is key in our ability to deny an adversary freedom of action to militarily coerce Australia and to operate against Australia without being held at risk," the review stated, calling for the acquisition and development of long-range strike capabilities such as the High Mobility Artillery Rocket System (HIMARS) and the Precision Strike Missile, which would extend the range of the Australian Army's weapons beyond 500 kilometers. Additionally, the review supports integration of the Long-Range Anti-Ship Missile on F-35A Joint Strike Fighter and F/A-18F Super Hornet aircraft, as well as accelerated development of the MQ-28A Ghost Bat drone, which can integrate with crewed and uncrewed aircraft and space-based capabilities.

"A strategy of denial for the ADF must focus on the development of anti-access/area denial capabilities (A2AD)," the review noted. "Anti-access capabilities are usually long-range and designed to detect an adversary and prevent an advancing adversary from entering an operational area. Area-denial capabilities are shorter range and designed to limit an adversary's freedom of action within a defined operational area. A2AD is often synonymous with long-range strike capability, undersea warfare and surface-to-air missiles."

As part of the nation's maritime defense upgrades, development of a fleet of conventionally armed, nuclear-powered submarines is "an absolute

Australian Army and Papua New Guinea Defence Force personnel march during Olgeta Warrior 2023 in Lae, Papua New Guinea.

imperative," Houston said at CSIS. The vessels can travel farther and faster and are stealthier than diesel-powered submarines. In partnership with the United Kingdom and the United States, the Royal Australian Navy (RAN) is expected to receive its first domestically built nuclear-powered submarine in the early 2040s. Before then, Australian civilian and military personnel will embed with the U.K. and U.S. navies for training. "We've got to do it as quickly as we can," Houston said.

Houston and Smith also recommended an independent analysis of the RAN's surface combatant fleet to ensure its capabilities complement those of the planned nuclear-powered submarines. With the nation almost entirely reliant on seaborne trade, including for petroleum and other liquid fuels, maritime operations are central to defense planning, according to Mark Watson, director of the Australian Strategic Policy Institute's (ASPI) Washington, D.C, office. "We need to stop any nation choking off our maritime approaches and our sea lanes. Australia is a maritime country. If someone shuts that down, we're in a world of hurt," Watson told National Defense magazine in May 2023. "We need to keep those approaches open, and that means having the ability to challenge anybody who may wish to shut that down."

The Australian government has committed about $13 billion through 2027 to implement the half-dozen immediate priorities identified in the review, including nuclear-powered submarines and long-range strike capabilities, as well as enhanced base infrastructure in the nation's north. Overall, defense spending is projected to reach 2.3% of gross domestic product within a decade, up from about 2%. "Central to the security of Australia is the collective security of our region," the Defence Department stated. "Importantly, there is additional funding for key defence partnerships in the Indo-Pacific."

'IMPACTFUL PROJECTION'

The proposed transformation of the 85,000-member ADF mirrors a regional trend as Indo-Pacific forces adapt to acute security challenges, many of them shared:

- Japan's new National Security Strategy, adopted in late 2022, calls for doubling defense spending through 2027, including to develop counterstrike capabilities. Tokyo cited North Korea's unprecedented barrage of missile tests in violation of United Nations sanctions, including at least one rocket launched over northern Japan, as well as the People's Republic of China's (PRC) assertive actions around the Japanese-controlled Senkaku Islands in the East China Sea. "It is a clear change to how Japan thinks of defense and an indication of the evolved Indo-Pacific threat landscape," Yuka Koshino, a research fellow for security and technology policy at the International Institute for Strategic Studies, told FORUM.

Australian Army and Republic of Korea Armed Forces Soldiers observe a missile impact zone during Talisman Sabre 2023 at Shoalwater Bay Training Area.

- Beijing's aggression in the disputed South China Sea prompted the Philippine military to shift its focus from internal security to territorial defense as it modernizes its arsenal with multilaunch rocket and land-based missile systems. "If any invaders come near the land of the Philippines or inland, your [Army] is ready to defend the nation," Gen. Romeo Brawner, chief of the nation's Armed Forces, said in early 2023.

Among the catalysts for the strategic shifts underway in Australia and elsewhere, one looms large, clouding the region's future. The PRC's military buildup is now "the largest and most ambitious of any country" since World War II, the Defence Strategic Review noted. In 2022, Beijing increased its nuclear arsenal by nearly 20%, adding 60 warheads — more than any other nation, according to the Stockholm International Peace Research Institute.

"This buildup is occurring without transparency or reassurance to the Indo-Pacific region of China's strategic intent," Houston and Smith wrote. "China's assertion of sovereignty over the South China Sea threatens the global rules-based order in the Indo-Pacific in a way that adversely impacts Australia's national interests. China is also engaged in strategic competition in Australia's near neighborhood."

The contest for regional influence came into sharp focus in early 2022 when the PRC signed a security pact with the Solomon Islands, a nation of 700,000 people with no military that has long leaned on Australia for security and policing. The secretive deal raised the specter of a permanent Chinese military presence in the South Pacific, a prospect that rattled the region despite denials from Beijing and Honiara. While more than 4,000 kilometers separate northern Australia from mainland China, the Solomon Islands sit 1,600 kilometers northeast of Townsville, Queensland, home to an RAAF base and an ADF training area.

"People's Liberation Army (PLA) force-projection capabilities have grown dramatically in the past two decades and include long-range conventional ballistic missiles, bombers and advanced surface combatants that have already transited through Australian waters," according to "Impactful projection — Long-range strike options for Australia," a December 2022 report by ASPI.

"The 'worst case' scenario for Australia's military strategy has always been the prospect of an adversary establishing a presence in our near region from which it can target Australia or isolate us from our partners and allies. PLA strike capabilities in the archipelago to our north or the Southwest Pacific, whether on ships and submarines or land-based missiles and aircraft, would be that worst case."

ENHANCING STATECRAFT

As they restructure their defense forces for such eventualities, like-minded nations also are fortifying longtime alliances and fostering new partnerships to amplify capabilities for collective benefit — a vision that employs diplomatic engagement as a force multiplier. "The statecraft needs to really lift to a new level so that we can engage all the small countries in the South Pacific, all of the nations in our region and Southeast Asia, and, of course, our very important partners the United States, the Quad partners [India, Japan and the U.S.], and a whole raft of bilateral, trilateral and many-lateral relationships that we have," Houston said at CSIS. "We've really got to get out there and use the opportunities."

In late 2022, Australia and the island nation of Vanuatu signed a partnership covering border security, policing, humanitarian assistance and disaster relief (HADR), cybersecurity, and maritime and aviation safety and security. "It reflects Australia and Vanuatu's ongoing commitment to working together as members of the Pacific family to address shared security challenges," Australian Defence Minister Richard Marles said in a statement.

Canberra also signed a security deal with neighboring Papua New Guinea (PNG), which recently reached a defense cooperation agreement with Washington that allows U.S. forces to deploy from bases in the island nation, including for security assistance and HADR missions. "We've had a long, long relationship with Papua New Guinea. We've always provided them with assistance to develop their Defence Force," Houston said at CSIS. "But going forward there are capabilities that they want to develop, and we need to invest in those capabilities. For example, an air capability. And we think there's great scope to develop an air wing that will be very useful to them. We already provide them with patrol boats, but we probably need to develop even further the sort of support that we provide.

"And the other thing is we need to exercise with all of these countries," he said. "And Papua New Guinea is a very challenging environment, as we saw in the Second World War. And I think exercises [there] will be very valuable to developing the sort of capability we need and also providing everybody involved with familiarity with a very demanding and challenging environment."

LINKED BY VALUES

Two months after Houston spoke, PNG Defence Force personnel deployed across the 150-kilometer-wide Torres Strait — once a land bridge connecting their island nation to the northern tip of the Australian continent — to join Talisman Sabre, a multilateral exercise led by Australia and the U.S. The largest-ever iteration of the exercise, which has been held biennially since 2005, drew 34,500 personnel from 13 nations to training areas and other sites across Australia, including in the Northern Territory and Queensland. Drills included amphibious landings, air combat and maritime operations, and ground force maneuvers to enhance interoperability and readiness.

Talisman Sabre embodies an Australia-U.S. alliance steeled to face any crisis, officials say. The nations' forces have fought together in conflicts since World War I, and Canberra and Washington signed a mutual defense agreement in 1951. "Our Alliance with the United States is becoming even more important to Australia," the Defence Strategic Review noted.

Retired Air Chief Marshal Sir Angus Houston, from left, presents the Defence Strategic Review to Australian Prime Minister Anthony Albanese and Defence Minister Richard Marles in February 2023.

In that regard, the review represents "almost a defense revolution," said Charles Edel, a senior advisor and Australia chair at CSIS who hosted the think tank's conversation with Houston. "The big deal here is that one of our closest and most trusted allies is significantly changing its orientation and, in many ways, the purpose of its defense strategy and its defense forces in ways that will complement and augment American power in the region," Edel told National Defense.

At CSIS, Houston underscored the need for Australia to enhance its alliance with the U.S. "That also includes basically the rotational presence of the United States in Australia. We should further develop that," he said. "We obviously need to be as self-reliant as we can. But given our circumstances, we need that alliance. And the alliance, by the way, has served us very well through many, many years."

Those strategic circumstances, Houston and Smith emphasized in their review, demand that Australia deploy all elements of national power, including alliances and partnerships, "to shape a region that is open, stable and prosperous: a predictable region, operating by agreed rules, standards and laws, where sovereignty is respected." □

PRC WEAPONIZES WATER

Hindu devotees pray in the Brahmaputra River in Guwahati, India.

THE ASSOCIATED PRESS

PRC'S LATEST MEGADAM POSES AN ENVIRONMENTAL THREAT TO THE INDO-PACIFIC

BRAHMA CHELLANEY

Water is the most precious of natural resources. The People's Republic of China (PRC) dominates Asia's water because of its control over the Tibetan plateau, which served as a buffer with India until the Chinese Communist Party (CCP) under Mao Zedong annexed it in the early 1950s.

Since mid-2022, Beijing has raised security concerns by increasing efforts to weaponize the transboundary flows of international rivers originating on the water-rich highlands with a perilous dam-building scheme.

The Tibetan plateau is the starting point of Asia's 10 major river systems and the source of rivers for more than a dozen countries, underscoring the PRC's unique riparian status. Yet, despite the PRC holding the key to stable, mutually beneficial relations among riparian states, the Chinese government stands out for not having a single water-sharing arrangement or cooperation treaty with any downriver country. In contrast, India has water-sharing arrangements with most of its neighbors, including Bangladesh and Nepal.

The PRC's dam-building frenzy has increasingly focused on international rivers. Beijing's effort to leverage its control of the Tibetan plateau in inter-riparian relations is integral to its broader geopolitical objectives. It is increasingly employing asymmetrical or hybrid warfare, also known as "unrestricted war," a term coined by Chinese military officers more than 20 years ago.

Through this model — which embraces all forms of indirect warfare — the PRC has pursued an expansionist and coercive agenda. But it has always sought to camouflage its aggressive actions as defensive or peaceful. Weaponizing water meshes with Beijing's unrestricted war strategy.

UNPARALLELED MEGADAM

The PRC is building the world's biggest hydroelectric dam on the Brahmaputra River in Tibet. It is also a massively risky project. Concerns about the behemoth dam swirl in downriver Bangladesh and India, at least partly because it will be in a seismically active area. The location will potentially make it a ticking water bomb for downstream communities.

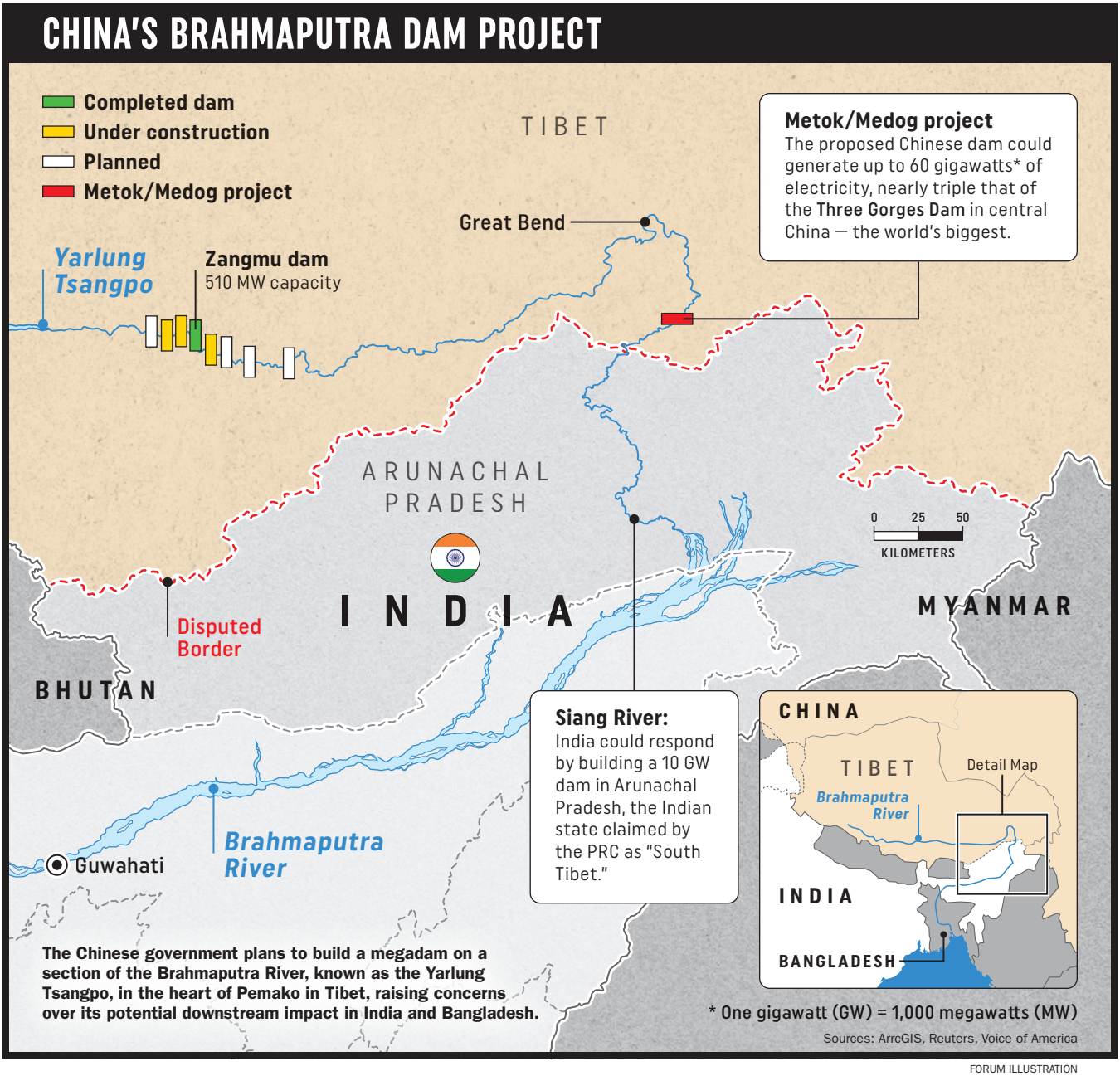
Add to that the risks of building the world's most powerful hydropower facility in treacherous terrain, on what is perhaps the wildest stretch of any river in the world. The Brahmaputra curves sharply around the Himalayas, forming the world's longest and steepest canyon — twice as deep as the Grand Canyon in the United States. This gorge, which plunges 6,008 meters, holds Asia's largest untapped water resources.

Southwest China is earthquake-prone because it sits on the geological fault line where the Indian and Eurasian plates collide. The 2008 earthquake that struck the Tibetan plateau's eastern rim, killing 87,000 people, was blamed by some Chinese and U.S. scientists on the Zipingpu Dam, which began operating four years earlier along a seismic fault. The scientists contend that the weight of water in the dam's huge reservoir triggered the earthquake.

A Chinese-built hydroelectric power plant in Nauseri, Pakistan, was shut down in 2022 over concerns it could collapse. THE ASSOCIATED PRESS

In this light, the PRC's stepped-up dam building on the plateau prompts legitimate safety concerns. If the megadam collapsed, downstream areas would be devastated. In 2020, record flooding endangered the PRC's controversial Three Gorges Dam on the Yangtze River, putting 400 million Chinese people at risk.

Three Gorges is the world's largest dam, but will be dwarfed by the Brahmaputra project. The mammoth dam will be precariously close to the long militarized border with India. The nations have been locked in a tense military standoff along their Himalayan frontier for more than three years following Beijing's stealthy encroachments in the northernmost Indian territory of Ladakh. The megadam will arm the PRC with leverage over India. In late 2020, the Global Times newspaper,



FORUM ILLUSTRATION

a Chinese communist mouthpiece, urged New Delhi to "assess how China could weaponize" transboundary waters to possibly "choke the Indian economy."

The Brahmaputra is known to Tibetans as Yarlung Tsangpo, a name derived from the Yarlung Valley, the supposed cradle of Tibetan civilization and seat of the first Tibetan Empire. This small but strategic valley controlled ancient trading routes to Bhutan and India.

In Tibetan culture, the river represents the spine of goddess Dorje Phagmo, one of the highest incarnations in Tibetan Buddhism. The major mountains, cliffs and caves in the canyon region represent parts of the goddess's body.

The megadam is being built in Pemako, considered the most sacred place in Tibet. Pemako is a "beyul," a place where the physical and spiritual worlds overlap. Respect for nature is deeply rooted in Tibetan culture — a reverence born from the plateau's unique landscape — and the culture has long served as an environmental guardian.

Chinese rule, however, has wreaked extensive cultural and environmental damage in Tibet, one of the world's most biodiverse regions. With its megaproject, the PRC is desecrating Tibetans' most holy place, the canyon region, which personifies Tibet's protecting deity. With this megadam, another sacred region is being defiled.

Construction was approved in March 2021, when the CCP's parliament rubber-stamped the decision made by CCP General Secretary Xi Jinping's regime. Just before the approval, the PRC unveiled its 14th Five-Year Plan, which said the megaproject would be implemented within five years.

In October 2020, Tibet's local government approved

A girl stands in a parched field after collecting water from a pond near the Sundarbans mangrove forest in Satkhira, Bangladesh. REUTERS

a "strategic cooperation agreement" in relation to the megaproject with PowerChina, a state-run construction company specializing in hydroelectric projects. A month later, PowerChina's chief, Yan Zhiyong, told the Communist Youth League that the megadam would be in "the world's richest region in terms of hydroelectric resources," calling the plan a "historic opportunity" to dam the Brahmaputra.

The dam is rising in Tibet's Metok county, also known as Medog, in the heart of Pemako, just before the river enters India. It will generate an estimated 300 billion kilowatts of electricity annually, almost three times more than Three Gorges. Between 1994 and 2012, Three Gorges construction displaced at least 1.3 million people.

The Brahmaputra's watershed historically defined the border between India and Tibet in the eastern Himalayas. From the glaciers of western Tibet, the river originates more than 5,000 meters above sea level, making it the world's highest as it snakes through the mountains.

Before entering India, the river plunges more than 2,700 meters to form the unmatched canyon, which is wedged between two of the highest Himalayan peaks, Namcha Barwa and Gyala Peri. Chinese dam builders want to harness the hydropower by diverting the water through a mountain tunnel.

The brunt of the megaproject's likely environmental havoc will be borne by India's northeastern region and, even more, by Bangladesh, the country farthest downstream. The largely low-lying deltaic country already is threatened by climate and environmental change. The PRC's dam project will make matters worse.

That could trigger a greater exodus of refugees to India, already home to countless millions of illegally settled Bangladeshis. The Brahmaputra is the largest source of fresh water for Bangladesh, one of the world's most densely populated countries. None of this seems to bother Xi's regime.

HYDRO-HEGEMONY

With this project, the PRC could also leverage control of water flow to advance its claims to India's Arunachal Pradesh state, which borders Tibet. To provoke India, Beijing calls the region South Tibet.

More fundamentally, the dam will allow the PRC to effectively control a vital resource for tens of millions of people outside its borders. The Brahmaputra's upper reaches already are home to a dozen or so small or medium-sized Chinese dams. The PRC's upstream activities have triggered flash floods in Indian border states and, more recently, turned the Brahmaputra's main artery — the once-pristine Siang — dirty and gray.

Transparency and collaboration are the building blocks of peaceful relations over water rights. But the PRC does not accept these principles. It usually cloaks major dam projects in secrecy until the evidence can no longer be hidden from commercial satellites. This explains why Beijing has released no information on its megadam project since its approval.

In the years preceding the megadam's approval, the PRC ramped up infrastructure work around the canyon to facilitate construction. Officials in May 2021 announced completion of a "highway through the world's deepest

THE MEGADAM PROJECT IS EMBLEMATIC OF THE PRC'S FIXATION ON BUILDING THE WORLD'S TALLEST, LARGEST, DEEPEST, LONGEST AND HIGHEST HYDROPOWER PROJECTS — DESPITE THE CONSEQUENCES FOR COMMUNITIES OR ECOSYSTEMS.

A fisherman holds his net in the Brahmaputra River in Guwahati, India.
THE ASSOCIATED PRESS

canyon." The highway ends near the Indian village of Bishing on the Tibet border.

The following month, the PRC launched Tibet's first electrified railway, which runs from the regional capital Lhasa to Nyangtri, next to the Brahmaputra Canyon. Chinese officials called the high-altitude railway a gift for the CCP's centenary in July 2021.

The railroad and highway are used to transport heavy equipment, materials and workers to the megadam's remote site, which was long considered inaccessible because of treacherous terrain. The railroad also has military implications, which will be reinforced when a second line from Sichuan in southwest China to the Indian border is completed. The Lhasa-Nyangtri railroad is part of the under-construction railway to Chengdu, the capital of neighboring Sichuan province.

LARGER RAMIFICATIONS

The Brahmaputra dam project is part of a strategy that has led the PRC to step up the reengineering of cross-border river flows by taking advantage of its control over the Tibetan plateau. While freshwater shortages are clouding Asia's economic future, the PRC's appropriation of shared waters centers on building large dams and reservoirs along transnational rivers. The PRC seeks to translate its hydro-hegemony into upstream water control to keep its hand firmly on Asia's tap.

The PRC's over-damming of its internal rivers has seriously impaired ecosystems, causing river fragmentation and depletion. This has also disrupted flooding cycles, which help fertilize farmland naturally by spreading nutrient-rich silt. The question is how the PRC can be stopped from inflicting similar damage to international rivers that are increasingly being dammed.

The lower Mekong River Basin should have served as a wake-up call. Yet, after causing recurrent drought in downstream countries by erecting 11 megadams on the Mekong — which is the lifeblood for several Southeast Asian nations — the PRC has now set its sights on the bounteous resources of the world's highest-altitude major river, the Brahmaputra.

In keeping with Beijing's pattern of territorial and maritime expansionism, the water-appropriation strategy has not spared even friendly or pliant neighbors — from Cambodia, Laos and Thailand to Nepal. Indeed, the PRC's territorial grabs in the South China Sea and the Himalayas, where it has targeted even tiny Bhutan, have been accompanied by scarcely noticed freshwater grabs in transnational river basins. Given such practices, the PRC's targeting of the Brahmaputra and other rivers flowing into rival India should come as no surprise.

VIOLATIONS OF TRUST

The PRC also weaponizes water by withholding hydrological data during the critical monsoon season, which often brings extensive flooding. In 2017, after India boycotted the inaugural summit of Xi's One Belt, One Road infrastructure scheme, Beijing began concealing data from New Delhi, undermining India's early flood warning systems.

Despite below-normal monsoon rains that year in India's northeast, through which the Brahmaputra flows after leaving Tibet and before entering Bangladesh, the region faced unprecedented and devastating flooding, especially in Assam state. The PRC resumed sharing hydrological data with India in 2018, but only after its denial of such data resulted in preventable deaths in Assam.

A temple of the Hindu goddess Durga clings to land eroded by the monsoon-swollen Brahmaputra River in India's northeastern Assam state in October 2022. The temple washed away a day later.

The episode highlighted Beijing's disdain for legal obligations. The data suspension breached two bilateral accords that required the PRC to transfer daily hydrological data, for which India had paid in advance.

Agreements stop being binding for the CCP when they are no longer politically convenient. For example, the military standoff between India and the PRC is the result of Beijing violating bilateral agreements that prohibit the massing of forces along the disputed frontier.

The megadam project is emblematic of the PRC's fixation on building the world's tallest, largest, deepest, longest and highest hydropower projects — despite the consequences for communities or ecosystems.

As a result, it has become imperative to safeguard the Great Himalayan Watershed, home to thousands of glaciers and the source of Asia's greatest river systems, which are the lifeblood of nearly half of the world's people. Glacial attrition is already a problem. Asia's environmental wellbeing largely hinges on the PRC's acceptance of institutionalized cooperation on transnational rivers, including protecting ecologically fragile zones and being transparent about its dam projects. However, as long as the CCP remains in power, Beijing will likely continue to wage water wars by stealth. □

PERSISTENT PARTNERSHIPS *in* CYBERSPACE

FROM **UKRAINE** TO THE **INDO-PACIFIC**, COOPERATION SAFEGUARDS THE DIGITAL DOMAIN

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When Japan Ground Self-Defense Force Lt. Gen. Hiroe Jiro went to Ukraine in 2020, the nation's sophisticated cyber defenses came as a surprise. It was six years after Russia seized Crimea and invaded eastern Ukraine, launching a yearslong cyber onslaught along the way. Russian-affiliated cyberattacks targeted Ukraine's Central Election Commission, took down power grids and unleashed malware. Disruptive software wiped out computer systems in Ukrainian financial, energy and government institutions as it spread across the globe.

Hiroe, the commanding general of Japan's Training, Evaluation, Research and Development Command, had expected devastation. "I was surprised to see that the Ukrainian forces had already established complete cyber measures," he said. "The government entity and the military came up with regulations ... and then divided their entire country into small regions so that they can control each of the networks and the systems. It seemed very, very good."

The explanation Hiroe's Ukrainian counterparts gave for their accomplishments: partnership. Ukraine developed its advanced cyber defense systems and bolstered its cyber resilience with the help of international partners, including European countries and the United States, Hiroe told an audience at the Land Forces Pacific (LANPAC) Symposium & Exposition in Hawaii in May 2023.

A NATO Trust Fund on Cyber Defense for Ukraine, for example, provided support in developing technical capabilities and creating laboratories to investigate cybersecurity incidents. The U.S.-Ukraine Bilateral Cyber Dialogue began in 2017, linking Ukraine with U.S. Defense, Energy and Treasury departments to strengthen national response planning, infrastructure security and information sharing. Hiroe said Ukraine also credited assistance from U.S. industries in hardening networks. "It seemed that the Ukrainian forces could strike back [from] what they suffered in 2014," Hiroe said. "That's thanks to the NATO countries and the U.S. industries."

DEFENDING FORWARD

The U.S. Cyber Command (USCYBERCOM) deploys teams worldwide on Hunt Forward operations, defensive missions undertaken at the request of

partner nations to detect malicious cyber activity on host nation networks. The goal is to make Allies and Partners a more difficult target for malign actors, according to U.S. Army Lt. Gen. William Hartman, USCYBERCOM's deputy commander and former commander of the Cyber National Mission Force (CNMF), whose specially trained personnel secure and defend the U.S. Department of Defense information network against cyberattacks. "We are building strategic partnerships with like-minded nations around the world," he said during a LANPAC discussion on cyber and information warfare. "At the end of the day, it's going to make both the United States and Allies and Partners better able to defend themselves."

Hunt Forward teams have deployed on at least 47 missions in more than 20 countries in recent years, working with partner nations to detect and defend against threats. "When we gain information in foreign space, we immediately share that with whoever we can in order to ensure that the broadest number of organizations are protected," Hartman said.

A January 2022 Hunt Forward operation in Ukraine included 40 personnel and was the CNMF's third deployment to the country. At the time, Russian soldiers were massing on the Ukrainian border in preparation for an unprovoked invasion that would come the following month. The U.S. team worked with Ukrainian counterparts to uncover Russia's stealthier attempts at attack. "The team is on the ground in mid-January as we start to see a number of destructive Russian wiper attacks aimed at Ukrainian networks," Hartman said, referring to a cyberattack that destroys data stored on a network. "The team is immediately able to support the Ukrainian partner on network remediation. ... We're able to collect indicators of compromise. We're able to collect malicious software that the Russians had used in Ukraine." The next step is to share that information with government and private industry, a move that protects critical civilian infrastructure and defense systems.

"A threat to the Ukrainians from Russia is a threat to all of us," Hartman said. "A threat anywhere ... from China is generally a threat to all of us. So, the ability to share is fundamentally important."

Cyber force efforts continued after Russian forces invaded Ukraine. As private industry, foreign governments and other partners flooded the nation with offers of cybersecurity assistance, the U.S. analyzed and passed on the most relevant information about digital vulnerabilities that Ukraine needed to address.

"It is all about partnerships," Hartman said. "We have shared over 5,000 indicators of compromise, either from Ukraine to us or from us back to Ukraine, in order to do everything we can to ensure that the United States, our partners and allies are protected against what the Russians are doing in Ukraine but also to ensure that the Ukrainians' networks are as difficult as possible for the Russians to continue to attack and exploit."

The CNMF has in recent years been invited to conduct Hunt Forward operations in Albania, partnering with the country's National Agency for Information Society; Estonia in partnership with local cyber personnel; Latvia, working with Canada and Latvia's Security Incident Response Institution; Lithuania, alongside the nation's cyber forces; and in the U.S. Southern Command's area of responsibility, which covers dozens of countries in Latin America and the Caribbean.

> **"A THREAT TO THE UKRAINIANS FROM RUSSIA IS A THREAT TO ALL OF US."**
>
> U.S. Army Lt. Gen. William Hartman

The team also conducts Hunt Forward missions with Indo-Pacific allies, according to a 2021 report, "U.S. and Allied Cyber Security Cooperation in the Indo-Pacific," from the Center for Global Security Research (CGSR) at Lawrence Livermore National Laboratory, a research and development institution in California that applies science and technology to national security. U.S. agencies adopt a flexible approach when granted access to partner networks based on the allies' tolerance for publicly displaying cyber cooperation, the report noted.

The region's principal cyber threats emanate from the People's Republic of China (PRC), followed by North Korea, Russia and Iran, experts say. The CGSR cites PRC-sponsored cyber activities involving disinformation campaigns; election interference; intellectual property theft; and attempts at political manipulation throughout the Indo-Pacific. Economic interdependence and the threat of retribution leave some nations reluctant to publicly document the PRC's malicious cyber actions or to implement hawkish cybersecurity policies. Indo-Pacific allies, however, "do not have the luxury of time," the CGSR warned. "The consequences of waiting for diplomatic cybersecurity solutions outweigh the benefits of finding common ground in the short term." An achievable goal, the report noted, is for Allies and Partners to reach a level of cybersecurity cooperation that conveys to adversaries,

"to beat any one of us, you have to beat all of us."

At LANPAC, Lt. Gen. Maria Barrett, commanding general of the U.S. Army Cyber Command, highlighted the connection between cyber and information warfare — and the role international cooperation can play in combating weaponized information. Forces that work together to understand where foreign malign influence originates and how it takes hold are not only more resilient to information warfare but also are in a better position to counter malign campaigns, she said. "The partnerships that we develop have to be persistent and they have to be real ... in order to deny and degrade threats to territorial sovereignty with what we're doing."

ADVANCE INTEGRATION

Ukraine is the world's first major conflict involving large-scale cyber operations, according to James Lewis, senior vice president and director of the Strategic Technologies Program at the Center for Strategic and International Studies. Cyber defense that merges national, foreign, government and private entities enables Ukraine to monitor attacks, block malign actors and respond to vulnerabilities. "The lesson," Lewis wrote in a 2022 review published by the U.S.-based think tank, "is to develop relationships and integrate partners through actions that go beyond meetings and seminars to include planning and exercises well in advance of any attack."

USCYBERCOM's annual Cyber Flag exercise offers one such opportunity. The Cyber Flag 23-1 drills, which were held in Virginia in late 2022 and focused on the Indo-Pacific, bring together Allies and Partners for realistic "hands-on-keyboard training" in detecting, identifying and mitigating the presence of adversaries on digital networks. Designed to bolster readiness and interoperability in cyber defense, Cyber Flag 23-1 included more than 250 professionals from Australia, France, Japan, New Zealand, Singapore, South Korea, the United Kingdom, and the U.S. Navy Fleet and Marine Forces cyber commands. In addition to a two-day symposium and a tabletop exercise, the event included briefings, coordination discussions and sessions on cyberspace in the Indo-Pacific, the first time that the series emphasized the region.

The Philippines and U.S.-sponsored exercise Balikatan launched its inaugural cyber defense exercise (CYDEX) in April 2023. Cyber professionals from the

Left: U.S. Cyber Command personnel work in the Integrated Cyber Center and Joint Operations Center at Fort Meade, Maryland.
JOSEF COLE/U.S. CYBER COMMAND

Right: Australian and U.S. personnel participate in exercise Cyber Flag 23-1 in Virginia.
CHIEF PETTY OFFICER JON DASBACH/ U.S. NAVY

Armed Forces of the Philippines and the U.S. military used an interactive platform at Camp Aguinaldo outside Manila to defend a military network and civilian infrastructure from simulated malign actors in cyberspace. Among the challenges were understanding the procedures used by partners and merging approaches into a successful collective cyber defense. "Other nations engaging in this type of cyberwarfare capability, they can cripple people without firing a gun," Philippine Navy Cmdr. Reynan Carrido told FORUM during Balikatan. "Cyber can be used as a form of warfare that can cripple the economy of another state. The scenarios within the [CYDEX] exist in the current world and need to be addressed."

Other cybersecurity partnerships are maturing in the Indo-Pacific. Thailand's military has joined with the U.S. for five years to offer cyber training during the multilateral exercise Cobra Gold. The March 2023 cyber exercise at Thailand's Camp Red Horse also included participants from Australia, Indonesia, Japan, Malaysia, Singapore and South Korea. Recent drills have focused on protecting critical infrastructure networks. U.S. Air Force Lt. Col. Jason Silves, the exercise director, told FORUM the training drives decisions that can enhance efficiency. "Quite frankly, there are questions we need to ask and address now in exercises. ... When conflict happens, we will have that mission," he said.

Nations throughout the Indo-Pacific and beyond are also building shared frameworks for defending against cyberattacks. Australia, the U.K. and the U.S. have pledged to collectively protect critical communications and operations systems. Quad partners Australia, India, Japan and the U.S. have committed to collaboration and information sharing in the cyber domain. The four countries are developing a system to share immediate reports on cyberattacks and damage to critical infrastructure.

At LANPAC, cyber defense experts also stressed the importance of nations developing unified efforts before malicious actors target infrastructure or use cyber tools to weaponize false narratives. "If we are collectively going to be prepared to deal with the threat — not just in this theater but globally — it is going to take partnerships ... among the talented people that come from all of our nations," Hartman, the USCYBERCOM deputy commander, said. "The time to deal with the threat and work together is now." □

SHARED VISION

Philippine Army Chief: Security Dynamics Drive Multilateral Training in the Indo-Pacific

FORUM STAFF

Deterring war is the main reason to prepare for war, Gen. Romeo Brawner, Armed Forces of the Philippines (AFP) chief of staff, told FORUM on the sidelines of the May 2023 Land Forces Pacific (LANPAC) Symposium & Exposition in Hawaii. Multilateral training and exercises are gaining headway with widespread acceptance among like-minded militaries throughout the Indo-Pacific, Brawner said during his keynote conference presentation. "Great powers are providing the impetus for these events to become institutionalized in the region," he added.

Such multilateral events expose militaries to operational and organizational concepts, and sophisticated weapons systems, Brawner said. They accelerate the

Indonesian and Philippine Soldiers train at Schofield Barracks, Hawaii, as part of a rotation to the U.S. Joint Pacific Multinational Readiness Center in 2022.

PVT. 1ST CLASS MARIAH AGUILAR/ U.S. ARMY

learning curve for priority capabilities. Militaries can train in myriad environments and in realistic scenarios with simulated adversaries. Multilateral training also promotes interoperability and strengthens ties among partners to prepare for future undertakings, he said.

"More importantly, [multinational exercises] allow an army to punch above its weight through strategic messaging," he continued. "Multilateral trainings paint a picture of shared vision and unity of purpose among participating states to produce an integrated deterrent effect." The Philippine Army considers itself a small force on the world stage, Brawner told FORUM, so training with allies such as the United States amplifies "a collective voice that allows us to send a message to the world."

"By training together, we are building each of our own capabilities and really building on that interoperability so that, if the need arises, we would be able to work together," he said. "The objective is to deter war. Making sure that the world knows that we are working together, we could keep that lethal punch unnecessary."

Common Spaces

The AFP has expanded multilateral engagements against a backdrop of increasing tensions across the Indo-Pacific. The People's Republic of China (PRC) claims sovereignty over most of the South China Sea in defiance of a 2016 international tribunal ruling that invalidated the territorial assertion. Beijing aggressively attempts to deny coastal states access to resources and routinely harasses Philippine vessels in the nation's exclusive economic zone.

A region's significance in global affairs, along with its security dynamics, drive the nature and scope of multilateral training, Brawner said. "There is no doubt that the last decade saw the growing centrality of the Indo-Pacific in world affairs," he said. The Indo-Pacific is home to the world's three largest economies — the U.S., the PRC and Japan, respectively — and some of the world's fastest-growing economies.

Linking the Indian and Pacific oceans, the region is a vital conduit for international trade, including oil and natural gas. An estimated 60% of global shipping passes through the Indo-Pacific, which holds lucrative fisheries and offshore oil and gas reserves (See Vital Chokepoints, pages 32-33). "Hence, nations in the region are vying for access to the vast resources in the region, making it an arena for global competition — or cooperation," Brawner told an audience at LANPAC. "That is why we hedge by earnestly preparing for roles that the Army is expected to perform in different contingencies. This is the part where multilateral training should be of great help."

More than half of the world's 25 most powerful militaries and defense forces operate in the region, according to a 2023 ranking from Global Firepower, which tracks defense spending. Challenges that arise from the presence of such powerhouses also present opportunities for collaboration toward supporting regional stability. "Indeed, some synergies could be generated by working together with like-minded armies in the company of giants," Brawner said.

"Multilateral trainings paint a picture of shared vision and unity of purpose among participating states to produce an integrated deterrent effect."

~ Gen. Romeo Brawner,
Armed Forces of the Philippines chief of staff

He said shared circumstances, duties and values further drive the importance of multilateral training.

- **Regional security environments** contain territorial disputes that give rise to anti-access/area denial tactics that are contrary to the rule of law. Training together allows countries to coordinate responses, share best practices, enhance capabilities and develop shared approaches to security challenges.

- **Common threats,** both human-caused and natural, require training to bolster intelligence sharing, enhance interoperability and develop joint strategies.

- **Roles among regional armies** include traditional and nontraditional responsibilities to protect people and territories.

- **Collective visions** such as a Free and Open Indo-Pacific emphasize the value of international law, freedom of navigation and overflight, peaceful dispute resolution, and economic development.

Such factors "create an urgency for like-minded countries," whose militaries must unite in training while there is time to deter or delay threats, Brawner said.

"The relationship we are building together is a real value," he told FORUM. "More than just the capability development, more than just the interoperability, we need the relationships that mean so much when we come together to deal with threats."

Building Partnerships

International engagements are mutually beneficial as forces enhance capabilities, complement operational support and identify gaps while developing skills. As a relatively new participant in multilateral training, the Philippine military is still expanding engagements with other nations, Brawner said. However, defense and security partnerships have already reaped benefits for the nation, including materiel solutions, capacity building, threat reduction programs, maritime security projects, and training and education.

Exercise Balikatan 2023, the largest iteration of the annual military training ever hosted by the AFP and the U.S. military, brought together more than 17,000 troops to enhance multidomain capabilities in amphibious operations, live-fire training, urban warfare, air defense, cybersecurity, counterterrorism, and humanitarian assistance and disaster relief preparedness. Personnel from Brunei, Canada, France, India, Indonesia, Japan, Malaysia, Singapore, South Korea, Thailand, the United Kingdom and Vietnam attended as observers.

Building off Balikatan, about 3,000 Philippine and U.S. Soldiers took part in Exercise Salaknib in 2023, which the two allies are transforming into a multilateral event, Brawner said. Japan joined as an observer to the scaled-up Salaknib, which means "shield" in the Philippines' Ilocano language and aims to enhance defense readiness.

Another multilateral engagement, at the U.S. Joint Pacific Multinational Readiness Center (JPMRC), offered Philippine personnel an opportunity to train with units from Indonesia and Thailand and a U.S. joint force in late 2022. More than 6,000 personnel participated. Observer nations included Australia, Bangladesh, France, Japan, Malaysia, Mongolia, New Zealand, Singapore and South Korea. The combat training center in Hawaii, which also has a campus in Alaska and an exportable training capability for use elsewhere in the Indo-Pacific, provides realistic scenarios that replicate peer and near-peer combat that could take place in the theater.

A Philippine Army Soldier launches a Javelin anti-tank missile during Exercise Balikatan in April 2023 at Fort Magsaysay, Philippines. THE ASSOCIATED PRESS

Vital Chokepoints

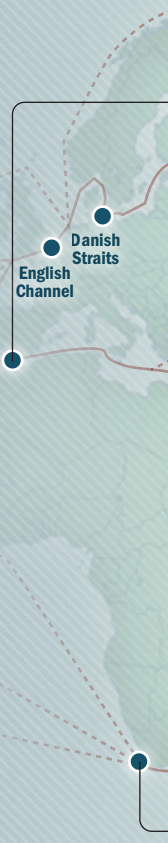
The Indo-Pacific is home to numerous maritime chokepoints, narrow passages that are crucial to global trade. Through multilateral exercises, training and other engagements, Allies and Partners reaffirm a commitment to navigational freedom and a Free and Open Indo-Pacific.

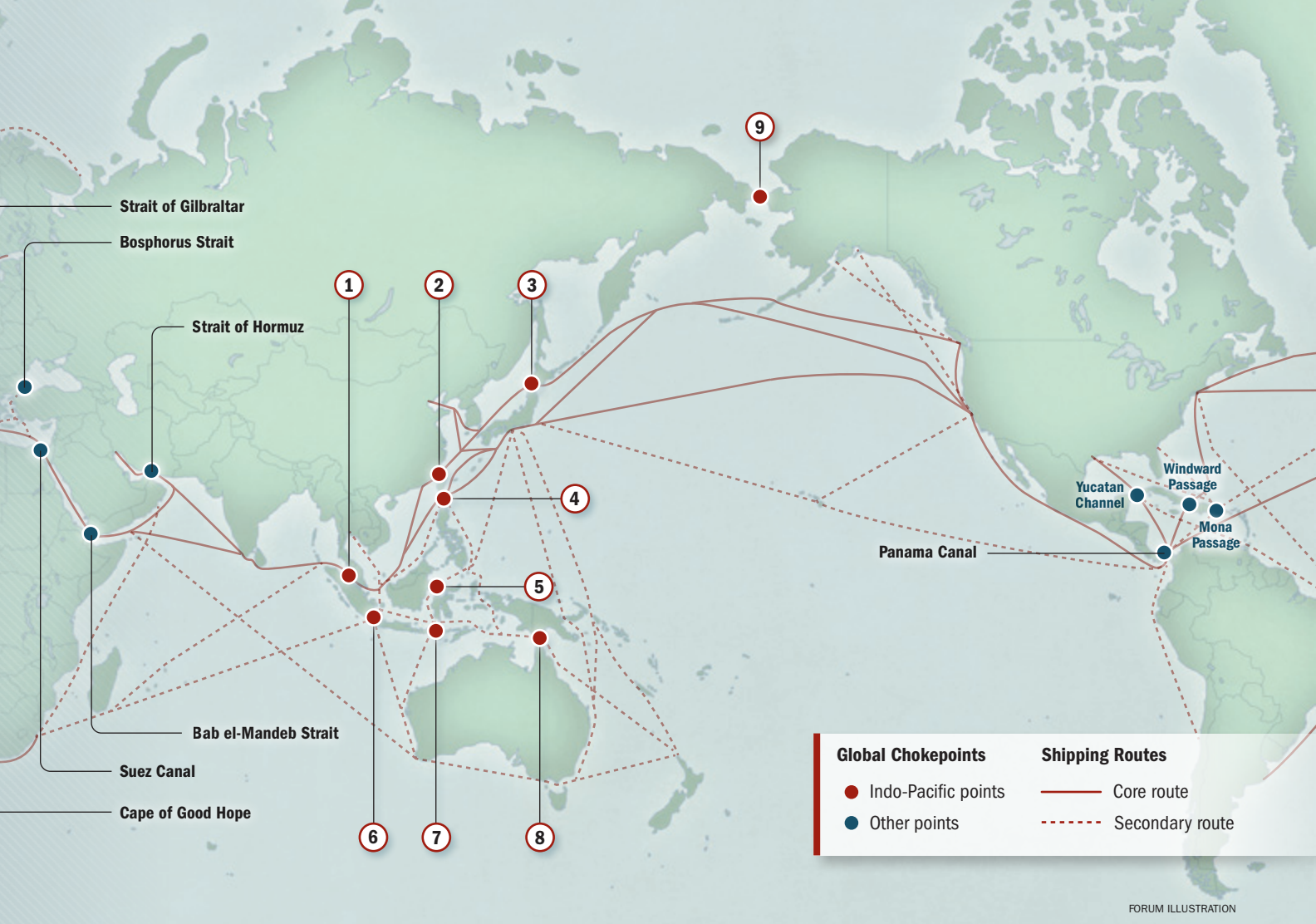
1. **The Malacca Strait,** connecting the South China Sea to the Indian Ocean via the Andaman Sea, is among the most heavily traveled shipping channels in the world. An estimated 40% of global trade passes through the strait.
2. **The Taiwan Strait,** between the island of Taiwan and continental Asia, is one of the world's busiest shipping lanes, carrying goods between Northeast Asia and the rest of the world. About half the world's container ships use the route.

Other chokepoints on main shipping routes:

3. **The Tsugaru Strait** connects the Sea of Japan to the Pacific Ocean.
4. **The Luzon Strait** connects the South China and Philippine seas.
5. **The Makassar Strait** connects the Celebes Sea of the Western Pacific to the Java Sea.
6. **The Sunda Strait** connects the Pacific Ocean via the Java Sea with the Indian Ocean.
7. **The Lombok Straight** also connects the Java Sea and Indian Ocean.
8. **The Torres Strait** connects the Coral Sea to the Arafura Sea in the Western Pacific.
9. **The Bering Strait** and other northern passages are growing in importance as Arctic shipping lanes.

Sources: American Journal of Transportation, Bloomberg, BBC





FORUM ILLUSTRATION

Brawner also cited Exercise Carabaroo, hosted by the Australian Army, which offers Philippine and U.S. personnel opportunities to enhance combined arms capabilities in a complex environment. Objectives include warfighting interoperability, strengthening international relationships and improving combat readiness. Carabaroo is part of exercises Predator's Run and Southern Tiger, and Exchange Program Kartikaburra, which also involve troops from Indonesia and Malaysia, the Manila Bulletin newspaper reported.

The Philippine Army has been an observer in Exercise Yama Sakura with the Japan Ground Self-Defense Force and U.S. forces. Brawner said his nation hopes to become a full participant. Yama Sakura, a component of the U.S. Army Pacific's Operation Pathways, focuses on developing joint force lethality among multinational armies.

Brawner recommended streamlining protocols to accommodate more like-minded partners in multilateral training: "We should be quick to embrace armies that share our collective ideals consistent with a rules-based international order." He advocated for burden-sharing mechanisms to allow for sustainable participation by smaller states and urged fellow leaders to acknowledge disparities in advancement among Indo-Pacific militaries and recognize the value in complementary efforts that augment full interoperability.

History Lesson

Brawner and U.S. Army Pacific Commanding Gen. Charles Flynn visited the Philippines' Corregidor Island in mid-2023, touring sites commemorating the shared sacrifices of Philippine and U.S. forces that defended the country eight decades ago during World War II. As they read a historical marker about facilities built in the early 1900s, Flynn made an observation that resonated with Brawner: "He said that as early as 1905, we — both our forces — were already preparing for something that was to come in the future. And this something came four decades later.

"Gen. Flynn said to me, 'Romeo, we might be repeating history here because today we are once again working together, training together, preparing for something that could happen in the future. And that something could happen maybe earlier than four decades.'"

As Brawner told his audience at LANPAC, "We have to prepare for war as early as now. And one way of preparing for war — or one way of deterring war — is by training together." □

A Nuclear SHIFT

The People's Liberation Army launches rockets in Anhui province, China. REUTERS

PLA Rocket Force leadership changes raise security concerns

FORUM STAFF

During the past decade, the Chinese Communist Party (CCP) has doubled its combat missile brigades within the People's Liberation Army Rocket Force (PLARF), unveiling missiles capable of launching conventional and nuclear warheads and touting technology to evade missile defense.

"The technologies and deployment patterns of these weapons are important indications of the direction of China's force posture," according to a report titled "People's Liberation Army Rocket Force Order of Battle 2023," published by the James Martin Center for Nonproliferation Studies at Middlebury Institute of International Studies at Monterey in California. "They not only indicate China's military capabilities, but also its fears and its conceptions about how future wars in the region will be conducted."

Another sign of shifting Chinese strategy — on the nuclear front at least — is the change in rocket force leadership revealed in July 2023, when CCP General Secretary Xi Jinping abruptly replaced two of the PLARF's most senior officials, analysts said. Some characterized it as Beijing's biggest military leadership shake-up in years.

The reshuffle might be two-pronged. First, it suggests a potential shift by Xi toward a nuclear triad that enables nuclear missile launches from air, land or sea, experts said. Second, it signifies Xi's attempts to rid his ranks of alleged corruption and surround himself with fierce loyalists who will do what the party says without question. This includes a lineup of leaders willing to use military force to annex self-governing Taiwan if Xi so orders.

"The latest purge is significant [as] China is undertaking one of the most profound changes in nuclear strategy in decades," Lyle Morris, a foreign policy and national security fellow at the Asia Society Policy Institute, told the BBC. "Xi has consolidated control of the PLA in unprecedented ways, but that doesn't mean it's complete. Xi is still worried about corruption in the ranks and has signaled that absolute loyalty to the [party] has not yet been achieved."

The Chinese state-run Global Times newspaper reports on a PLA Rocket Force missile test into waters off eastern Taiwan.

REUTERS

DISSENSION IN THE RANKS?

Xi serves as chairman of the CCP's Central Military Commission (CMC) and is therefore commander in chief of all PLA branches. He demands absolute loyalty and has been cracking down on supposed corruption throughout the military since coming to power in 2012. As a result, Xi has previously purged other senior leaders, including Fang Fenghui, former PLA chief of the joint staff. Fang was sentenced in 2019 to life in prison on corruption charges, The Washington Post newspaper reported.

The two ousted rocket force leaders also are reportedly being investigated by the PLA's anti-corruption unit for allegedly leaking military secrets. Neither Gen. Li Yuchao, the former rocket force leader, nor his deputy and PLARF political commissar, Gen. Liu Guangbin, had been seen for weeks prior to their removal, and Chinese state media offered no explanation of their whereabouts or why they were replaced.

"The lack of transparency, specifically forthright explanations by government spokespersons, harms China's credibility on multiple levels and leaves analysts speculating about not only the rationale for these personnel shifts but the scope and extent of what is happening," Drew Thompson, a visiting senior research fellow at the National University of Singapore's Lee

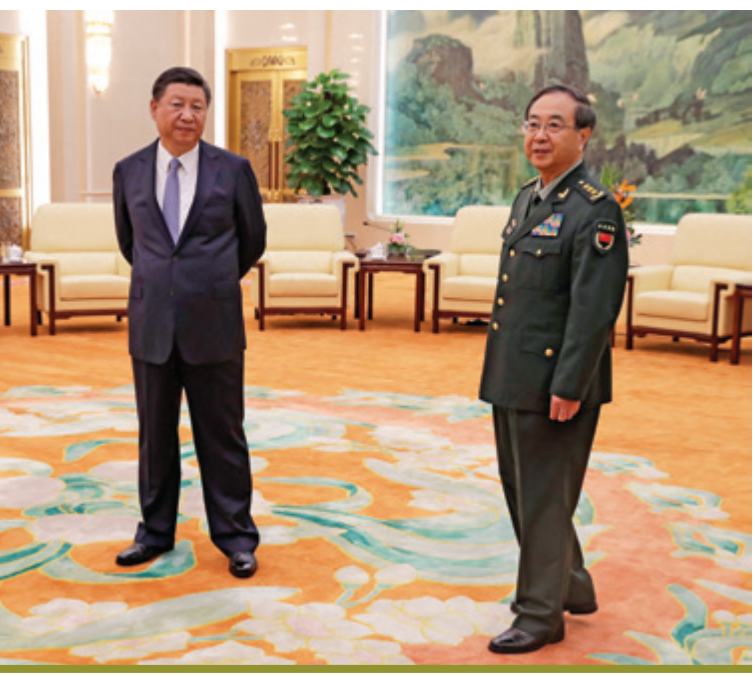
Kuan Yew School of Public Policy, wrote in an analysis of implications of the PLARF leadership changes. "My instinct tells me this is not an anti-corruption case but a more politicized effort to replace active and retired senior officials that Xi believes present a political risk to the party. These officials are potentially judged to be disloyal, or less than absolutely loyal, to Xi and the party."

Replacing Li as the PLARF's new head is Wang Houbin, former deputy commander of the PLA Navy (PLAN). Replacing Liu as the new political commissar is Xu Xisheng. Their ascension to the PLARF marks a departure from elevating personnel already serving in the unit.

Former PLAN officer Yao Cheng, who fled to the United States in 2016, told Voice of America (VOA) that Xi has lost control of the rocket force and asserted that the PLA is increasingly unwilling to pledge allegiance to the CCP leader. He also called Wang, whom he served with in the navy, an "incompetent" leader.

"He's someone who is obedient and follows the boss's lead," Yao told VOA. "His weakness is that he has long served as a staff officer, has never led troops and lacks specialties. He can't possibly manage the rocket force well, because for one, he's an amateur whom the elite force will be unconvinced with and look down on."

Though many details about the PLARF reshuffle remain a mystery, an analyst told The China Project in August 2023 that one thing is clear: "That it is very difficult to eliminate corruption, even for a leader as powerful as Xi," Neil Thomas, a fellow for Chinese politics at the Asia Society Policy Institute's Center for China Analysis. "That there is still corruption in China after Xi began his anti-corruption campaign is no surprise."



Gen. Fang Fenghui, right, then-PLA chief of the general staff, waits with CCP General Secretary Xi Jinping in the Great Hall of the People in Beijing in August 2017. Fang was sentenced in 2019 to life in prison on corruption charges. REUTERS

Fueling more speculation about dissension in the ranks were questions in early September 2023 on the status of then-Chinese defense minister Li Shangfu, who U.S. Ambassador to Japan Rahm Emanuel said had not been seen publicly for weeks.

"President Xi's cabinet lineup is now resembling Agatha Christie's novel 'And Then There Were None.' First, Foreign Minister Qin Gang goes missing, then the Rocket Force commanders go missing, and now Defense Minister Gen. Li Shangfu hasn't been seen in public for two weeks. Who's going to win this unemployment race? China's youth or Xi's cabinet? #MysteryInBeijingBuilding," Emanuel posted on the social media platform X on September 7.

A week later, news reports confirmed that Chinese authorities had placed Li under investigation on unspecified charges related to procurement of military equipment, Reuters reported.

"The foreign minister and the defense minister are both externally facing interlocutors with the international community. They have been potentially removed without explanation or consideration for global perception," Thompson told CNN. "This fuels the crisis of confidence in China. It underscores the lack of transparency and the complete opaque nature of decision making in China."

News reports surfaced in October 2023 that Li had officially been fired as defense minister, removing him from his state positions within the CMC and as one of the People's Republic of China's (PRC) five state councilors — a senior position in the cabinet that outranks a regular minister, according to CNN. Before Li's promotion to defense minister in March 2023, he served as head of the CMC's equipment development department in charge of weapon procurement. The U.S. sanctioned him in 2018 over the PRC's purchase of Russian weapons, according to CNN.

Reports also surfaced that Qin was under CCP investigation over "lifestyle issues," a phrase that typically means sexual misconduct, according to Forbes. Multiple news sources reported that Qin allegedly had an affair and fathered a child in the U.S.

SECURITY IMPLICATIONS

The impact of the PLARF leadership changes on regional security and stability remains unknown. Xi's moves have, however, prompted conversations about the likelihood of a nuclear triad that would help strengthen the PLA's nuclear deterrent capabilities.

The PLA "will eventually integrate the navy's and the air force's nuclear defense and offense capabilities. This is an inevitable trend," Chang Ching, a research fellow at the Taipei-based Society for Strategic Studies, told VOA. "I believe that nuclear weapons-related officers from both the navy and the air force have already served in the rocket force before the top leadership reshuffle. China's

finally moving toward a nuclear force with a unified command structure."

Chang said some have questioned whether Wang, the new rocket force leader, once worked within the PLAN's nuclear missile unit or if his new deputy, Xu, had experience with the air force's bomber squadron. If either had, that could bolster speculation of a triad.

The U.S. Department of Defense (DOD) estimates Beijing has stockpiled upward of 400 nuclear warheads as it works toward upgrades to deliver them by air, land or sea. Experts project the PRC will have more than 1,000 warheads by the end of the decade, U.S. Strategic Command (USSTRATCOM) Commander Gen. Anthony Cotton told the U.S. House Armed Services Committee on Strategic Forces in March 2023.

Unconstrained by arms control treaty limitations, the CCP is fielding a new generation of mobile missiles, with multiple independent targetable reentry vehicles and penetration aid capabilities, according to Cotton.

The CCP's nuclear capabilities exceed those for its long-professed policy of "minimum deterrence," Cotton said, and the PLA's capabilities are growing at an alarming rate. Beijing is making "substantial" investments to expand its inventory of air-, land- and sea-based nuclear delivery platforms and building the infrastructure to support the significant expansion of its nuclear force.

"The trajectory of the PRC's nuclear advancements points to a large, diverse nuclear arsenal with a first-strike offensive capability and a high degree of survivability, reliability and effectiveness," Cotton said. "When considered in the context of its heavy investment in NC3 [nuclear command, control and communications enterprise operations] as well as increased readiness, the PRC's nuclear modernization highlights emergent capabilities that could provide it with a spectrum of first-strike offensive options before and during a crisis or conventional conflict. The PRC may believe that nuclear weapons represent a key component of its counter-interventions strategy and could use these weapons coercively against our nation, allies or partners."

MODERNIZATION AT AN ALARMING PACE

Like USSTRATCOM, U.S. Northern Command (USNORTHCOM) views as alarming the pace at which the PLA continues to modernize.

"It would be naive to think that their sprint to develop advanced cyber tools, maritime capabilities and hypersonic technology has only regional implications as the PRC continues to develop advanced long-range conventional and strategic capabilities and the infrastructure necessary to project military power at greater distances," USNORTHCOM Commander Gen. Glen D. VanHerck told the U.S. House Armed Services Committee in March 2023. "Underpinning this growth is a rapid expansion that is on pace for the PRC to expand their nuclear stockpile from what DOD estimates is over 400 today to about 1,500 by 2035."

Former Chinese defense minister Gen. Li Shangfu disappeared for weeks from public view before news reports surfaced in September 2023 that CCP authorities had launched a corruption investigation into his handling of weapons procurement. THE ASSOCIATED PRESS

Open-source analysis provides clues about Beijing's nuclear modernization motivation, but more research is needed to uncover the heft of Xi's plans.

"Analyzing just the capabilities that China is developing raises as many questions as it answers," Fiona Cunningham, assistant professor of political science at the University of Pennsylvania and a nonresident scholar in the Nuclear Policy Program at the Carnegie Endowment for International Peace, wrote in a June 2023 report titled "The Unknowns About China's Nuclear Modernization Program," published by the Washington, D.C.-based Arms Control Association. "China is building capabilities that improve its ability to retaliate following a nuclear attack and its ability to threaten nuclear first use for coercive leverage in a conventional conflict. It can now do things with nuclear forces that it could not do in the past."

Such changes, Cunningham asserts, undermine the confidence policymakers and analysts once had that Xi would use nuclear weapons only out of desperation.

"Why did China wait until now to build a much more robust retaliatory capability? Why is it investing in silo basing after two decades of seeking a more mobile nuclear force to increase the survivability of its arsenal? Is it developing capabilities that could enable a quicker shift to a first-use posture in the future as a hedge or for other reasons?" Cunningham wrote. "There are a number of possible factors driving China's nuclear modernization. New research indicates that developments in U.S. capabilities are responsible at least partly for the changes, but China's reaction to such developments is more dramatic than in the past, which suggests that other factors likely are at play." □

Slippery Moves

Shadow fleet helps Russia evade oil sanctions

FORUM STAFF

A dearth of modern tanker ships willing to carry sanctioned Russian oil has given rise to a "shadow" fleet of more than 600 past-their-prime vessels that deliver crude and refined petroleum to receptive nations. The vessels elude detection by obscuring their ownership, turning off automatic identification system (AIS) devices, transferring cargo at sea and "spoofing," or broadcasting a manipulated transmission signal that disguises a ship's location.

Russia is the world's second-largest oil exporter behind Saudi Arabia, and Moscow and Riyadh seek to keep oil prices high, Reuters reported in July 2023.

Western and other nations banned or imposed price caps on Russian oil after the Kremlin's invasion of Ukraine in February 2022. The goal was to cripple financing for the Kremlin's unprovoked war while allowing Russian oil to flow to international ports. The price caps are "a novel tool of economic statecraft designed to achieve two seemingly contradictory goals," according to the United States Treasury Department, and observers agree the measures have been effective.

Canada, the United Kingdom and the U.S. ban direct Russian oil imports, and the European Union prohibits seaborne importation of Russian crude and refined oil products. Australia, the EU and the Group of Seven major industrial nations have placed price caps on maritime delivery of Russian crude and other petroleum products worldwide. While it's legal for tankers to transport Russian oil, the price caps prohibit insurance companies, most of which are Western, from covering vessels that deliver Russian oil selling above the ceiling, which is $60 per barrel for crude, $45 per barrel for "dirty" petroleum products such as fuel oil and diesel oil, and $100 per barrel for "clean" petroleum products (CPP) such as gasoline, jet fuel and naphtha, an oil used to make plastics. Without insurance, vessels are not allowed to enter most major ports, The New York Times newspaper reported in May 2023.

The international restrictions led Russia to embrace a fleet of aging ships to deliver oil or transfer their cargo at sea to waiting vessels bound for the People's Republic of China (PRC) and other distant locations, duplicating attempts by Iran and Venezuela to

FORUM ILLUSTRATION

evade international sanctions. The often-clandestine methods pose challenges to monitoring oil shipments. "The volume of cargo with unknown destinations has jumped. Russian oil, once easy to track, is now being moved through more shadowy channels," The Economist newspaper reported in January 2023.

Shipping industry experts warn that such schemes greatly increase the potential for human and environmental disasters with aging, poorly maintained tankers navigating congested passages and ports. Those fears materialized in May 2023 when the tanker Pablo exploded and burned in the South China Sea off Malaysia's coast. Three workers aboard the Gabon-registered ship were reported missing and presumed dead, and the outcome could have been worse. Twenty-five crew members were rescued and the Pablo, which tracking data showed had offloaded Iranian heavy crude in the PRC's Shandong province, was largely empty when its deck blew off, avoiding a devastating oil spill, The Straits Times newspaper in Singapore reported.

The Pablo remained anchored at sea months after the explosion and fire, a listing hulk with no crew, traceable owner or insurer, Splash247.com, a maritime news provider, reported in June 2023.

Maritime shipping officials said accidents are the inevitable result of efforts to circumvent oil sanctions. "You've got all these old vessels that are probably not being maintained to the standard they should be," Richard Matthews, head of research at EA Gibson, an international shipbroker, told news broadcaster CNN in March 2023. "The likelihood of there being a major spill or accident is growing by the day as this fleet grows."

Dark and Gray Fleets

The elimination of Europe as Russia's primary oil market changed how the country conducted business. Russia had to find new customers willing to buy oil and an economical way to deliver it. There were no pipelines to faraway ports in China or other new client countries, and Russia's tanker fleet could carry less than 20% of its seaborne crude oil exports, U.S.-based National Public Radio reported in January 2023. Russia needed more ships.

The aging fleet of tankers, which The New York Times described as "a hodgepodge array of ships that obscure their locations or identities to avoid oversight from governments and business partners," moved in to help transport the Russian cargo. Many of these "dark fleet" ships already were ferrying oil from Iran and Venezuela. Meanwhile, mostly European-owned vessels that were now prohibited from moving Russian oil to European ports were sold to Middle Eastern and Asian firms and became known as the "gray fleet." Russia used both shipping sources, which industry observers estimate to be about 10% of the globe's large tankers, CNN reported. Collectively and generically called the shadow fleet, both types of vessels help Russia sidestep sanctions and move its oil without Western shippers.

An oil refinery in Omsk, Russia REUTERS

Russia's exports of crude to India and the PRC in the first quarter of 2023 set record highs as the two nations bought that oil at post-invasion discount prices, analytics firm Kpler told CNN. European markets that once made up nearly two-thirds of Russia's crude exports fell to only 8%, Kpler reported. "Both China and India are taking advantage of discounted Russian crude, benefiting from the sanctions applied on Russian materials by other countries," Kpler analyst Matt Smith told Insider, a U.S.-based media company, in April 2023.

The shadow fleet fueled the transition. Russian oil restrictions increased the value and life span of older tankers with dubious owners and registries that operate outside Western insurance, financial and shipping service networks, FreightWaves, which monitors the global freight market, reported in February 2023. The shadow fleet appears willing to transport oil without insurance from major providers, The Washington Post newspaper reported that month. The tankers are registered or "flagged" in various countries, most commonly Panama, Liberia and the Marshall Islands, according to Vortexa, which analyzes and tracks global seaborne oil.

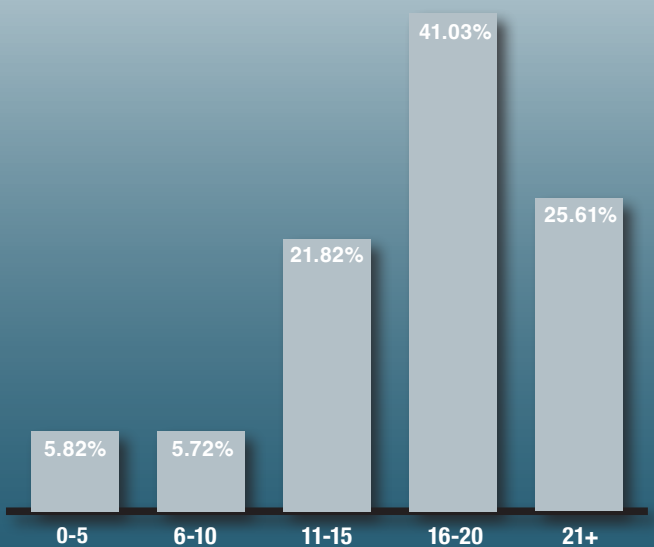
Oil tankers are considered old after about 15 years, FreightWaves reported. Previously, many were sold for scrap. But the emergence of the sanctions-skirting fleet, in which ships average 20 years old, is changing that. The Pablo, for instance, was built in 1997. This fleet of revived vessels "could be viewed as the new scrapping," Svein Moxnes Harfjeld, CEO of crude tanker owner DHT Holdings, told FreightWaves.

Changing Patterns

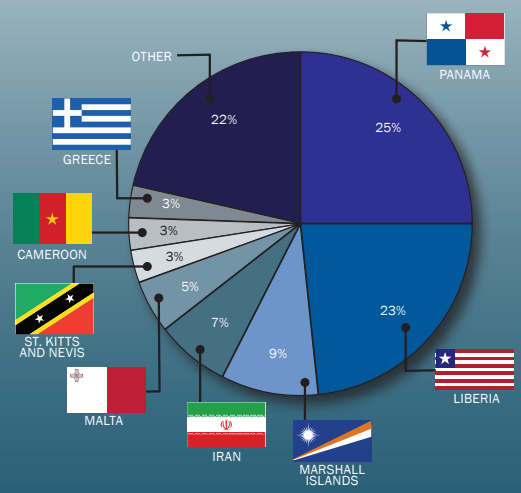
"The global energy system is becoming more dispersed, divided — and dangerous," The Economist reported. The sanctions and price caps have dramatically changed shipping patterns. Long, costly voyages are now common, not only for Russia but also other major energy suppliers, Reuters reported in April 2023. Along with its crude exports, Russia is delivering CPP to Brazil, Morocco, Nigeria and Turkey, while Asia, the Middle East and the U.S. ship more fuels such as diesel to Europe. Displaced from Africa and the Mediterranean by abundant Russian supplies, Asian exporters are sending fuels to Singapore for storage, Reuters reported. "Mysterious newcomers" in Dubai and Hong Kong are trading and insuring Russian oil that was handled by companies in Geneva, Switzerland, before the sanctions, The Economist reported.

Meanwhile, global oil prices had not changed dramatically in the year after Russia's invasion of Ukraine, Ben Cahill, a senior fellow and energy security expert at the U.S.-based Center for Strategic and International Studies, told EsadeGeo, a global economic research center, in March 2023. "The transition has been smooth," Cahill said. "The EU embargo and the oil price cap ultimately had two goals: to keep the market well-supplied and to deprive Russia of revenue. In those terms, it worked."

With longer supply chains, there was twice as much oil at sea in February 2023 as there was at the start of the Russia-Ukraine war, David Wech, Vortexa's chief economist, said in a webinar that month. Ships



DARK FLEET AGE IN YEARS
FLEET SIZE: 1,031 SHIPS



SHARE OF IRANIAN, RUSSIAN AND VENEZUELAN DARK FLEET TANKERS BY FLAG

FORUM ILLUSTRATION
SOURCE: VORTEXA

High-Seas Deception

Shadow fleet vessels use various deceptions to obscure their ownership, the origin and price of their oil cargo, and their location.

Flags of convenience denote the nation to which a merchant ship is registered. A ship might register with a state that has few labor, environmental or inspection regulations. Some shipowners change registries repeatedly, making it difficult to track a vessel's history.

Unregulated transfers at sea can obscure the cargo's origin, Armen Azizian, an analyst with Vortexa, which tracks global seaborne oil, told FORUM. "You put another step between buyer and seller," Azizian said. "You have a middleman involved."

Deceptive accounting practices related to shipping costs, customs fees, insurance and cargo make it difficult to calculate how much a buyer paid for an oil shipment and whether price caps were skirted.

Turning off a ship's automatic identification system (AIS) and spoofing conceal or electronically manipulate a ship's whereabouts. AIS transponders use ground- and satellite-based equipment to locate ships for other vessels and regulators. Spoofing involves emitting a fake signal about a vessel's location. In one instance, satellite imagery helped reveal a tanker carrying Russian crude that appeared to be in the Sea of Japan actually was more than 400 kilometers away unloading at a Chinese port.

The oil tanker Pablo burns after exploding in the South China Sea in May 2023.
MALAYSIAN MARITIME ENFORCEMENT AGENCY

that formerly delivered Russian crude to Europe in a week or less now spend up to 45 days at sea delivering to distant ports, The Economist reported. It can take 18 days for U.S. companies to deliver CPP to Europe, Reuters reported. Meanwhile, carbon emissions that contribute to climate change rise as tankers embark on extended routes.

Finding owners of the shadow fleet tankers is difficult. Authorities and shipping analysts increasingly ask about ships moving Russian oil, reported the Center for Advanced Defense Studies (C4ADS), a Washington D.C.-based nonprofit research group. "Generally, they are looking for patterns of suspicious behavior, new leads on unknown sanctions evaders or more complete beneficial owner buildouts for known ships [and] fleets of concern," Margaux Garcia, an analyst with C4ADS's State Sponsored Threats team, told FORUM.

Companies shipping Russian oil differ from those moving oil for other sanctioned regimes, Garcia noted, because Russian oil can be shipped legally if companies comply with cap regulations. So there is more room for plausible deniability if authorities board a ship transporting Russian oil.

Responsible shippers worry about the industry's reputation with so many aging vessels plying the seas. "Is there any will to stop this creeping anarchy, or is it all to be lost in tedious legal arguments about sovereignty and freedom of the seas?" the Seatrade Maritime News, an international shipping website, opined days after the Pablo exploded. "Where is the robust, international and immediate response that will stop this [from] becoming a far worse international scandal that will leach out into the rest of world shipping?"

Despite the challenges governments and the shipping industry face in policing sanction-breaking practices, there are encouraging signs. "The Russian price cap is working and working extremely well," Deputy U.S. Treasury Secretary Wally Adeyemo told The New York Times in May 2023. "The money that they're spending on building up this ecosystem to support their energy trade is money they can't spend on building missiles or buying tanks." □

PRC'S GLOBAL SECURITY INITIATIVE

CONTRADICTS ACTIONS

FORUM ILLUSTRATION

ANALYZING THE BIGGEST CHALLENGES BEHIND THE DISPARITY

DR. JINGHAO ZHOU

The People's Republic of China's (PRC) foreign ministry released a paper in February 2023 addressing international security challenges and solutions. The Global Security Initiative (GSI) reflected a speech by Chinese Communist Party (CCP) General Secretary Xi Jinping 10 months earlier in which he unveiled his GSI proposal. It is imperative that those who question recent CCP actions understand the GSI and respond appropriately.

FROM NATIONAL TO GLOBAL SECURITY

Security entails being free from threats and unauthorized access. It can have economic, financial, political, educational, informational and cyber implications at national, regional and global levels.

A country's security is a consequence of its power and worldview. When the PRC was established in 1949, it focused on safeguarding national security and preserving its territorial integrity while facing significant economic challenges and remaining isolated from the international community. Being a single-party state, the CCP's security concept was articulated in its leaders' speeches and in official documents. The paramount objective in chairman Mao Zedong's regime was to ensure stability of the Chinese political system. To achieve domestic stability, the CCP put forth the Five Principles of Peaceful Coexistence, which encompassed mutual respect for sovereignty and territorial integrity, mutual nonaggression, noninterference in other nation's internal affairs, equality and mutual benefit, and peaceful coexistence.

The CCP did not push worldwide security initiatives in the early post-Mao era. Instead, the priority was to develop the Chinese economy and enhance domestic living standards to avoid political instability and maintain the government's legitimacy. Under Deng Xiaoping's leadership (1978-97), the PRC kept a low-profile foreign policy to improve its relations with the international system led by the United States. In 1990, Deng reiterated to Chinese officials the importance of avoiding confrontation with the West, encouraging them to: "Observe calmly; secure our position; cope with affairs calmly; hide our capacities and bide our time; be good at maintaining a low profile; and never claim leadership." This strategy gave the CCP time to modernize without significant foreign interference. The PRC remained highly pragmatic under the Hu Jintao administration (2002-12), with a strong focus on its domestic economic growth and cultivation of amicable international relations through an approach that encouraged benevolence, partnership and neighborliness.

A satellite image shows a Chinese camp on the disputed Himalayan border with India in June 2020, days after a clash between the nations killed 20 Indian Soldiers and at least four Chinese soldiers. REUTERS

Two years after the PRC became the world's second-largest economy in 2010, Xi took office and proclaimed his desire to establish a new type of relationship with the U.S. This strategic alteration was driven by his assessment of the global landscape. Xi believed the world was undergoing a major change in which the East was rising while the West was declining. In May 2014, he proposed a regional security framework that addressed major challenges. It asserted the PRC's ambitions beyond its borders and signified the Chinese pursuit of a balanced distribution

A China coast guard ship approaches a Philippine boat just before the vessels collided in the South China Sea on October 22, 2023. While claiming to be a leading advocate for worldwide security and peace, the CCP's military routinely acts aggressively. CHINA COAST GUARD/REUTERS

of global power with the U.S. in the East and West.

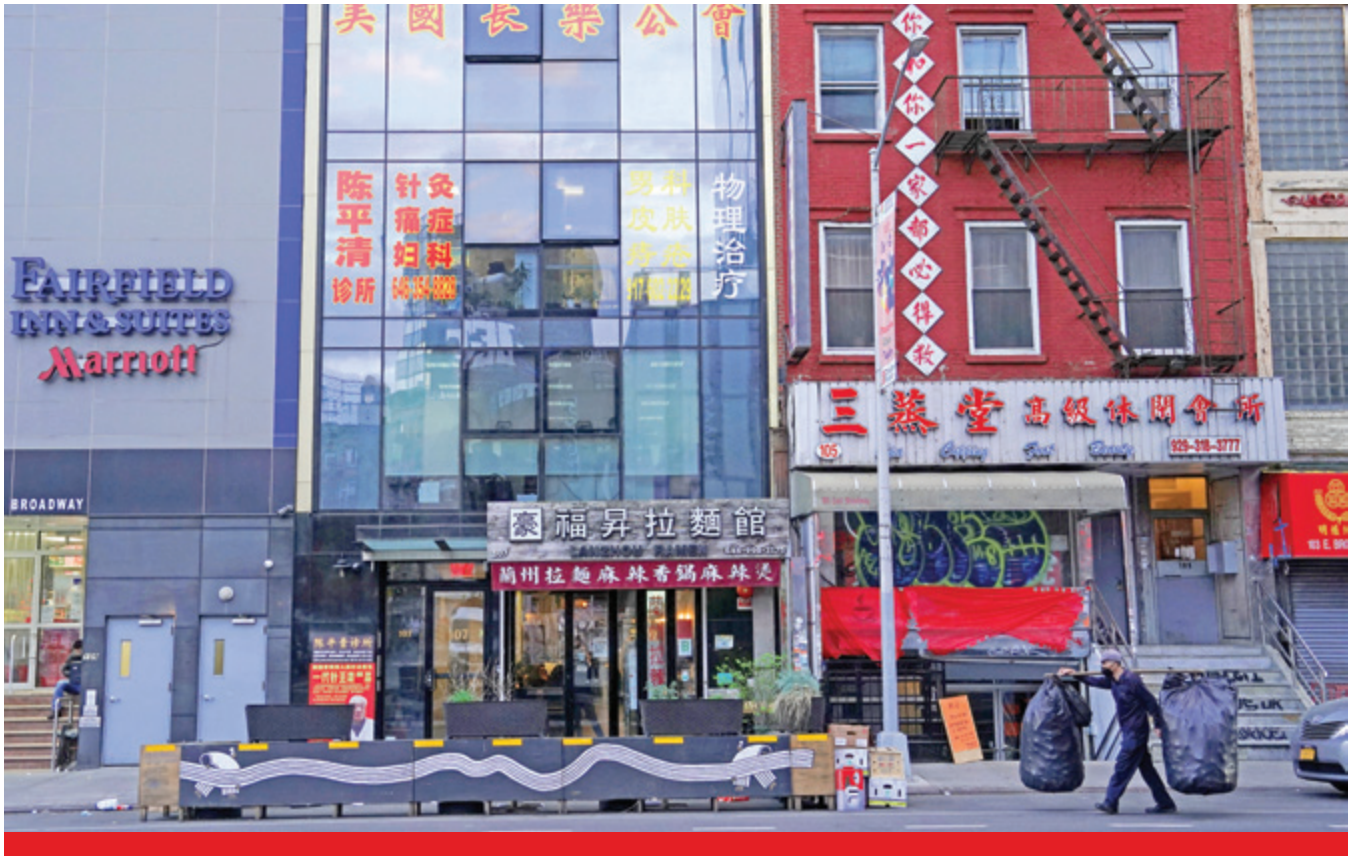
The PRC's 2019 white paper, "China's National Defense in the New Era," elaborated on Xi's vision of Asian security. According to the paper, the U.S. had redirected its foreign policy focus toward the Indo-Pacific, adopting a unilateralist approach, intensifying competition among major powers, increasing military expenditures, expediting advancements in defense capabilities and compromising global strategic stability. Given these circumstances, the paper asserted, the CCP was compelled to realign national security priorities to safeguard Asia. Chinese leaders vowed to build the world's best military force by 2035.

Meanwhile, Xi took steps to establish a new great power relationship. Disappointed with the U.S. response to his vision for national defense, he ultimately aligned with Russia and succumbed to pressure from nationalists at home. Xi in February 2022 declared the PRC's "no limits" friendship with Russia, shortly before Russia's unprovoked invasion of Ukraine. Perceiving the Russia-Ukraine conflict as an opportunity to counterbalance U.S. dominance, the CCP sought to transform the international security order with an alternative global framework that serves its interests. Xi proposed the GSI a few weeks after the war began. The initiative attempts to position Xi as a global peacemaker, despite criticism that the PRC is providing diplomatic cover for Russia's invasion.

SIMILARITIES AND DIFFERENCES

Both the Chinese foreign ministry's paper and Xi's statements contextualize the GSI within an era rife with challenges and hopes. Speaking at the Boao Forum for Asia in April 2022, Xi asserted "changes of the world, of our times and of history are unfolding in ways like never before," the PRC's foreign ministry reported. He said the global community must maintain peace and stability, calling the GSI the best means to do so.

The foreign ministry's paper outlines the GSI's core principles and six supporting commitments, which include upholding indivisible security, building a balanced and sustainable security architecture, opposing the enhancement of national security by exploiting other countries' insecurities, promoting



U.S. officials said a Chinese secret police station operated from this office building in New York City's Chinatown neighborhood. REUTERS

common development and security through cooperation, advancing dialogue and consultation to resolve disputes, and improving coordination and cooperation on global security governance.

The GSI aligns with the CCP's existing security concepts and consolidates Xi's worldview. The central focus of each is to strengthen Xi's position in the party. He contends only CCP leaders can ensure domestic development of the socialist system with Chinese characteristics while expanding the PRC's global influence through economic growth, assertive foreign policy and rejection of Western values.

The evolution of PRC security concepts — from national to regional to global — signifies the nation's confidence and expresses its intention to pursue great power status. The CCP's stated goal to promote its brand of global security also forecasts fierce competition with the West.

The CCP plans to extend the GSI as part of its drive toward global dominance. To become a global power, the PRC must reach beyond mainland Asia by breaking through the chain of island nations off its east and south coasts to extend its influence and project power to the Western Pacific and elsewhere.

To further its interests and values, theoretically, the CCP must expand its regional security concept to global security architecture by safeguarding sovereignty, promoting noninterference, advocating for multipolarity, and countering the U.S.-led international order and multilateral treaties. The GSI attempts to legitimize the CCP's global activism while the nation continues to exert pressure on Taiwan as part of its campaign to isolate the self-governed island diplomatically and militarily, and increase the chances of its annexation by Beijing.

SAY ONE THING, DO ANOTHER

The GSI paper contains ambiguous and abstract terminology along with seemingly fair and justified pledges. Given the historical context of Chinese foreign policy and its implementation, there are valid concerns about the CCP's credibility. The party often says one thing and does another. Some analysts observe that under Xi, the CCP's aggressive international behavior counters that espoused in the GSI.

The GSI claims to uphold "the principle of indivisible security," but the CCP has pursued its interests at the expense of others, such as by building and militarizing artificial reefs and other maritime features in the disputed waters of the South China Sea, and by rejecting an international tribunal's 2016 ruling in favor of the Philippines' maritime rights in the sea. The GSI advocates "dialogue and

ON THE SURFACE, THE GSI DOES NOT POSE AN IMMEDIATE THREAT TO THE U.S. AND ITS ALLIES AND PARTNERS. BUT ITS UNDERLYING INTENTION IS SERIOUSLY CHALLENGING.

consultation" to solve disputes and conflicts, but the CCP uses coercion and sanctions to punish countries that disagree with its policies, such as imposing trade restrictions on Australia after it called for an investigation into contentions that COVID-19 began in China and detaining Canadian citizens in retaliation for Ottawa's arrest of a Chinese tech company executive.

The GSI "reject[s] the Cold War mentality," though the CCP has considered the U.S. an adversary since the Mao era. The GSI advocates "win-win cooperation" and the "principles of mutual respect, equality, [and] mutual benefit" in addressing nontraditional security challenges, but the CCP rejected the World Health Organization's request to investigate COVID-19's origin. While the GSI "uphold[s] non-interference in internal affairs" and supports "the independent choices of development paths and social systems made by people in different countries," the CCP has established more than 100 secret police stations to implement its long-arm jurisdiction in more than 50 countries, especially Western ones. And the CCP supports autocratic and totalitarian regimes' infringement of individual freedoms while defending its own widespread human rights violations.

The CCP portrays itself as a peacemaker, but it has increased military pressure on neighboring nations, resulting in clashes with India along their disputed border and with the Philippines in contested waters. The CCP's stance on the Taiwan Strait is far from peaceful. Its massive propaganda campaign and provocative military exercises around Taiwan exemplify its aggressive approach rather than the peaceful resolution it outwardly advocates.

The GSI refuses to acknowledge that Russia invaded Ukraine, evidence that the CCP does not neutrally assess Russian atrocities. Its suggested resolution of that crisis encourages Ukraine to give up its territory in exchange for peace and warns

A Chinese coast guard ship maneuvers in front of a Philippine Coast Guard vessel off Second Thomas Shoal in the disputed South China Sea. An international tribunal rejected the PRC's claim to the area. AFP/GETTY IMAGES

NATO not to defend any countries Russia chooses to invade. The CCP's peace proposal favors Russia and further victimizes Ukraine. That explains why Russian President Vladimir Putin welcomes the so-called peaceful settlement while Ukraine rejects it.

The GSI depicts the PRC as a problem solver, while casting the U.S. as a troublemaker. But the paper's pretense, articulated in seemingly neutral and agreeable prose, neither reflects reality nor specifies how the GSI would resolve conflicts among countries with different interests. It lacks substance and feasibility.

PAPER TIGER, BUT BITING

The GSI emphasizes Asia because, in Xi's view, the region will be "an anchor for world peace, a powerhouse for global growth, and a new pacesetter for international cooperation." Xi and the GSI call on Indo-Pacific countries to cooperate and leverage the role of regional organizations and gatherings such as the Shanghai Cooperation Organization (SCO), the economic grouping of Brazil, Russia, India, the PRC and South Africa (BRICS), the China-Central Asia Summit, and mechanisms of East Asian cooperation. Xi wants to realize his vision of Asian nations handling Asia's security affairs without outside interference. In this sense, the CCP employs a traditional Chinese military doctrine known as "defense through offense." By taking an offensive stance, the GSI seeks to achieve defensive objectives and solidify the PRC's dominant position in Asia while reducing Western influence. Failure to understand the CCP's approach could mean the U.S. dilutes its global resource allocation and potentially loses deterrence in the Indo-Pacific, the frontline of great power competition.

On the surface, the GSI does not pose an immediate threat to the U.S. and its Allies and Partners. But its underlying intention is seriously challenging. It's worth noting that the purpose of the CCP's Asian security concept differs from those of other Asian countries and organizations. The Association of Southeast Asian Nations, for example, advocates peace, stability and cooperation among its 10 member states. Japan's Free and Open Indo-Pacific concept supports a rules-based order, respect for international law, freedom of navigation, and open and transparent economic systems. India's Security and Growth for All in the Region initiative focuses on maritime security, connectivity, sustainable development and enhanced cooperation among Indian Ocean states.

Meanwhile, the GSI proposes a security vision for other parts of the world. It calls for supporting nations in Africa, the Caribbean and Latin America, and promoting peace and stability in the Middle East. Obviously, the CCP is eager to claim a significant role well beyond China's borders. The GSI provides a strategic platform for it to develop security relationships with more countries to gain influence.

The GSI seeks to help the CCP expand its worldwide ambition through platforms and mechanisms such as the One Belt, One Road (OBOR) infrastructure plan, the SCO, the Forum on China-Africa Cooperation and BRICS. The CCP has used BRICS, OBOR and the Asian Infrastructure Investment Bank to promote Chinese currency over the U.S. dollar. It has distributed 582 billion yuan ($81.7 billion) in more than 40 countries and regions. More than 25 countries plan to join BRICS and 30 nations have said they would accept a proposed BRICS currency. Although the U.S. will not lose its global reserve status overnight, the CCP seeks to undermine U.S. supremacy.

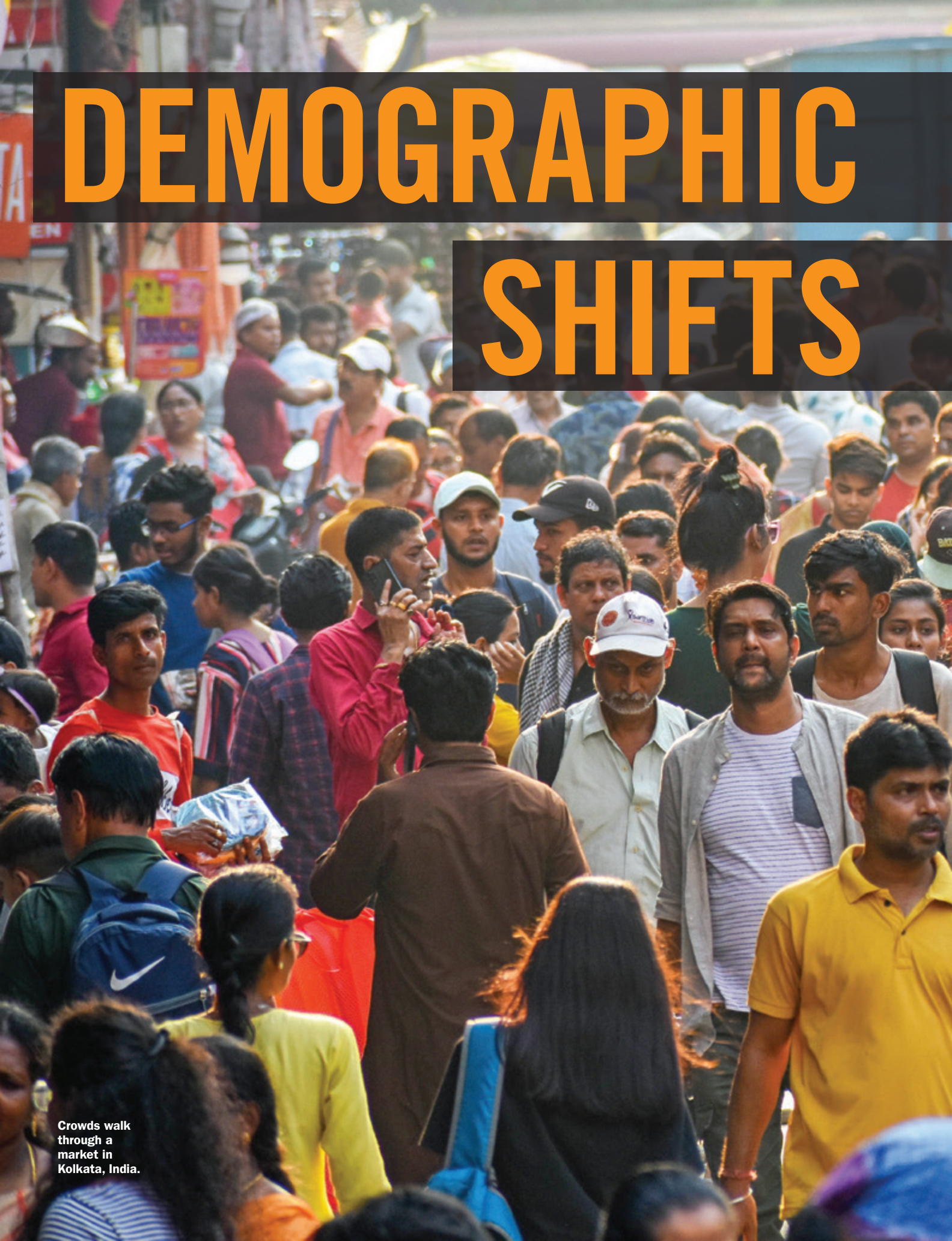
The GSI challenges post-World War II security alliances and partnerships by seeking to create division among nations as to how to deal with the PRC. While the leaders of the Group of Seven major industrial nations met in Hiroshima, Japan, in May 2023 to discuss the Russia-Ukraine war and Taiwan tensions, Xi hosted the China-Central Asia Summit and pledged 26 billion yuan ($3.7 billion) in loans and grants to the five other participating nations.

COUNTERING THE GSI

Close examination of the GSI's intent and historical context — as well as the disparity between the CCP's words and actions — reveals challenges and possible negative consequences. The GSI proposes an international security framework that reflects positively on the PRC, but its diplomatic language obscures the goal of portraying the CCP as the world's go-to purveyor of security measures. While the GSI is a paper tiger, it seeks to move Xi's China dream to the world stage at the U.S.'s expense. Nations that question the CCP's motivations should respond. However, responding effectively entails more than criticizing Xi's vision. A full understanding of the GSI is needed, along with hard- and soft-power measures to counter its domestic and international security agenda.

The CCP is the greatest challenge to the U.S. and its Allies and Partners and potentially the biggest hindrance to global peace. It would be naive to believe that the CCP will fall in line with nations that uphold a rules-based global order. It's time to abandon any such illusions about the CCP and take unified action. A competing global security initiative based on firm and coherent policy is needed to counter CCP influence in the Indo-Pacific and other regions prominently mentioned in the GSI: Africa, Latin America and the Middle East. That central task — developing strategies to deal with the CCP in the context of a new international security dynamic — must be the priority. □

DEMOGRAPHIC SHIFTS



Crowds walk through a market in Kolkata, India.

What India becoming the world's most populous country means

DR. JENNIFER DABBS SCIUBBA | PHOTOS BY REUTERS

Continued population growth in India and depopulation in China mean that India has assumed the title as the world's most populous country. From population size alone, not much can be inferred about India's future, but a deeper dive into its demographic dynamics shows that the country's leaders need to move quickly to make the most of their favorable age structure and maximize the country's opportunity for accelerated economic growth.

Today, India's population of 1.429 billion is nearly four times larger than the 361 million counted in the 1951 census, just a few years after the Partition of India and Pakistan.

That's the India most people know, the "population bomb" that biologist Paul Ehrlich described after visiting the country in the mid-1960s. Despite its overall growth, India's population dynamics today are little like those Ehrlich described. The average number of children per woman was nearly six in the 1960s, but today the average is only two, which is considered below replacement level. United Nations demographers put India's replacement level — the average number of children a woman gives birth to for a population to sustain its size from one generation to the next — at 2.19. The average masks some internal differences, but only five Indian states have a fertility rate above 2, and the highest, Bihar, is just under 3.

India's rapid fertility decline is emblematic of a global trend. As of 2022, 71% of countries had fertility rates below three children per woman; in 2000, only 56% did.

India's Age Composition Is Shifting

Decades of below-replacement fertility will set any country on the path toward shrinking, barring a large volume of immigration. China's population has already begun to shrink, but even with low fertility, India's population grows by 1 million each month, and it will be after midcentury before the numbers begin to decline. That is because much of India's growth is driven by "population momentum," which is the tendency of a population to keep growing even if fertility falls because the size of childbearing cohorts is relatively larger than when fertility was higher (more potential mothers). In fact, India's population is so large that it will drive much of the expected increase in global population between now and midcentury. When the world hits 9 billion people sometime about 2037, 1.6 billion will be Indian.

But the age structure of India's population is drastically changing. India's median age in 25 years will

People crowd Central Vista Avenue near Kartavya Path in New Delhi in April 2023. That's the month India's population surpassed China's, according to the United Nations.

be about 33 years, up from 28 years today and 21 years in 1998. That increase of 12 years over a 50-year timespan is just a shade behind increases in the global median age. Most of the people who will give birth between now and 2048 are already born, and there is a good sense of their reproductive tendencies. Indian women say they want about two children on average, so fertility will likely continue to trend downward. Given the size of those childbearing cohorts, plus modest life expectancy increases, India's population will add 230 million over the next 25 years. This is significant, but India has added 430 million over the past 25 years. India will stay relatively young for a while, but the number of young people aging into India's workforce peaked a few years ago.

India's Demographic Dividend Is Not Guaranteed

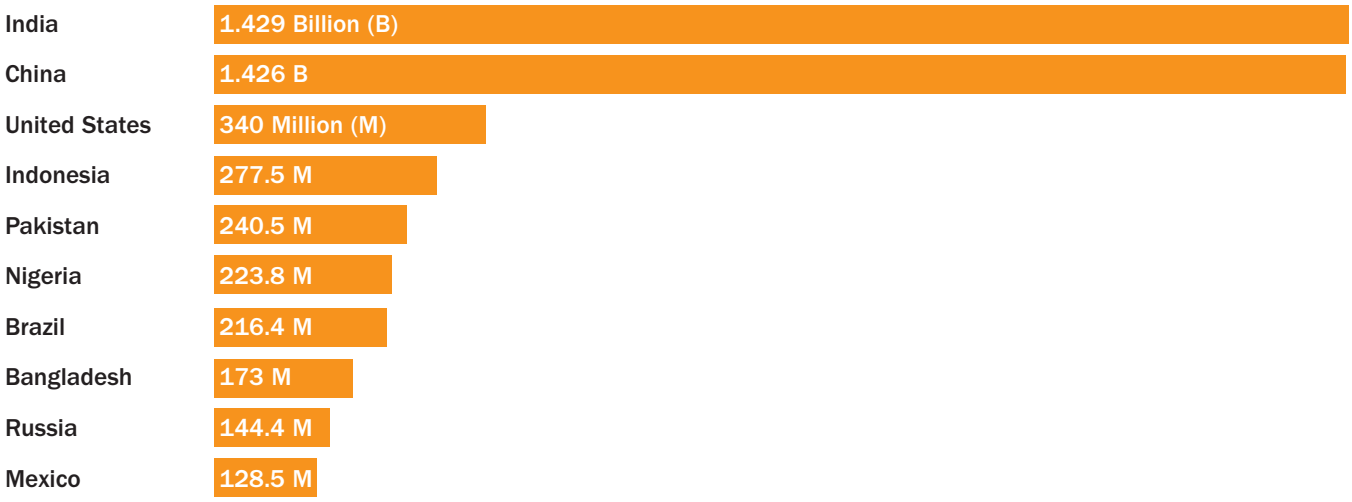
With its demographic profile, India has the conditions to reap a demographic dividend — a boost in economic growth from higher proportions of working-age people — if the right government policies are in place, such as investments in human capital. As in China, India's leaders saw slower population growth as a prerequisite for economic development. Unlike China, however, India has not made the same investments in human capital to achieve those goals. Literacy, particularly for women, trails global averages and the country must also step up investments in health, as shown by its high infant mortality rate.

And India needs to hurry. Western nations saw fertility decline because of economic development; India's decline came from family planning. That means the pace of demographic change has been faster, and the window of opportunity for India to reap its demographic dividend is shorter. It will have taken 75 years for the 60-plus population to grow from 15% to 30% in Western Europe. The same shift will take India only 34 years.

India is still relatively rural, although its cities are steadily growing. Delhi has been one of the world's

A mother holds her baby, left, and women wait for checkups at a maternity hospital in Mumbai, India.

10 Most-Populated Countries as of Mid-2023



Source: U.N. Population Fund "State of World Population" report 2023, Reuters

fastest-growing cities, but on the whole, urbanization has lagged compared to what is expected given India's global prominence. The U.N. places India's urbanization at only 33% — China's urbanization, in contrast, is 65%. Urbanization has historically been a key indicator of economic potential because it concentrates services, ideas and jobs, so India's low urbanization places a ceiling on its economic growth. One recent study projected five key Indian cities will grow an average of 1.5 to 2 times in the next decade. India's National Commission on Population expects the nation's urban population, which is 31.8%, to increase to over 38% by the middle of the next decade, but that is still quite low. So, India has high urban growth potential but is far behind the curve.

There Are Really Two Indias

Due to differences in fertility and emigration rates between the north and south, India is both a young country and an aging one, a microcosm of the global demographic divide. India's northern states struggle more with poor health and illiteracy, while in the south, Kerala is already finding it difficult to staff assisted living homes for the elderly. It is tough to set policy priorities when the country must address two very different population issues simultaneously.

There is also the India for men and the India for women. According to the World Bank, just 23% of Indian women perform paid work, compared with 37% in Bangladesh and 63% in China. In India, much of this work is in the informal economy, which puts women at greater risk for financial insecurity in old age. Indian women enroll in higher education at higher rates than Indian men, but India's economy remains male-dominated. For India to maximize economic growth, the country needs better alignment between skills and jobs.

Residents shop at a vegetable market in Kolkata.

Population Dynamics Will Be Central For India's Future

India's population dynamics lay the groundwork for its future, but there is no guarantee that slower population growth and a higher median age will translate to strong economic growth. Likewise, there is no guarantee that slower population growth will lead to a cleaner, more sustainable environment. If all goes as planned, India's 1.4 billion and counting people will see rising living standards over the coming decades. That means affordable and realistic options for consumption are imperative, and India can model a greener path for other dynamic economies that will be following on this demographic path. Environmental goals can support economic goals, too, if they include investments in green labor markets and industries. □

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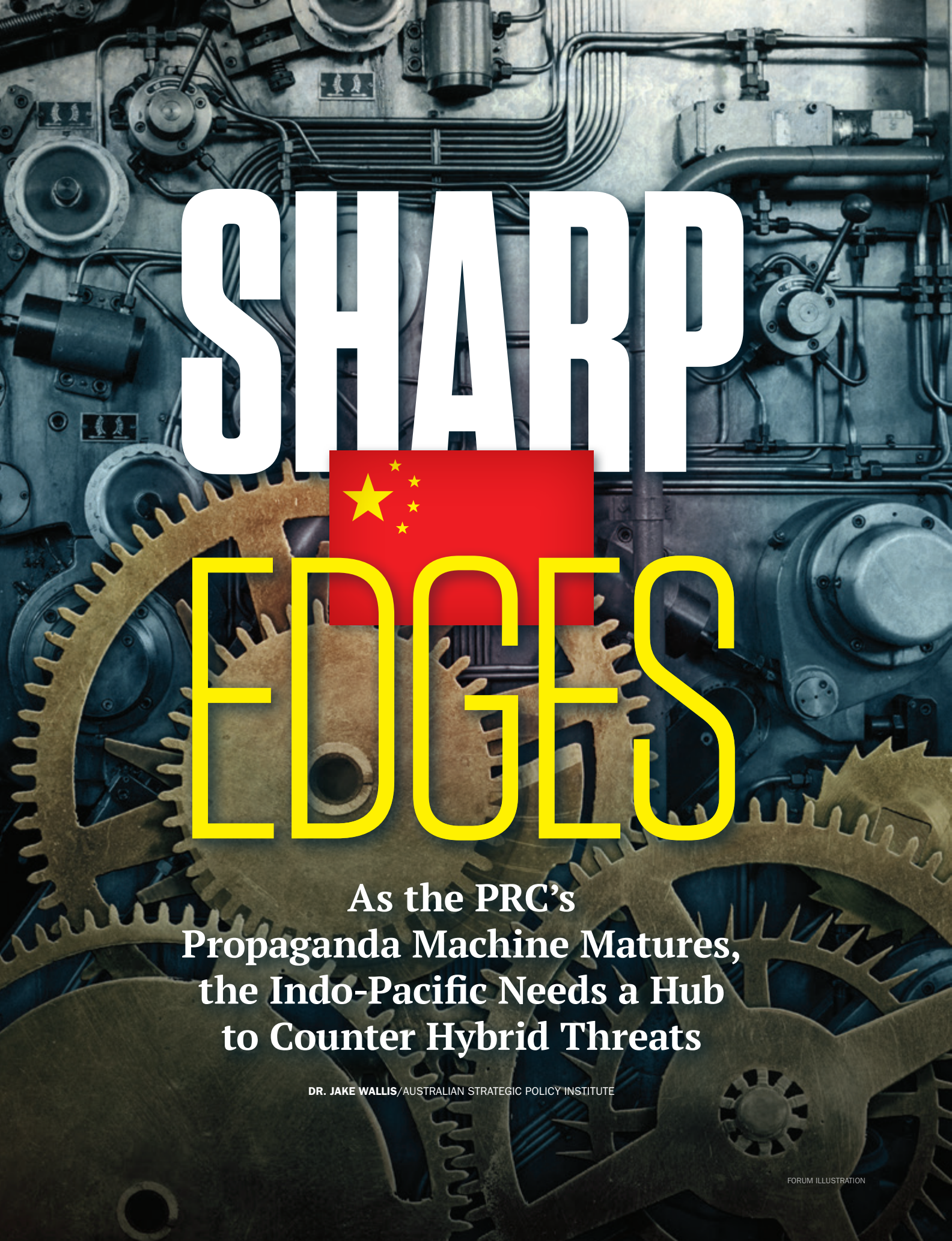
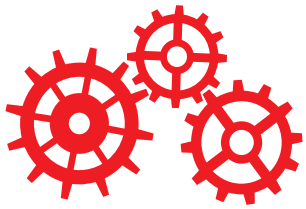


SHARP EDGES

As the PRC's Propaganda Machine Matures, the Indo-Pacific Needs a Hub to Counter Hybrid Threats

DR. JAKE WALLIS/AUSTRALIAN STRATEGIC POLICY INSTITUTE

FORUM ILLUSTRATION



Under an assertive Chinese Communist Party (CCP) General Secretary Xi Jinping, the People's Republic of China (PRC) is building a global propaganda system designed to reshape the international order.

This is a more complex challenge than that posed by other authoritarian states in the information domain, even more so than Russia's disruptive integration of disinformation with foreign interference and subversion. This is because under Xi, the PRC's ambition is much greater and the party-state's projection of state power has more weight than other revisionist powers. The PRC can apply coercive statecraft to both project political power and impose cost. It has signaled this leverage to strategic competitors in increasingly obvious ways. The party-state, for example, has targeted Western corporations with consumer boycotts mobilized by state propaganda to deter public comment on issues such as human rights abuses in Xinjiang or Hong Kong.

Australia faced a barrage of trade tariffs, described by the PRC's former ambassador to Australia, Cheng Jingye, as an expression of the Chinese people's wrath, following then-Prime Minister Scott Morrison's suggestion of an international inquiry into the origins of COVID-19. At a particularly low point in the Australia-China relationship, then-Chinese foreign affairs spokesman Zhao Lijian posted to Twitter, now known as X, a fake image of an Australian Soldier slitting the throat of an Afghan child. The fabricated image, which was used to reference an investigation into alleged war crimes by Australian forces in Afghanistan, was originally distributed on Chinese social media.

Within an hour of the tweet, Morrison called a news conference to respond. He also spoke out on WeChat, a Chinese-owned social media platform, saying that as a democracy, Australia was prepared to hold up a mirror to its flaws. Within minutes of the post, his WeChat account was suspended. This interaction demonstrates how the PRC exploits the information domain, disseminating propaganda on Western social media where free speech is protected while censoring messages intended for the Chinese people.

The trajectory of the CCP's information operations indicates that once-clumsy efforts are becoming sophisticated, a reflection of the party-state's persistent investment. Moreover, widespread pro-democracy demonstrations and protests in Hong Kong induced a greater appetite for risk from the party-state.

The CCP's focus shifted from interest in topics such as the Hong Kong protests, the 2020 Taiwan presidential election and the origins of COVID-19 to foreign interference in United States domestic politics. The same sets of information operations assets that had focused on the Hong Kong protests pivoted to exploit domestic protests in the U.S.

Over a few years, the CCP's techniques quickly matured from early attempts at interfering in Taiwan elections, which included linguistic mistakes in attempting to write posts in traditional Chinese to influence Taiwan voters. By the time the CCP started targeting the U.S., CCP information operations could overwhelm algorithmic and human defenses on most social media platforms. For example, the CCP asset Spamouflage Dragon could quickly spread misinformation across leading platforms in the U.S., including Facebook, X and YouTube. The CCP also advanced its capabilities by experimenting with artificial intelligence to auto-translate video content, generate profile pictures for fake social media accounts and develop deepfake videos.

The challenge in analyzing the CCP's information operations as they exploit social media is to situate them within the context of the CCP's strategic goals. The party attempts to operationalize the doctrine that emerges from Xi and the Politburo, its decision-making body. Under Xi, the party's aspirations are ambitious. Propaganda is a political warfare tool, and it can be aligned with other coercive statecraft to take strategic advantage.

Democracies assumed globalization and economic relationships would draw the PRC into the rules-based order. They underestimated the Chinese party-state's willingness to weaponize interdependence by exploiting economic relationships, diaspora communities and asymmetric access to the information environments of open democracies. To Australia's north and northeast, Papua New Guinea and the Solomon Islands have signed agreements under the PRC's One Belt, One Road infrastructure scheme. Solomon Islands also has a security agreement with the Chinese government. Australia finds its freedom to maneuver constrained.

While public opinion polls in the West show increasing concern that the PRC is a security threat, the CCP's propaganda pays dividends elsewhere. In certain resource-rich regions, the CCP's propaganda gains

Common Hybrid Threats

Source: Dr. Jake Wallis/Australian Strategic Policy Institute

Abduction, detainment and disappearance	The Chinese state kidnaps and forcibly repatriates people it considers to be Chinese nationals, including from Western nations, and forcibly detains citizens from other countries.
Assassination	Since 2008, North Korea has been linked to at least two assassinations and multiple attempts. The Russian regime has attempted to kill journalists, dissidents and former intelligence officers.
Co-optation	Authoritarian regimes and other hybrid threat actors may co-opt leaders or community groups to suppress dissent and subvert policy or weaken democratic norms and institutions.
Coercive diplomacy	Coercive diplomacy can be defined as nonmilitarized coercion or the use of threats to force the target state to change its behavior.
Corruption	Corruption has physical and psychological components. The former involve diversion of funds, resources or capability; this weakens trust in systems and institutions, and compromises targets.
Cyberattacks	Cyberattacks are attempts to steal, expose, alter, disable or destroy information through unauthorized access to computer systems.
Digital divide	The digital skills and literacy divide among areas of the Indo-Pacific presents a vulnerability that may be exploited by threat actors and impede clear government responses.
Disinformation	Disinformation is the intentional dissemination of false or deliberately biased, exaggerated, distorted or unbalanced information with the intent of advancing political objectives.
Economic coercion	Economic coercion and sanctions, such as blocking trade and reducing market access, seek to punish target governments.
Espionage	Traditional espionage and counterespionage have been enhanced through technology. Cyber and signals intelligence enables access to national systems and commercial secrets.
Foreign interference	Foreign interference is covert influence attempts to confuse debate, and shape, slow or complicate decision-making.
Human rights abuses	Such abuses are direct or indirect violations of rights enshrined in the United Nations Universal Declaration of Human Rights. Threat actors often exploit weaknesses in institutions and other vulnerabilities.
Information operations	Information and influence operations involve collecting tactical information about an adversary and disseminating propaganda in pursuit of a competitive advantage over the adversary.
Intellectual property theft	Involves stealing ideas, inventions, research and other intellectual property from individuals or companies.
Lawfare	The use of international and domestic laws to deter criticism and gain support while managing repercussions from military action.
Militarization of contested islands	Some artificial maritime features in the South China Sea have been fully militarized and armed with anti-ship and anti-aircraft missile systems, laser and jamming equipment, and fighter jets.
Mercenaries and private contractors	The use of private contractors for the purposes of armed force, illicit activities and hacking enables plausible deniability.

From left, Australian Prime Minister Anthony Albanese, U.S. President Joe Biden and United Kingdom Prime Minister Rishi Sunak discuss their nations' trilateral partnership at U.S. Naval Base Point Loma San Diego, California, in March 2023. THE ASSOCIATED PRESS

traction. In Africa, Southeast Asia and Latin America, the CCP can contest core value propositions such as human rights and economic development, offering a different model of governance.

To contest the CCP's propaganda, disinformation and political warfare, the Indo-Pacific, which is increasingly the focus of great power competition, should develop resilience to hybrid threats. The region contains a spectrum of political systems and states at various stages of economic development. There also has been some democratic backsliding, and the security architecture does not offer the same collectivity as European nations have demonstrated in response to Russia's invasion of Ukraine. Europe does have some models that might be adapted. The European Union and NATO fund the Helsinki, Finland-based European Centre of Excellence for Countering Hybrid Threats. Despite the Indo-Pacific's complex security architecture, there is a growing appetite for collaboration among partners, both traditional and nontraditional, to maintain strategic balance in the region. Issues such as economic coercion, foreign interference, maritime coercion and cyber intrusion exert political pressure on states across the region and threaten the growing prosperity that has emerged from free and open trade.

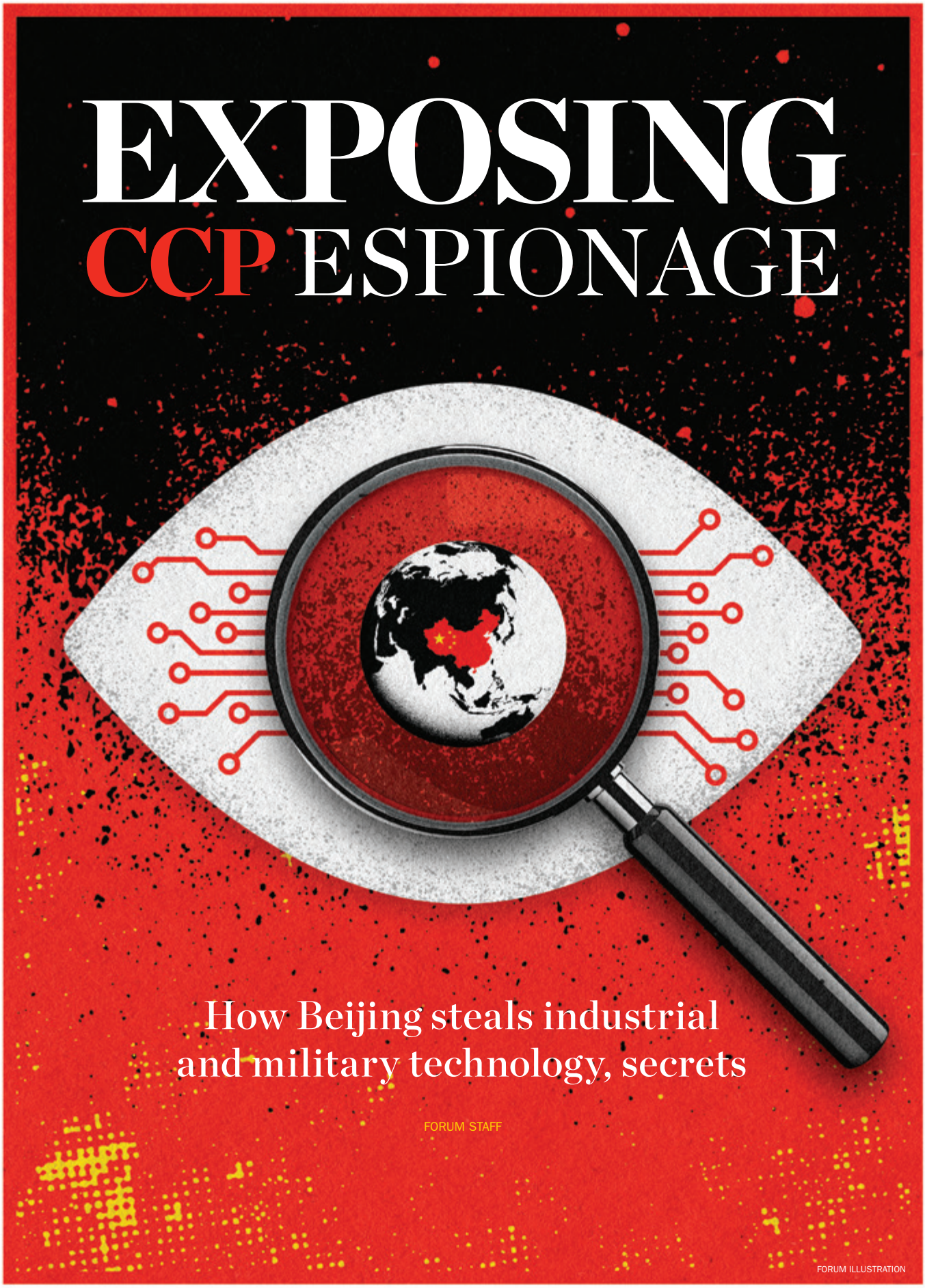
The Indo-Pacific, and Southeast Asia in particular, is young, with more than half the world's millennial population, and well-educated. These are powerful drivers of economic growth. The Indo-Pacific contributes 60% of global gross domestic product and by 2030 will be home to 2.4 billion new members of the global middle class. Regional partners recognize the significance of this contribution to global prosperity. Canada, the EU, the United Kingdom and the U.S. each has an Indo-Pacific strategy. New partnerships, such as that among Australia, the U.K. and the U.S., and the Quad partnership of Australia, India, Japan and the U.S., are designed to deter an Indo-Pacific conflict that would threaten the rules-based international order. A hybrid threats center focused on the Indo-Pacific would help develop societal resilience in response to national security threats beneath the kinetic threshold, including disinformation, foreign interference, subversion, economic coercion and cyber intrusion.

The PRC does not need to directly assert its territorial aspirations in the region with force. While there is great — and justifiable — concern that Xi might order the People's Liberation Army to attack self-governed Taiwan, the party-state may continue its attempt to wear down the resolve of Taiwan's people through campaigns of political interference and subversion, economic coercion and military pressure beneath the kinetic threshold. These forms of coercive statecraft threaten Taiwan and the region's strategic balance. They offer a threatening demonstration that Beijing will use its might aggressively to assert its interests over others. Whether this sharp statecraft targets the U.S. or its allies, it constrains the capacity of the region's democratic partners to maneuver politically, diplomatically, economically and militarily, blunting the tools of democratic statecraft.

The collective approach to security in Europe has allowed the EU and NATO, along with a set of core partner states, to fund the hybrid threats center, which undertakes research and capacity-building programs to enhance its members' response capabilities. The Indo-Pacific would benefit from a similar construct. The region remains complex in terms of its relationships, partnerships, competing interests and security architecture. Yet deterrence is fundamental to convincing an assertive PRC that the international order can be maintained. That deterrence can only be achieved through collectivity, and it is better that the region collectively responds to coercion now than for the Indo-Pacific to descend into the carnage that has engulfed Ukraine. □

This article is based on the Australian Strategic Policy Institute's report "Countering the Hydra: A proposal for an Indo-Pacific hybrid threat centre," which originally was published in June 2022 on the ASPI website. To read the full report, visit: https://www.aspi.org.au/report/countering-hydra.

EXPOSING CCP ESPIONAGE



How Beijing steals industrial and military technology, secrets

FORUM STAFF

FORUM ILLUSTRATION

A clearly visible high-altitude balloon traversing the continental United States in late January and early February 2023 — before a U.S. fighter jet shot down the surveillance system — alerted nations to the extent of the Chinese Communist Party's (CCP) espionage efforts.

The People's Republic of China (PRC) has deployed this type of surveillance technology globally before to spy on strategic competitors, violating international law and the sovereignty of dozens of nations. In recent years, similar Chinese airships have operated over East Asia, Europe, Latin America, South America and Southeast Asia, according to Brig. Gen. Patrick S. Ryder, U.S. Department of Defense spokesman. "This is what we assess as part of a larger Chinese surveillance balloon program," Ryder said at a February 2023 news briefing.

Yet spy balloons represent only a small portion of Beijing's overarching strategy under CCP General Secretary Xi Jinping to not only create the world's dominant military, but also its dominant economic, social and political force. Xi's government has been willing to use any means necessary to catch up to its competitors and modernize its military, with the stated goal of dominating the battlespace and world economy.

"China may be the first country to combine that kind of authoritarian ambition with cutting-edge technical capability. It's like the surveillance nightmare of East Germany combined with the tech of Silicon Valley," Christopher Wray, director of the U.S. Federal Bureau of Investigation (FBI), said during a January 2022 speech. For roughly 40 years in the mid- to late 20th century, East Germans were subjected to mass surveillance by police agencies that kept secret files on millions of people.

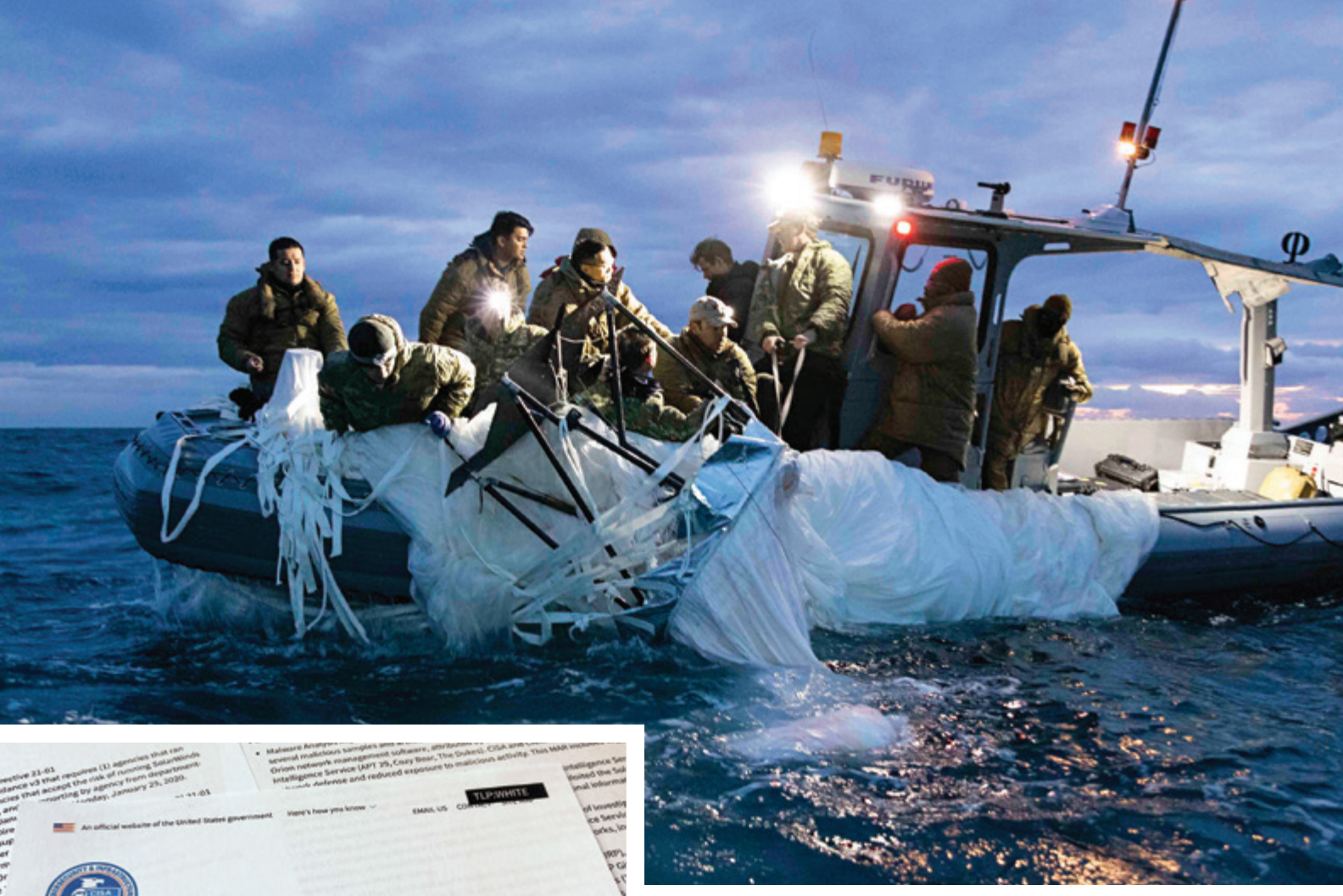
To siphon off critical industrial and military information from corporations, governments, militaries and universities, the CCP uses a range of techniques, from conventional methods — such as spies, honey traps, blackmail and bribery — to contemporary approaches that rely on cyber hacking and clandestine data collection. Besides using government agencies and state-run organizations and companies, the CCP also recruits members of the Chinese diaspora, including entrepreneurs, researchers and students, as well as foreign nationals through its Confucius Institutes, which it promotes as cultural centers, to advance its efforts.

Stealing military and trade secrets is not only lucrative but also strategic. It lets countries "leapfrog up global value chains relatively quickly, and without the costs, both in terms of time and money, of relying completely on indigenous capabilities," Nick Marro, an analyst from the Economist Intelligence Unit, the research and analysis division of global media company The Economist Group, told the BBC in January 2023. For example, individuals tied to Chinese state-linked commercial entities dug up genetically modified seeds from U.S. farms to avoid spending billions of dollars on yearslong research and development, according to Wray.

POACHING MILITARY TECHNOLOGY

Similar tactics in the military arena appear to have borne ill-gotten fruits. The Chinese military's development of the J-20 stealth jet fighter is a leading example. CCP operatives stole core technologies through a series of hacks into U.S. servers at the Pentagon in 2007, 2009 and 2011, according to aviation analysts. The CCP also gained access to a U.S. F-117 that crashed in Serbia in 1999, enabling Beijing to potentially reverse engineer the stealth aircraft's capabilities. The J-20's development began in

A People's Liberation Army J-20 stealth fighter performs during an air show in China. U.S. officials allege the CCP stole technologies needed to develop the jet. THE ASSOCIATED PRESS



U.S. Navy Sailors recover remnants of the Chinese high-altitude surveillance balloon shot down by a U.S. fighter jet off South Carolina in February 2023. PETTY OFFICER 1ST CLASS TYLER THOMPSON/U.S. NAVY

The U.S. Cybersecurity and Infrastructure Security Agency warned in 2021 that state-backed Chinese hackers exploited networking devices to spy on defense industry and financial sector targets in Europe and the U.S. THE ASSOCIATED PRESS

about 2006 and the fighter entered service in 2017. As test flights increased in 2015, news reports detailed remarkable similarities between the Chinese jet and the F-22 Raptor, the U.S.'s most advanced fighter.

"What we know is that because of the espionage efforts, [China's] J-20 is more advanced than it otherwise would be, and that's the important point here," James Anderson, a former acting U.S. undersecretary of defense for policy, told Fox News Digital in March 2023. "They have profited greatly from their thievery over the years. They've put it to good use, and they've come up with an advanced fifth-generation fighter.

"It saves the Chinese time and money. In effect, we end up subsidizing a portion of their research and development budget because they are successfully stealing some of our secrets," Anderson said. "Ultimately, this puts our men and women at greater risk on the battlefield."

While it's challenging to calculate the financial cost of the Chinese government's spying on strategic competitors, "it's crystal clear that China is quickly eroding the U.S. advantage in aerospace technology," Anderson said.

Moreover, "Chinese espionage compromises U.S. dependency on space capabilities for communications, economic strength, critical infrastructure safety and resiliency, and our ability to project military power globally," Nick Eftimiades, a retired U.S. intelligence official, wrote in an October 2020 article for Breaking Defense, a digital magazine on defense strategy, politics and technology.

But "short of actual combat," Anderson said, it's hard to know how the J-20 compares with the Raptor. The

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>
> — FBI Director Christopher Wray

FBI Director Christopher Wray, right, and Gen. Paul Nakasone, then head of U.S. Cyber Command and the National Security Agency, arrive at the U.S. Capitol in March 2023 for a hearing on worldwide threats. THE ASSOCIATED PRESS

journal International Security questioned the Chinese fighter's capabilities in a 2019 article titled "Why China Has Not Caught Up Yet: Military-Technological Superiority and the Limits of Imitation, Reverse Engineering, and Cyber Espionage." Researchers found that "serious doubts persist about whether the performance of the J-20 comes close to that of the F-22. In fact, anonymous Chinese sources have admitted that the CCP rushed the J-20 into service in response to increasing tensions in the South China Sea, despite capability gaps that make it inferior to the F-22." The study concluded, "China's struggle to develop an indigenous aircraft engine throws into question the theory that China has closed the military-technological gap with the United States with respect to fifth-generation fighters. Possibly, even more important, it also illustrates that the advantages of imitation that China has enjoyed have inevitably been limited."

The CCP has copied or reverse-engineered a plethora of technologies from other militaries. The Rostec Corp., a Russian defense conglomerate, accused Beijing in 2019 of copying aircraft engines, Sukhoi planes, deck jets, air defense systems, portable air defense missiles and medium-range surface-to-air systems, among other technology, the Nikkei Asian Review reported. Russian President Vladimir Putin founded Rostec in 2007.

Analysts say the Chinese government continues targeting Russia to acquire sensitive military technology, according to a May 2022 report by Check Point, an Israeli-U.S. cybersecurity firm. Using phishing and hacking, the CCP in recent years tried to infiltrate Russian institutes for research on satellite communications, radar and electronic warfare technology, The New York Times newspaper reported.

ECONOMIC SECURITY THREATS

In July 2022, top United Kingdom and U.S. intelligence officials warned business leaders, especially in Western countries, of the CCP's "immense" threat to economic and national security. Wray told business and university executives gathered in London of the CCP's intent to dominate key industries, according to the BBC. The CCP poses "an even more serious threat to Western businesses than even many sophisticated businesspeople realized," Wray said. The CCP is spying on companies worldwide "from big cities to small towns — from Fortune 100s to startups, folks that focus on everything from aviation to AI [artificial intelligence] to pharma," he said, according to the BBC. A 2018 U.S. government study determined that the PRC's trade secret theft could cost the U.S. up to $540 billion annually.

"Chinese intelligence operations are the first in modern times to use, as a foundation, the whole of society," Eftimiades wrote in Breaking Defense. "Because of this, China's espionage tactics are sometimes artless, operating with little in the way of standard spy-fare, (encrypted communication, dead

drops, etc.) instead relying on an overwhelming volume of espionage operations conducted by all manner of citizen and a sort of impunity inherent in the lack of substantive penalty for when a Chinese agent is discovered."

The CCP coerces and threatens its citizens, commercial entities and expatriates as well as Chinese academics and foreign researchers into contributing to its intelligence-gathering network, experts contend. The CCP runs at least 500 so-called talent programs to enlist Western academics and business professionals in the effort, according to Eftimiades. Most operatives work under the CCP's Central Military Commission Joint Intelligence Bureau, the Ministry of State Security, which is the CCP's civilian intelligence agency, or for state-owned enterprises, he wrote.

> "The scale of [the CCP's] hacking program, and the amount of personal and corporate data that their hackers have stolen, is greater than every other country combined."
>
> — FBI Director Christopher Wray

The CCP's whole-of-society approach is only part of its strategy, however. It also has deployed cyber espionage to "cheat and steal on a massive scale," Wray said. "The scale of their hacking program, and the amount of personal and corporate data that their hackers have stolen, is greater than every other country combined," he told NBC News.

Attempts to rein in the CCP's program have generally fallen short. Although the Chinese government signed a deal with the U.S. in 2015 pledging not to engage in "cyber-enabled theft of intellectual property, including trade secrets or other confidential business information for commercial advantage," the CCP allegedly violated the agreement within a year.

The U.K. and U.S. have shared intelligence about CCP cyber threats with 37 allies and partner nations, according to Ken McCallum, head of MI5, the U.K.'s security service, the BBC reported. Cybersecurity experts, by tracking digital trails, have in recent years connected many cyberattacks to hackers with clear ties to Beijing, according to The New York Times. In 2020, the U.S. indicted hackers based in China who infiltrated more than 100 businesses, nonprofits and government agencies in the U.S. and other countries, stealing intellectual property and intelligence information. The hackers have ties to APT41, a group linked to the CCP, according to The New York Times. Their prosecutions were ongoing as of mid-2023.

The CCP has also targeted Indo-Pacific economies over the past decade. From its base in China, a group of hackers dubbed Mustang Panda has attacked organizations in India, Myanmar and Taiwan, among other places, according to the U.S. security firm Cisco Talos, The New York Times reported. Meanwhile, the China-based group Bronze Butler tried to steal the intellectual property of technology companies in Japan from 2012-17, according to SecureWorks, a U.S.-based information security firm. Bronze Butler exploited software flaws and security gaps in computer systems to masquerade as a trusted entity and acquire sensitive information, according to the firm.

The PRC has allegedly targeted key technology sectors in its spying endeavors, including aerospace and aviation equipment, pharmaceutical development, bioengineering, and nanotechnology, to produce materials for use in other industries such as medicine, textiles and automobiles, Ray Wang, founder and CEO of Constellation Research, a consultancy based in Silicon Valley, told the BBC. The CCP's espionage prioritizes technologies aligned with its economic strategies, such as its Made in China 2025 industrial policy, its five-year plans and other policy documents that identify gaps in its technology, commercial and military enterprises. That reflects "a congruence between China's public and covert operational goals," according to Eftimiades, who analyzed nearly 600 cases of CCP-sanctioned intelligence collection efforts in a 2020 study titled "A Series on Chinese Espionage — Operations and Tactics."

ESPIONAGE AS WARFARE

In many regards, espionage is a component of warfare as part of a strategy to undermine an adversary's economic prosperity. Trade secret theft ultimately shrinks gross domestic product and causes job losses in the target country, analysts note. Stealing proprietary business information not only confers an unfair competitive advantage but cumulatively degrades a rival's economic prosperity.

Allies and Partners must do more to combat the CCP's espionage. Although nations have tried foreign policy initiatives and negotiating tougher trade policy, such measures remain insufficient in deterring the CCP's global espionage campaign. As a result, like-minded nations are seeking to expand international coordination and to leverage and widen alliances to

reinforce international norms and increase enforcement under existing laws. But much work remains.

In recent years, many countries have thwarted high-profile CCP attempts at theft and increased prosecutions. In January 2023, for example, the U.S. sentenced Zheng Xiaoqing to two years in prison for stealing information from his then-employer, General Electric (GE) Power, related to the design and manufacture of gas and steam turbines, including proprietary blades and seals.

The U.S. Justice Department opens an investigation involving the PRC every 10 hours, according to Wray, and now has more than 2,000 cases underway. The U.S. also sentenced Chinese national Xu Yanjun in November 2022 to 20 years in prison for plotting to steal trade secrets from U.S. aviation and aerospace companies, including GE. Xu, reportedly the first Chinese intelligence officer extradited to the U.S. to stand trial, stole the information by obscuring it within the coding of another data file and sending it to the PRC. Alan Kohler, then-FBI assistant director of counterintelligence, called Xu's actions a form of the CCP's "state-sponsored economic espionage," Fox Business News reported. "For those who doubt the real goals of the PRC, this should be a wake-up call. They are stealing American technology to benefit their economy and military," Kohler said.

The U.S. sentenced Xu Yanjun to 20 years in prison in November 2022 for plotting to steal trade secrets from U.S. aviation and aerospace companies. He is reportedly the first Chinese intelligence officer extradited to the U.S. to stand trial. THE ASSOCIATED PRESS

Similarly, MI5 has significantly increased its efforts against Chinese espionage. In 2022, the security agency was running seven times as many CCP-related investigations as it did in 2018, and the number continues to climb, McCallum told the BBC.

INCREASING COUNTERMEASURES

Given that the Chinese government has much to gain by stealing trade secrets and technologies, Allies and Partners must continue to impose higher costs on individuals and organizations engaged in such clandestine illicit activities.

The U.S., for its part, is countering CCP efforts to steal semiconductor technology. In October 2022, the U.S. announced export controls requiring any chipmaker using U.S. software or tools to obtain a license before exporting chips to China.

The measures also block U.S. citizens and permanent residents from working for certain Chinese chip companies.

Among the new measures, "use of the foreign direct product rule will prevent companies anywhere in the world from selling advanced chips to Chinese firms or organizations engaged in AI and supercomputing activities without a U.S. government license if the companies use American technology to make the chips, as nearly every semiconductor company globally does," according to The Washington Post newspaper. The measures will make it more difficult for Chinese companies and military organizations to obtain other foreign-made technology products that were manufactured using U.S. tools and designs, the Post reported.

The U.S. government has implemented tougher measures to thwart cyber espionage by increasing efforts to protect critical infrastructure and sensitive computer networks. It is also partnering with the private sector to mitigate malicious activities in cyberspace.

Moreover, building security partnerships with Allies and Partners has become an increasingly important priority for protecting cyber networks and stopping espionage throughout the Indo-Pacific and beyond. For example, members of the Quad partnership, which includes Australia, India, Japan and the U.S., have pledged to cooperate and share information in the cyber domain. Other nations in the region are also collaborating in new ways, such as by conducting cyber-related military exercises, to help develop technologies and capabilities to counter cyber theft and other menaces.

Militaries and nations have realized that cyber threats to critical infrastructure top the challenges that nations face today and the dangers are only becoming more complex. To counter them, the U.S., its Allies and Partners are seeking to find better ways to impose diplomatic, economic and informational costs on adversaries who engage in economic cyber espionage, officials said. A coordinated regional and international response may be the best hope for compelling change and curtailing the CCP's espionage enterprise. □

‘AIM FOR SEAMLESS’

Australia’s Department of Defence chief technology officer sees science, cooperation as essential for stability, peace

FORUM STAFF

PHOTOS BY AUSTRALIAN DEFENCE DEPARTMENT

Dr. Nigel McGinty

Australia's Department of Defence prioritizes technology and innovation in its efforts to preserve a global rules-based order and a Free and Open Indo-Pacific. Dr. Nigel McGinty is at the forefront as the department's chief technology officer for science strategy, communications and international engagement. McGinty, a panelist at the 2023 Pacific Operational Science & Technology (POST) conference in Hawaii in March, spoke with FORUM about his mission to establish an atmosphere that encourages original ideas and multilateral cooperation to develop and deploy new technologies. The conversation has been edited to fit FORUM's format.

What are your job duties and what do you hope to accomplish?

My role is shaping and guiding the science strategy for the organization — science, innovation and technology as they apply to defense and security. Where is Australia heading and what are our target goals? For those who don't work in these worlds, we have to explain their importance to the foundation of what Australian defense does — always aiming to articulate where we need to head in a clear and compelling way.

The international piece is critical for the Defence Science and Technology Group [DSTG]. We aim to achieve outcomes through international partnerships and helping to establish those relationships is part of my role. So much of it comes down to people and good relationships. We have strong partnerships with many nations, including the U.S., Canada, New Zealand, Japan, Singapore, the Republic of Korea, France and Sweden. Wide-ranging partnerships with nations that share values are essential. We can only achieve a rules-based global order together. I've got a team that works with me, helping to lead and facilitate what DSTG does collaboratively.

We want to focus more on next-generation capabilities. That's my challenge. When I eventually finish in this role, I'd like to say we helped make it bigger, better, stronger in Australia.

Is there value in tackling challenges multilaterally, as opposed to each country doing innovation and development unilaterally?

It can be more valuable to look multilaterally, but it also can take more time. As a comparison, say you have three or four people in a room trying to design something. Everyone is trying to get their concepts into the project, right? An alternative, to establish momentum, is one person starts the ball rolling and then others join in and add to it. The project evolves over time. You get sort of a template from one person, or one country, and then the others join in on it. We need to be open to bring in collaborators.

A collaborative project has to meet the needs of all partner nations, most simply how to integrate into the force structure. The project has to evolve with a co-design philosophy. I think this is a practical way to develop something, and it can happen quickly. Otherwise, if you've got lots of stakeholders offering up needs, you just get stuck in a system that is overly complex. And we've got to unstick things.

Partnership, with everyone working together in an interactive, evolved way, is the future. An example is the Technical Cooperation Program in which Australia, Canada, New Zealand, the United Kingdom and the United States collaborate on strategy-led science and technology initiatives. It's a forum for exchanging ideas and expertise to extend each nation's research and development accomplishments while avoiding duplication and improving interoperability.

Does sharing information jeopardize a nation's security?

I get that every nation must protect its crown jewels. However, the very essence of the scientific principle is publication and peer review — enabling open science. We need to become protective later in the cycle when we start to think about application and if the technology or scientific breakthrough will gain a military capability advantage.

Among our defense departments, for us to really have this seamless, collaborative, innovative, creative moment, we need to be more free with our information.

Australia's Defence Science and Technology Group is participating in development of a rocket that travels more than five times the speed of sound.

This needs to be underpinned by trust. We're different countries, but we're aligned in our values and beliefs. In the international sphere, what we are seeing now is far more agility, a far stronger push by all sides to do more. And that's fantastic.

You have said that innovation is a creative activity but also that it needs to happen quickly. Is that a conflict?

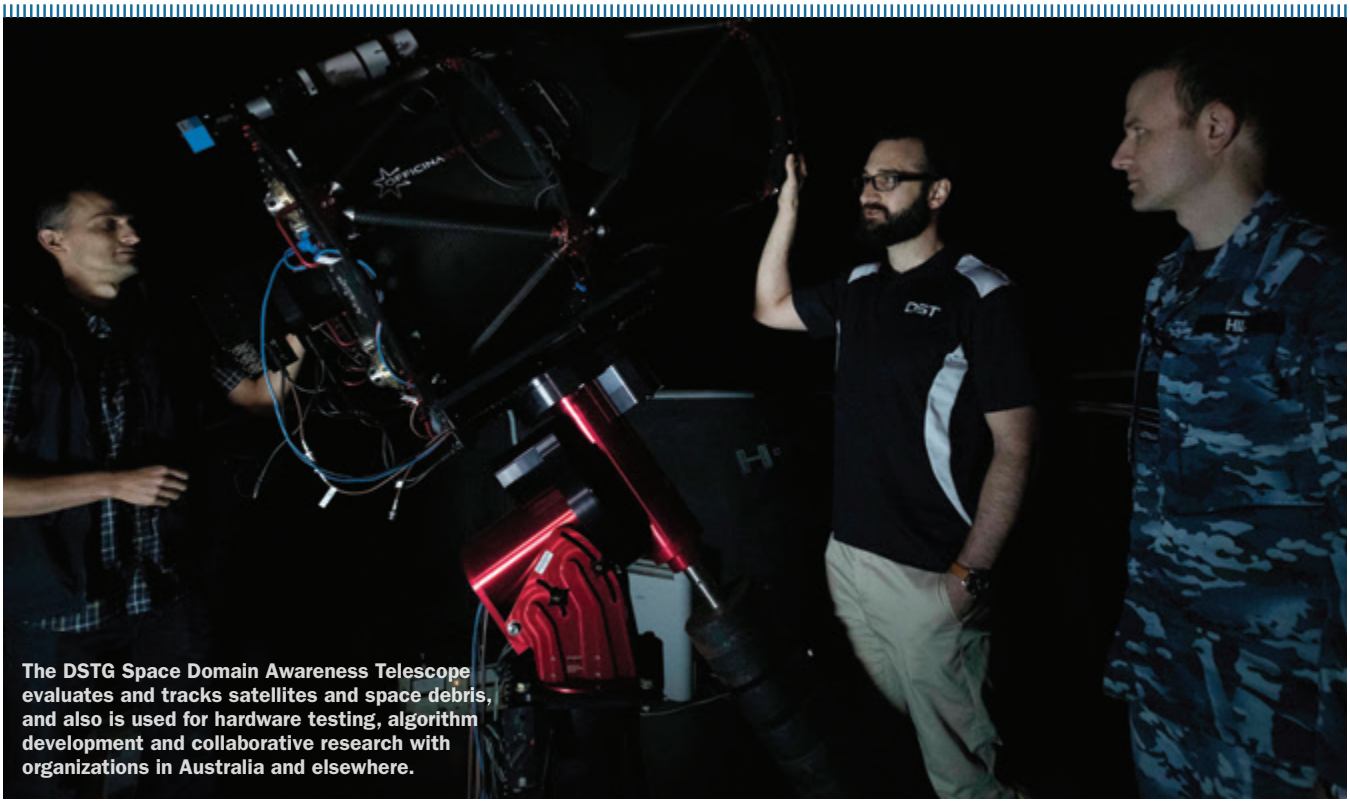
I don't think so. Remember, some of the great artists we have are very, very fast at producing great works. It doesn't need to take 10 years to develop and deploy something. World War II didn't take that long and look at everything that was envisioned and created in that time frame. We need to look at developments that are practical but also at how to do things quickly. We do that by starting with a Model T and getting to a Rolls Royce over time. That's another piece of this. I think we get caught up in the 10-year development period where we calculate all the different parameters that we need a particular thing to do as opposed to sitting down in that collaborative way to understand the co-design element. You know, what can we do quickly? Can we achieve, say, 90% of what we're seeking to accomplish? We might be able to do that, you know, in a week. But 100% is going to take us five years.

Defense is quite traditional in the way it looks at capability development. But the traditional approach can be slow and exceedingly expensive. So, we do need to look at how we can accelerate the uptick of technology to provide capability advantage, particularly for Australia or a small nation. How can we get an asymmetric advantage with technologies and capability that has some sort of multiplying effect?

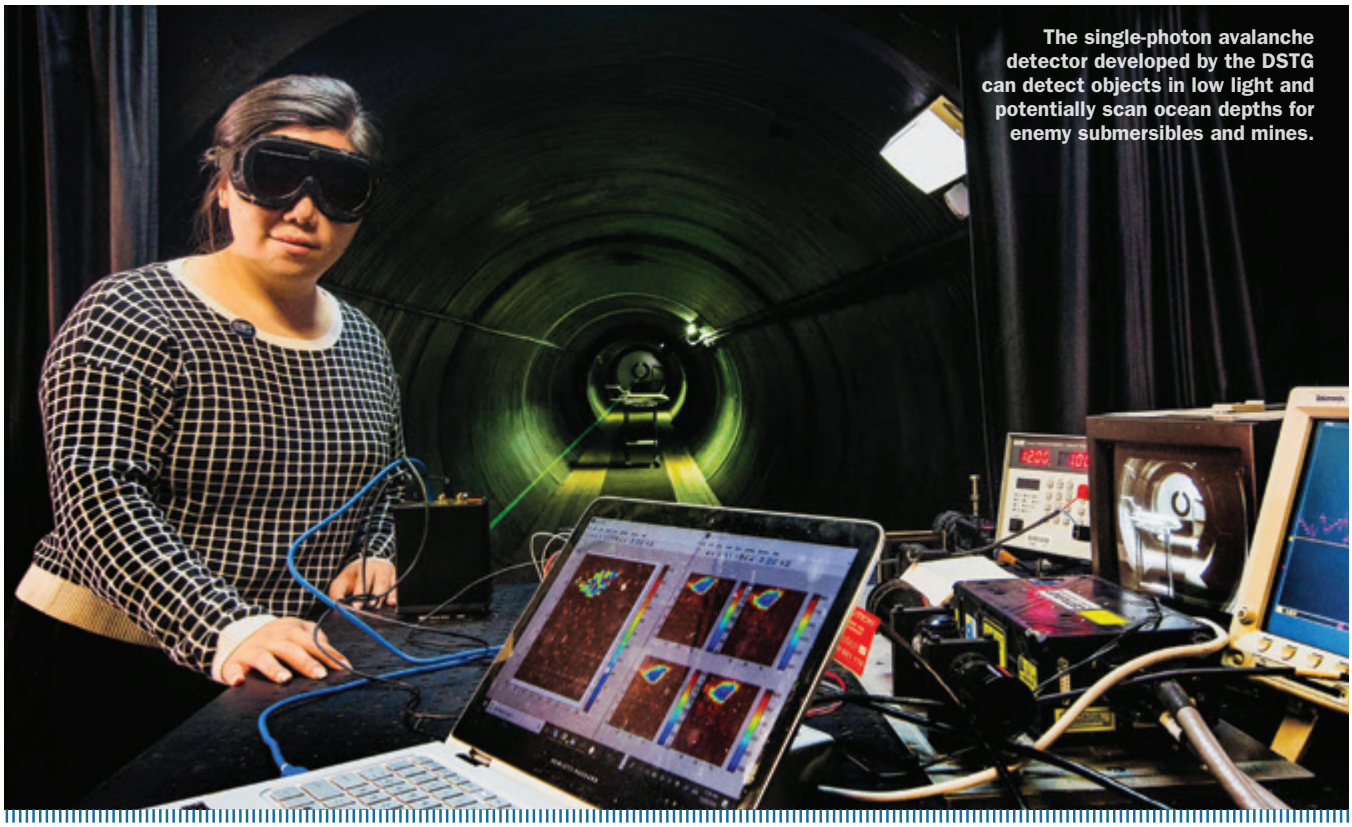
We need to explore nontraditional ways to come together and determine what we can achieve quickly and keep improving that capability over time as opposed to trying to make the Rolls Royce the first time around. Essentially, the heart of science and technology and the great world that we live in is continual improvement. So, we need to be able to get some transformational capabilities in and then improve over time. Essentially, that's what I'm advocating.

Is there more communication now between government — specifically defense — and private industry?

That's what this [POST] conference is all about. Is there more of a connection now? Is there more emphasis on trying to get private industry to work with government, with the Department of Defence, to figure things out? Yes. In 2016, our Defence Department pivoted. We made a commitment that industry was fundamental to capability, and that means that we're in partnership with industry. That's across the whole range of activities of what Defence does but most definitely includes research and development. So that's important. In 2016, Australia invested in innovation through the creation of the Defence Innovation Hub and the next-generation technology fund. We've been able to lift the bar with programs to sponsor and build up smaller industries, smaller companies. SMEs [small- and medium-sized enterprises] connect researchers with commercialization partners to look at potential



The DSTG Space Domain Awareness Telescope evaluates and tracks satellites and space debris, and also is used for hardware testing, algorithm development and collaborative research with organizations in Australia and elsewhere.



The single-photon avalanche detector developed by the DSTG can detect objects in low light and potentially scan ocean depths for enemy submersibles and mines.

opportunities. Companies are being established on that business model. We're where we are because companies have created unique innovation systems. The Advanced Strategy Capabilities Accelerator is the next revolution in Australia's defense innovation system.

What are your biggest challenges?

It's an expensive business and money never is secondary. But the greatest challenge is finding people who can fulfill the mission, people who can see what we need to accomplish and meld it with the art of technology. Innovation is a creative process. It's a special kind of person who can articulate a vision and then start to work through it. DARPA [U.S. Defense Advanced Research Projects Agency] does this well.

If you can sell a vision, you can get people on board, organize financing, line up companies, get the military people, the scientists. It's that connectivity. What are the paths we can take? If the mission is well articulated and clear to everybody, and you have the right people in place, things fall in line and begin to move forward. You can start to build programs.

Australia is investing in innovation. The Australian system has grown able to absorb more and now has a more mature innovation ecosystem.

Are conferences such as POST valuable?

Absolutely. We need to have more events like this. We need to stay more connected. Technology allows us to meet regularly and has made the world a smaller place. But meeting in person and building relationships is essential. These conversations streamline the process of establishing MOUs [memorandums of understanding] and making project arrangements. I connect with colleagues from the Pentagon, in person through events like POST and virtual, more than I ever did pre-COVID-19.

COVID-19 forced our hand to communicate even more because you couldn't meet in person all the time. Before the pandemic, we got together a few times a year in a meeting room and talked about opportunities. Then we went back to our respective nations and went about the business at home. During COVID, a lot of events like this conference were not taking place. So, we had to figure new ways to communicate. We've seen the value of frequent discussions and now we're more open to them. To enable strong, productive international partnerships means we need to fuse events like POST with online engagements. I would say meeting virtually does mean it's a little bit early for me in Australia. Science can't get around time zones — yet.

Where are we headed?

Technology is rapidly advancing and is transforming militaries. Autonomy, AI [artificial intelligence], quantum, hypersonic propulsion and hyperconnectivity are foundations of this transformation. Anything seems possible, as scary as that might be. The world's just different, and this needs to be managed in partnership. And although Allies and Partners are communicating better, no doubt so is the rest of the world. We need to do things in less bureaucratic and more productive ways, with more transparency. Aim for seamless. □

SCIENTISTS IDENTIFY 380 MORE SPECIES IN MEKONG REGION

RADIO FREE ASIA

An aggressive color-changing lizard, a venomous snake named after a goddess in Chinese mythology and a camouflaging green frog found only in the forested limestone mountains of northeastern Vietnam were among the hundreds of plant and animal species discovered in the Mekong River region in the past two years, researchers announced in May 2023.

Hundreds of scientists from across the globe discovered 175 species in 2021 and 205 in 2022 in Cambodia, Laos, Myanmar, Thailand and Vietnam, the World Wildlife Fund (WWF) reported.

"These remarkable species may be new to science, but they have survived and evolved in the Greater Mekong region for millions of years, reminding us humans that they were there a very long time before our species moved into this region," said K. Yoganand, WWF-Greater Mekong regional wildlife lead. "We have an obligation to do everything to stop their extinction and protect their habitats and help their recovery."

The newly declared species include a thick-thumbed, mouse-eared bat, whose specimen sat in a Hungarian museum for 20 years. Another is a plant collected in the 1930s but only recently confirmed to be a novel species by a new team of researchers.

Several new species remain at risk due to human activities. A Cambodian casino, dam and residential development contribute to the destruction of an evergreen shrub, while agricultural encroachment, logging and collection for medicinal purposes threaten a Thai crocodile newt in Vietnam.

In total, scientists discovered 290 plants, 19 fish, 24 amphibians, 46 reptiles and one mammal in the past two years, bringing the number of discoveries in the Mekong region to 3,389 since 1997, when WWF started collecting new species data.

According to a 2011 study, scientists have identified only 1.6 million of the planet's estimated 8.7 million species, meaning that more than 80% of species remain undiscovered.

The wildlife conservation group also called on governments to increase protection for rare creatures and their habitats. The new species are "under intense pressure from deforestation, habitat degradation, road development, loss of streams and rivers, pollution, diseases spread by human activities, competition from invasive species, and the devastating impacts of illegal wildlife trade," the WWF reported. "Sadly, many species go extinct before they are even discovered."

A senior Vietnamese scientist said discoveries of new species help fill gaps in knowledge about the natural world.

"They also fill us, the researchers, with wonder and trepidation — wonder that there are still countless species yet to be found, and trepidation that there isn't enough time to find, understand and conserve them," said Truong Q. Nguyen, vice director at the Institute of Ecology and Biological Resources at the Vietnam Academy of Science and Technology.

"The Greater Mekong region is recognized as a biodiversity hotspot — also known as the Indo-Burma hotspot," Nguyen said in the report's foreword.

The region contains iconic and endangered species, including the tiger, the Asian elephant, the Sunda pangolin and the giant freshwater stingray. However, its biodiversity faces "tremendous pressures from economic development and human population growth, which drive deforestation, pollution and overexploitation of natural resources, compounded by the effects of climate change," Nguyen said.

The Greater Mekong region houses species such as the giant freshwater stingray, which can grow up to 4 meters long and weigh 300 kilograms. REUTERS

INSETS: The recently discovered Cambodian blue crested agama can change color as a defense mechanism. Males display territorial and aggressive behavior, especially when guarding eggs. HENRIK BRINGSOE VIA WORLD WILDLIFE FUND

The Khoi's mossy frog, found only in the limestone mountains of northeastern Vietnam, is among the hundreds of new species discovered in the Greater Mekong region since 2021. NGUYEN THIEN TAO VIA WORLD WILDLIFE FUND

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Australian Soldiers conduct urban warfare training during Southern Jackaroo 2023, held with Japanese and United States personnel at the Townsville Field Training Area in Queensland, Australia. Fiji, France and Tonga also participated.

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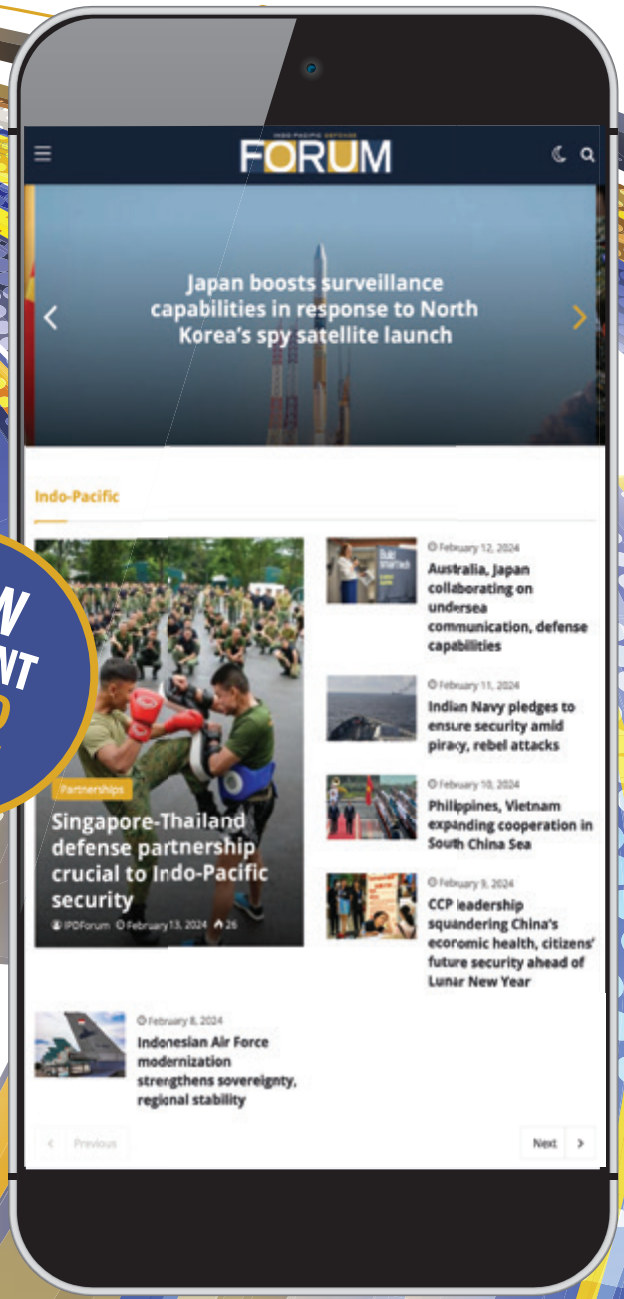

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