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ABOUT THE COVER:

This collage depicts the multi-domain battle concept and highlights the warfighting — air, land, sea, space and cyberspace — that must be mastered and integrated by today's military leaders.

FORUM ILLUSTRATION



Dear Readers,

elcome to Indo-Asia-Pacific Defense FORUM's fourth-quarter edition for 2017, which examines contemporary definitions of deterrence amid the ever-changing security threats in the Indo-Asia-Pacific region.

Deterrence has taken on a new meaning as we move well beyond the Cold War era and approach the third decade of this century. In the Indo-Asia-

Pacific and elsewhere, new and more varied threats of greater magnitude emerge at a faster pace and often with more intensity than in previous times. The challenges range from the pursuit of nuclear-armed missiles by North Korea and China's militarization of the South China Sea, to the terror tactics of violent Islamic extremists in the Philippines and the return of foreign fighters from Iraq and Syria. Allies and partners in the region need to work together to better understand these menaces and develop new ways to effectively suppress and counter them.

This issue of FORUM opens with an overview of the multi-domain battle concept and how it applies to multilateral relationships and responses. Other articles address such topics as how India is deterring internal threats to security and how Russia factors in the balance of power in the region. We also examine how a multifaceted type of deterrence has emerged in the submarine arms race in the Indo-Asia-Pacific. The dynamics of this contest help illustrate how nuclear, unconventional, and conventional deterrence become increasingly intertwined in the prosecution of security strategies.

Emerging technologies also factor in deterrence. New weapons can help lessen threats, but quickly advancing technologies can accelerate the implementation of asymmetrical tactics and capabilities in warfare. Moreover, traditional retaliatory strikes against actors who carry out today's terror and cyber attacks are becoming increasingly challenging.

Allies and partners in the region must continually develop new strategies and methods to dissuade such threats and peacefully resolve conflicts. Better deterrents will convince potential adversaries that any action against our collective security interests will lead to a decisive and overwhelming reponse. Developing new ways to respond more quickly to these new threats will also strengthen alliances and partnerships.

I hope that you find this edition insightful and thought-provoking, and I welcome your comments. Please contact the FORUM staff at iapdf@iapdforum.com with your perspectives.

All the best.

HARRY B. HARRIS, JR. Admiral, U.S. Navy

Commander, U.S. Pacific Command

IAPD FORUM

Deterring Threats

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USPACOM LEADERSHIP

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OPERATIONAL SCIENCE AND TECHNOLOGY CONFERENCE AND EXPO

From March 5 to 9, 2018, the U.S. Pacific Command (USPACOM) Science and Technology (S&T) Office, in conjunction with TechConnect, will host the Pacific Operational Science and Technology (POST) Conference at the Sheraton Waikiki Hotel in Honolulu, Hawaii, and the Hale Ikena Conference Center in Fort Shafter, Hawaii. The 2018 conference will focus on "Transitioning Technology into Capability with our Indo-Asia-Pacific Warfighters and Partners."

USPACOM is bringing together senior U.S.

Department of Defense leaders from across the services and agencies, senior leaders from the international S&T community, industry executives and engineers, and university representatives and scientists to collaborate on how we can contribute to peace and stability in the Indo-Asia Pacific region through science and technology.

We will conduct a USPACOM S&T portfolio review, discuss ongoing and future Joint Capability Technology Demonstrations, Rapid Innovation Fund projects, and other joint S&T projects. We will also have a classified level session that will highlight the USPACOM Integrated Priorities List.

Science and technology are critical enablers for improving operational effectiveness and efficiencies in a vast, diverse and complex area of responsibility. (Pictured: A U.S. Defense Advanced Research Projects Agency photo illustration of its Mobile Force Protection concept.) Join S&T leadership as we transition technology into capability with our Indo-Asia-Pacific warfighters and partners.

For more information, visit https://events.techconnect.org/POST/



Stomping Ground for -CIANTS-

Scientists have found what could be the world's largest dinosaur footprint — measuring nearly 1.7 meters — on a remote part of Australia's northwestern coastline.

The footprint from a giant sauropod dinosaur was among 21 types of tracks found on the Dampier Peninsula in Western Australia, 130 kilometers from the beach resort town of Broome. "They are bigger than anything that has been recorded anywhere in the world," said Steve Salisbury, lead author of a joint study by the University of Queensland and James Cook University.

Sauropods were four-legged plant eaters with long necks and tails, pillar-like legs and immense bodies. Sauropod footprints measuring 1.2 meters were found in Germany in 2015.

The rocks containing the tracks at Dampier date back 127 million to 144 million years, older than previous dinosaur fossil discoveries in Australia, Salisbury said. "Most of our dinosaur fossils come from the

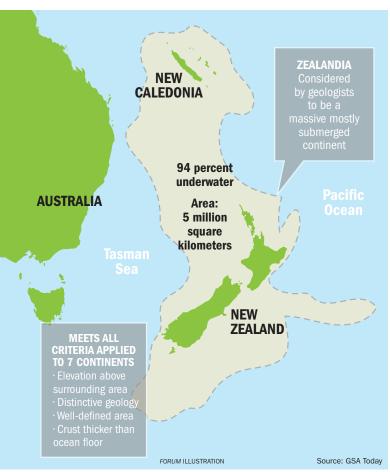


east coast, or east Australia, and they are between 115 million and 90 million years old," Salisbury said.

The scientists also found tracks from six types of meat-eating dinosaurs and the first evidence of armored stegosaurs. Reuters

NEW ZEALAND

THE LOST CONTINENT



New Zealand sits atop a previously unknown continent — mostly submerged beneath the South Pacific — that should be recognized with the name Zealandia, scientists said in February 2017.

Researchers said Zealandia is a distinct geological entity and meets all the criteria applied to Earth's seven other continents — elevation above the surrounding area, distinctive geology, a well-defined area and a crust much thicker than that found on the ocean floor.

In a paper published in the Geological Society of America's journal, *GSA Today*, researchers said Zealandia measures 5 million square kilometers and is 94 percent under water. The paper's authors said it has three major landmasses: New Zealand's North and South Islands to the south and New Caledonia to the north.

The scientists, mostly from the official New Zealand research body GNS Science, said Zealandia was once part of the Gondwana supercontinent but broke away about 100 million years ago. "The scientific value of classifying Zealandia as a continent is much more than just an extra name on a list," they wrote. "That a continent can be so submerged yet unfragmented makes it [useful] ... in exploring the cohesion and breakup of continental crust."

Lead author Nick Mortimer said scientists have been gathering data to make the case for Zealandia for more than 20 years. Their efforts were frustrated, however, because most of Zealandia is beneath the waves. "If we could pull the plug on the oceans, it would be clear to everybody that we have mountain chains and a big, high-standing continent," he said. Agence France-Presse



History-Making Trip

The first freight train to run from the United Kingdom (U.K.) to China departed in April 2017, carrying goods such as vitamins, baby products and pharmaceuticals as the U.K. seeks to burnish its global trading credentials.

The 12,000-kilometer journey from eastern England to eastern China was to take 17 days, about half the time needed for the equivalent journey by boat. The first freight train from China arrived in the United Kingdom in January 2017. The bright red train left a depot at Stanford-Le-Hope in Essex for Barking in east London, hauling dozens of containers.

From Barking, it passed through the Channel Tunnel into France and on to Belgium, Germany, Poland, Belarus, Russia and Kazakhstan before ending up in Yiwu, China.

The United Kingdom is trying to enhance its trade links with the rest of the world as it prepares to leave the EU in two years' time.

"This new rail link with China is another boost for global Britain, following the ancient Silk Road trade route to carry British products around the world," said Greg Hands, a British trade minister.

Run by Yiwu Timex Industrial Investment, the Yiwu-London freight service makes London the 15th European city to have a direct rail link with China after the 2013 unveiling of the One Belt, One Road initiative by Chinese President Xi Jinping.

"This is the first export train and just the start of a regular direct service between the U.K. and China," said Xubin Feng, chairman of Yiwu Timex Industrial Investment Co. "We have great faith in the U.K. as an export nation, and rail provides an excellent alternative for moving large volumes of goods over long distances faster." Reuters

SLOWING THE DRUG SURGE

U.S. Pacific Command's task force on counterdrug programs, the Joint Interagency Task Force West (JIATF West), faces the challenging task of stopping the diversion of precursor chemicals for illicit drug production. It does this by coordinating law enforcement cooperation with intelligence and information exchanges.

In fiscal year 2015 alone, JIATF West enabled law enforcement efforts that led to the interdiction of 76 metric tons of precursor chemicals bound for methamphetamine production.

While the Indo-Asia-Pacific is home to more than 70 percent of the globe's methamphetamine abusers, the problem affects people and economies the world over. The task of supplying chemicals to legitimate pharmaceutical and manufacturing industries provides an opportunity for these same products to be diverted for illicit use. While manufacturers and suppliers benefit financially from the increased demand, the illicit diversion fuels a growing methamphetamine epidemic.

A July 18, 2016, report from the U.S. China Economic and Security Review Commission shows China is the world's largest chemical producer and exporter — shipping more than one-third of the world's chemicals. More than 160,000 known manufacturers produce everything from the simplest of chemical compounds to complex active pharmaceutical ingredients.



The prioritization of profit over people has created danger in the supply chain, while fueling a profitable criminal enterprise. One common tactic used by criminals for masking the diversion of these chemicals is to mislabel shipping documents — creating a hazardous environment throughout the supply chain, putting everyone at risk from the truck drivers, to the dock workers, to the crew onboard the container ship.

To thwart diversion techniques, China has begun working with the international community in establishing working groups, creating drug tracking systems and strengthening precursor regulations. However, the problem continues due to a lack of enforcement, monitoring and regulation. JIATE West



New Indonesian law to allow

JAILING of MILITANT RETURNEES

REUTERS



citizens for up to 15 years for coming home after joining militant groups abroad, lawmakers said in June 2017.

The tightening of anti-terrorism laws in the world's largest Muslim-majority country comes as concern grows about the spread of influence of the Islamic State of Iraq and Syria (ISIS), and amid fears that ISIS wants a foothold in Southeast Asia as it loses territory in the Middle East.

ndonesia is set to allow authorities to jail

"The new criminal code adopts the principle of universality, which means that wherever an Indonesian citizen commits a crime, they can be legally processed in Indonesia," said lawmaker Arsul Sani, referring to terrorism. "They can face up to 15 years in prison," he said.

The legislation was set to be approved in 2017, legislators said.

Suspected militants attend their sentencing hearing at East Jakarta District Court in Indonesia in June 2017.

THE ASSOCIATED PRESS

Law enforcement agencies have long complained of their inability to deal with people who have traveled abroad to join ISIS and then returned home. Authorities believe ISIS has thousands of sympathizers in Indonesia.

Hundreds of Indonesian men, women and children are thought to have traveled to Syria in recent years, and authorities believe about 400 Indonesians have joined ISIS. Dozens are believed to have returned to Southeast Asia.

The region, with a population of about 600 million, has suffered occasional militant attacks over the years since the September 11, 2001, attacks on the United States.

In particular, the Philippines and Indonesia have seen attacks by militants claiming allegiance to al-Qaida, and more recently to ISIS.

Government forces in the predominantly Christian Philippines battled militants linked to ISIS in Mindanao in the Muslim-majority south for much of May through October 2017.

In Indonesia, a suicide bomb attack by ISIS-inspired militants at a bus station in May 2017 killed three police officers.

Indonesia's tightening of its security laws is part of a revision that President Joko Widodo has urged to meet the new danger. Changes will broaden the definition of terrorism and give police powers to detain suspects without trial for a longer period of time.

Police will also be empowered to arrest people for hate speech or for spreading radical content, as well as those taking part in paramilitary training or joining proscribed groups.

National Police Chief Tito Karnavian said in June 2017 that security had been tightened that month ahead of the Eid al-Fitr festival that marks the end of the Muslim fasting month of Ramadan. He said 38 suspected militants had been detained.

Neighboring Malaysia and Singapore already have tough internal security laws that allow for lengthy detention without trial.

Alarmed by the surge of violence in the southern Philippines, Indonesia, Malaysia and the Philippines launched joint air and sea patrols in mid-June 2017 to prevent militants from crossing their common borders.



Republic of Korea F-15K fighters drop munitions over Pilsung Range during operations, which included U.S. F-35B stealth fighters and B-1B Lancer bombers. REPUBLIC OF KOREA AIR FORCE

UNPREDICTABLE BEHAVIOR



Joint forces view multi-domain battle as key to future success

FORUM STAFF

obal proliferation of advanced military technology has eroded to some degree the advantage the U.S. and its military partners have held for decades, allowing adversaries to threaten use of the air, sea, land, space and cyberspace domains.

U.S. commanders and their allies and partners in the Indo-Asia-Pacific region, however, envision a different battlefield. It's a battlefield without stove pipes, one in which navies protect land forces and armies sink ships. It's a battlefield concept that invokes every operating domain potentially all at once.

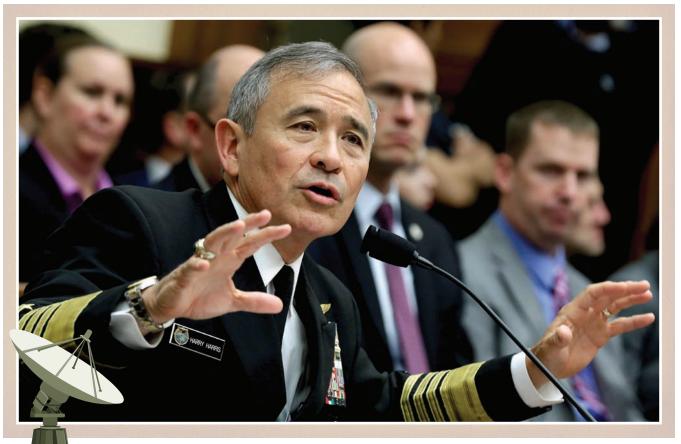
The name for this technological and philosophical leap into 21st century warfighting is called multidomain battle, and commanders see this increased agility as key to success in complex environments.

"I'd like to see the Army's land forces sink a ship, shoot down a missile and shoot down the aircraft that fired that missile," said U.S. Navy Adm. Harry B. Harris, Jr., commander of U.S. Pacific Command (USPACOM). "Components must increase their agility and provide support to each other across the warfighting domains."

Harris, who made the comments during the Association of the U.S. Army Institute of Land Warfare's Land Forces of the Pacific Symposium and Exposition (LANPAC) in May 2017, said the U.S., its allies and partners and even individual service components need to be more comfortable working in a "complex environment where our joint and combined forces are operating in each other's domains."

MULTI-DOMAIN BATTLE OVERVIEW

The goal of multi-domain battle is to enable the services to more effectively integrate capabilities across the air, sea, land, space, and cyberspace domains to deter and if necessary defeat highly capable potential adversaries. Enemies are posing unconventional threats — threats



U.S. Navy Adm. Harry B. Harris, Jr., commander of U.S. Pacific Command, says the United States will intensively focus its military training on multi-domain battle to better prepare forces for modern-day threats. REUTERS

from cyberspace, electronic warfare and even unmanned aerial vehicles and improvised explosive devices.

If the stove pipes of technology and of the different military command structures are taken down, however, the U.S. and its partners could regain the advantage, Harris said. Many service-specific technological systems present a challenge to doing so. The systems often don't talk to each other, which hampers commanders' abilities to deliver ordnance to targets in a timely fashion. The U.S. and its partners need to get "our alphabet soup of sensors and shooters talking to one another," Harris said. "Ideally, we'll get to a point where we'll see the joint force as a network of sensors and shooters, allowing the best capability from any single service to provide cross-domain fires."

That means the U.S. could detect a threat and Japan could eliminate it, or Australian sensors could detect a missile and relay the information to South Korea.

To test the concept, the U.S. Army of the Pacific (USARPAC) will begin testing these multi-domain capabilities with partners in the Indo-Asia-Pacific region at the Rim of the Pacific Exercise (RIMPAC) in 2018.

RIMPAC is the world's largest international maritime warfare exercise and is held biennially off the coast of Honolulu, Hawaii. In 2016, 26 nations, more than 40 ships and submarines, 200 aircraft and

25,000 personnel participated. In 2018, to test the multi-domain battle concept, U.S. Army forces will fire a naval strike missile from the shore to sink a ship, Harris said, adding that "our Japanese allies will also fire a shore-based missile" to subdue a threat at sea.

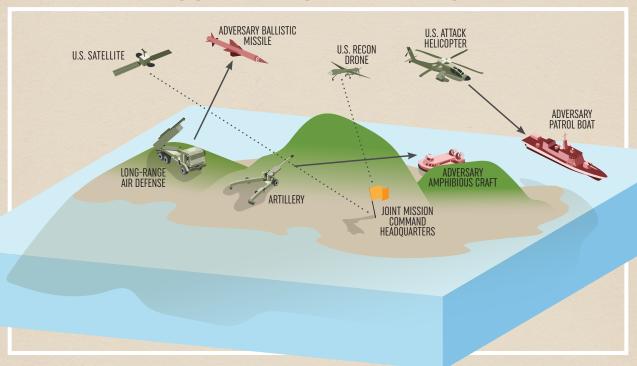
Gen. Toshiya Okabe, then chief of staff for the Japan Ground Self-Defense Force, said he looks forward to the day when the United States, Australia and other neighbors in the Indo-Asia-Pacific implement the multidomain battle concept. The interoperability it provides, he said, is essential to counter a potential adversary such as North Korea, which continues to defy United Nations sanctions related to its missile and nuclear weapons tests.

Multi-domain battle "must be very effective against North Korea," Okabe said during LANPAC 2017.

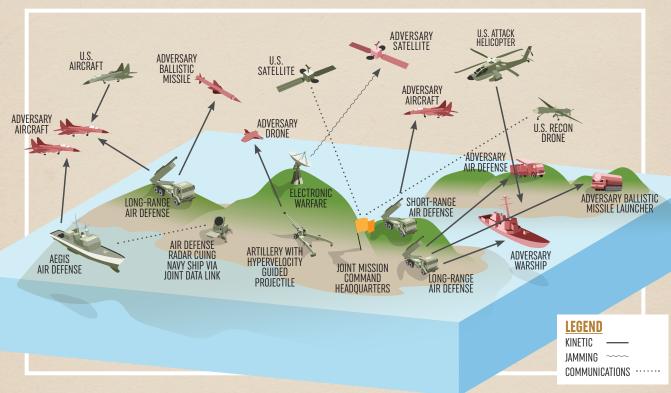
He also pointed out that trilateral cooperation and multi-domain battle integration involving Japan, the Republic of Korea and the United States will be important to deter the secretive and bombastic North Korean regime.

Okabe pledged to provide security cooperation with Japan's neighbors as well as the United States. "We will provide security cooperation to ASEAN [Association of Southeast Asian Nations] and to other countries in the region," Okabe said.

CURRENT CAPABILITIES



MULTI-DOMAIN BATTLE



The proliferation of advanced technology has eroded the advantage of the U.S. and its partners, allowing adversaries to threaten use of the air, sea, land, space and cyber domains. Multi-domain battle, which breaks down stove pipes and allows services to operate outside their conventional realms, adds a layer of unpredictability and efficiency needed for 21st-century warfighting. FORUM ILLUSTRATION

One of the keys to making those partnerships a success is to reduce the predictability of military operations, said Gen. David G. Perkins, commander of the U.S. Training and Doctrine Command.

If a problem arises in a domain — for example, a hostile ship poses a threat to U.S. forces — historically, the U.S. Navy would have been asked to deal with it.

"We tend to task that to the people who own it," Perkins said. The problem that creates, however, is that "if you only go after it with that domain, the enemy knows that."

CORE ADVANTAGES

One of the key advantages of perfecting multi-domain battle is that it presents military leadership with multiple options to resolve a range of threats.

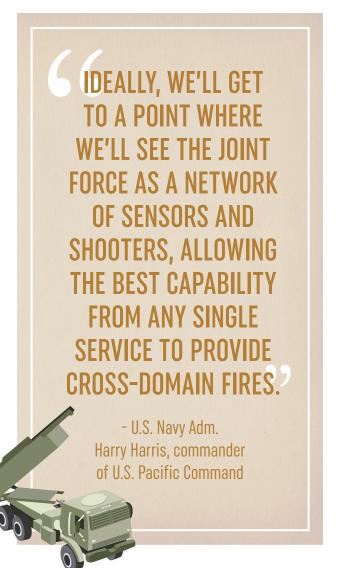
It integrates the capabilities of different services and even militaries from other countries to defeat potential adversaries or rogue states, U.S. commanders say.

Not everyone has to bring skills from all domains to the table or invest financially to the degree that larger countries can, Perkins said. For example, one country might have a small Army but superior cyber skills, which could be used to allow joint forces to disrupt the military communications or navigation of an adversary.

One hypothetical example is a country that can defend its territorial waters, he added, but doesn't have a "blue water" Navy to project power abroad. Perhaps, that country's contribution could be what the military calls A2AD, or anti-access/area denial. That country could defend its own territorial waters while agreeing to let the U.S. put military hardware in a militarily important geographic location to project power.

"You don't have to do it all," Perkins said.
A2AD is a strategy that primarily uses land-based or

shipborne cruise, ballistic and surface-to-air missiles to offset an opponent's capabilities. They are used to attack an enemy's critical ships, aircraft and ground sites. The progress that potential enemies have made across the globe in this arena, have, in part, necessitated the move toward multi-domain battle and less predictable war plans, U.S. commanders say.



REGIONAL CONTEXT

The rapidly growing economies, militaries and tensions in the Indo-Asia-Pacific necessitate the move toward a more sophisticated battle plan, wrote Gen. Robert B. Brown, commanding general of USARPAC, in an article on multi-domain battle.

The region contains 36 countries, more than half of the world's population, three of the world's largest economies and seven of the largest militaries.

Dramatic technological shifts are occurring with unmanned vehicle capabilities, robotic learning, artificial intelligence and big data, which expand military competition between rivals, Brown said. Many of these new technological tools depend on the use of digital connectivity, making cyber defenses paramount.

Couple this with a region that is facing increasing security challenges, he said, and the need for multi-domain

battle is obvious. The region wrestles with some of the world's most intractable challenges. North Korea flouts United Nations sanctions with its increasingly capable missile technology. China challenges international norms by militarizing the South China Sea, and Russia is active in the region with an increasingly provocative military posture, he said.

"The most dangerous threat in the Indo-Asia-Pacific comes from regional actors with nuclear arsenals and the intent to undermine the international order," Brown wrote. "Sophisticated denial capabilities and less-than-



Gen. Toshiya Okabe, former chief of staff of the Japan Ground Self-Defense Force, pledged security cooperation with his neighbors and allies and said he is excited about the prospect of countries in the region implementing multi-domain battle. STAFF SGT. DEBRALEE BEST/U.S. ARMY

military forces managed by the state but backed by large militaries with interior lines of communication create the danger of faits accomplis."

RISK TAKING

Battling unpredictable enemies requires culture change.
Implementing the multi-domain battle concept

across the Navy, Army, Marine Corps and Air Force will require intensive training and a culture change from the highest levels of the military, Harris said.

Technological upgrades must be made so threatdetection and weapons systems can talk to each other — both among U.S. services and potentially with partner nations.

"The joint force must have faster, longer-range, more precise, more lethal and importantly, cost-effective and resource-informed solutions," Harris said. "Not exquisite solutions that break the bank."

Speaking of the culture change that will be required in a universe where military services operate their own budgets and technological systems, Harris said: "I look at our risk-averse culture and shake my head."

Changing that culture, he said, demands a sustained effort. "We must incorporate this concept into the way we train year-round," Harris said. "We all know that tomorrow's fights are won during today's training."

The Army, in its description of multi-domain battle, acknowledged the cultural and technological changes required. "Adm. Harris has asked the Army to sink ships, neutralize satellites, shoot down missiles, deny enemy command and control forces and restrict maritime movement. To support that goal, the Joint Force must fully integrate their sensors and weapons systems more than before. Collectively, we must become sensor agnostic and shooter agnostic."

Perkins said shared training and professional military education will be key in driving this interoperability between services and among friendly militaries. "When you train together, you work through problems," Perkins said. "Plus, you build relationships."

When discussing the more nimble and interoperable nature of tomorrow's military, Harris likened it to ride-sharing companies such as Uber and Lyft, which provide apps detailing specific services. "Instead of ride sharing," Harris said, "I'm looking for target sharing."

With more sophisticated enemies, he added, the stakes are high. "Our country must maintain credible combat power in concert with like-minded allies and partners to preserve the unimpeded access to all the global commons," Harris said. "Freedom, justice and a rules-based international order hang in the balance."



DR. ALEXANDER KOROLEV

ussia's policies regarding the South China Sea (SCS) dispute are more complex than they might seem.

Moscow's official position presents Russia as an extraregional actor with no stakes in the dispute. According to the Russian Foreign Ministry, Russia "had never been a participant of the South China Sea disputes" and considers it "a matter of principle not to side with any party." However, behind the facade of formal

disengagement are Russia's military buildup

in the Indo-Asia-Pacific region and the multibillion-dollar arms and energy deals with the rival claimants.

These factors reveal that even though Moscow may not have direct territorial claims in the SCS, it has strategic goals, interests and actions that have direct bearing on how the SCS dispute evolves.

One-fourth of Russia's massive military modernization program through 2020 is designated for the Pacific fleet, headquartered in Vladivostok, to make it better equipped for extended operations in distant seas. Russia's



military cooperation with China has progressed to the point that President Vladimir Putin called China a "natural partner and natural ally" of Russia.

The two countries' most recent joint naval exercise — Joint Sea 2016 — took place in the SCS and became the first exercise of its kind involving China and a second country in the disputed sea after The Hague-based tribunal ruling on China's nine-dash line territorial claims.

However, Russia's relations with Vietnam are displaying a similar upward trend: Russia-Vietnam relations have been upgraded to

a "comprehensive strategic partnership" comparable to the Russia-China relationship. Russia and Vietnam are developing joint gas projects in the SCS, and Moscow also is trying to return to the Cam Ranh naval base and to sell Hanoi advanced weapon systems that enhance Vietnam's defense capabilities.

Moscow's actual behavior, therefore, hardly conforms to the neutrality of its official statements. The simultaneous enhancements of military cooperation with both Beijing and Hanoi — two of the major direct disputants in the SCS — make Russia's intentions hard to

interpret and require a more holistic framework that encapsulates different levels of Russia's foreign policy interests. Great powers play multilevel foreign policy games that may overlap in specific areas. For Russia, the SCS issue is where two levels of its policies — systemic anti-hegemonic balancing and nonsystemic regional hedging — intersect.

The first level — systemic balancing — is driven by the global power distribution and perceptions of major threats. As a systemic balancer, Russia challenges the U.S.-led unipolarity in multiple ways, as evidenced by its policies in Georgia, Ukraine and Syria. The drive to balance the system leader (the United States) makes Russia seek alignment with China, which, like Russia, also challenges American unipolar dominance. Thus, Russian and Chinese assessments of external threats coincide in that both countries consider U.S. policies threatening.

The pressure originating from the U.S.-led international system and the resultant incentives to resist it generate a strong bottom line that pushes Russia and China together. From this perspective, the SCS for Russia is a part of a bigger global game that dictates that Russia does not go against China's interests, but rather provides some tacit, if not open, support.

The second level — regional hedging — is motivated by domestic and regional considerations and materializes in a combination of policies aimed at diversifying Russia's regional links and averting potential instability that could affect Russia's economic interests in the Indo-Asia-Pacific. It also heads Moscow's commercial desire to profit from energy, infrastructure and arms deals.

By strengthening connections with Hanoi, including arms exports, military-technical cooperation and joint energy projects, Moscow creates a more balanced power-and-interest configuration around the SCS and simultaneously diversifies its portfolio of Asian partners, with Vietnam also serving as an inroad to the Association of Southeast Asian Nations community.

This explains why Russia, while not opposing China's policies, also appears sympathetic toward Vietnam's concerns in the SCS. The intersection of the two levels creates the intrinsic ambiguity of Russia's SCS policies.

The main implication of this "two-level game" is that the nature of the SCS dispute for Russia — as well as Russia's corresponding policy responses — is a variable rather than a constant. The more the SCS dispute deviates from a regional issue of sovereignty into the realm of China-U.S. confrontation, the more Russia's behavior in the region carries the features of anti-unipolar balancing. Conversely, the less the United States is involved, the more Russia's policies in the area remain aloof from the system-



level balancing and the more likely they are to carry features of regional hedging.

So far, the two layers of Russia's policies in the SCS have worked well without contradicting each other: Vietnam has benefited from cooperation with Russia not only because such cooperation is valuable in its own right but also because given the closeness of China-Russia relations, it provides an extra gateway for improving relations with China, which Hanoi values. Plus, Hanoi has long experience using Russian arms and military equipment. Russia's policies also resonate with Beijing's strategic calculations. While the Russia-Vietnam strategic partnership with its strong military component may look anti-China,

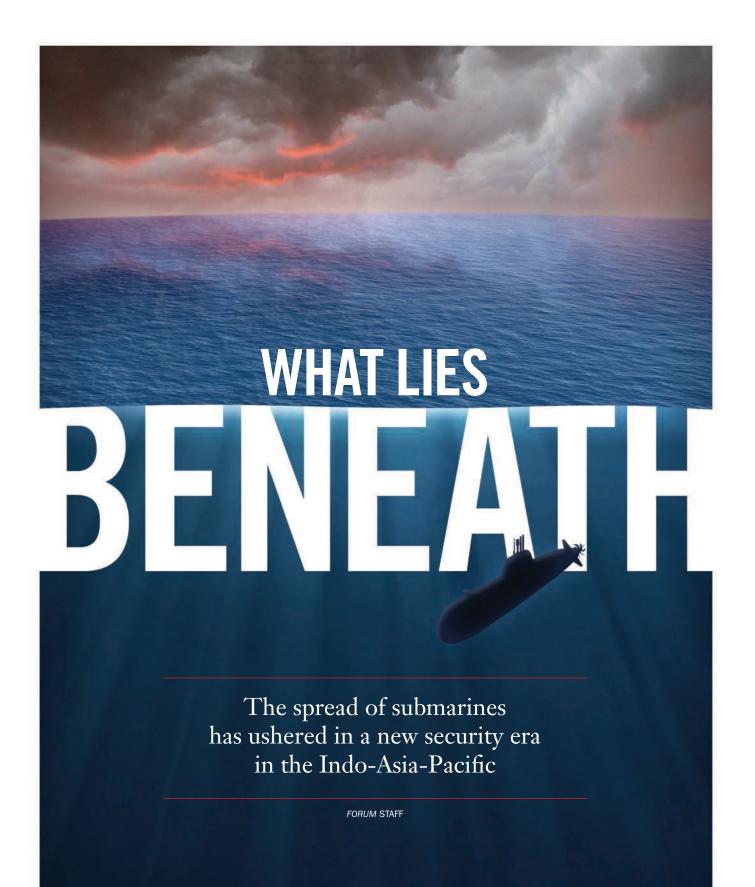


in reality it works for Beijing's interests because it helps to prevent the consolidation of a Hanoi-Washington alliance.

While being unhappy about Russia's arms transfers to Vietnam, Beijing recognizes that a decline or termination of such transfers would result in Hanoi shifting from its current policy of diversifying military contacts to a stronger lean toward Washington. This shift would close the U.S.-led containment ring around China. Therefore, despite the emphatic resistance against the internationalization of the SCS dispute, Beijing accepts Russia's greater involvement as well as Russia-Vietnam military cooperation.

Russia, by engaging China and Vietnam, realizes its regional and global goals. It increases its stake in the Indo-Asia-Pacific balance of power, slows down the U.S.-Vietnam entente and shapes the SCS dispute so that there is more room for multilateral negotiations. For Russia, maintaining the status quo, however imperfect it is, is better than dealing with a victory of one party over another. \square

The East-West Center originally published this analysis, titled "The Two Levels of Russia's South China Sea Policies," in a March 2017 edition of Asia Pacific Bulletin. The views expressed in the Asia Pacific Bulletin are those of the author and do not necessarily reflect the policy or position of the East-West Center or any organization with which the author is affiliated. This article has been reprinted with permission and edited to fit FORUM's format.



ILLUSTRATION

here seems to be no stopping the arms race underway in the Indo-Asia-Pacific and the shifting nuclear balance in the region. With the April 2016 launch of a long-range nuclear missile from the INS Arihant, India's first ballistic missile-carrying nuclear submarine, India joined China in successfully deploying armed nuclear-capable submarines to sea. Meanwhile, North Korea and Pakistan look to put nuclear weapons aboard diesel electric submarines, experts say.

The proliferation of sea-based nuclear weapons in the Indo-Asia-Pacific presents new opportunities and challenges as the overall arms race continues in the region.

These new ballistic missile-carrying nuclear platforms have the potential to deter a major war in the Indo-Asia-Pacific. However, they could also exacerbate tensions, accelerate the arms race, shift conventional nuclear deterrence strategies and lead to conflict if not properly managed, experts warn.

The modernization of China's military during the past two decades, coupled with its aggressive stance on disputed island chains in the South China Sea and beyond, has largely propelled the race. Emerging countries are striving to acquire next-generation submarines, some with nuclear capabilities, and existing nuclear-armed powers, including the U.S. and Russia, are seeking to modernize their arsenals.

"Nuclear deterrence does not exist in a vacuum. The deployment of nuclear weapons to sea by India and China will cause other powers in the region, including the United States and Japan, to change or bolster their conventional maritime capabilities," according to the findings of a recent Lowy Institute for International Policy report. "Thus the maritime nuclear programs of China and India are of particular regional and global importance, given that they may affect the nuclear and conventional strategic balance among major powers," Brendon Thomas-Noone and Rory Medcalf wrote in the report published by the Australia-based think tank and titled "Nuclear-Armed Submarines in the Indo-Pacific Asia: Stabiliser or Menace?"

China, India, Russia and the U.S. plan to significantly increase nuclear-armed attack submarines by 2030. Meanwhile, Australia, Bangladesh, Indonesia, Japan, Malaysia, North Korea, Pakistan, the Philippines, Singapore, South Korea, Taiwan, Thailand and Vietnam all plan to invest in adding diesel-powered attack submarines



India's second Scorpene-class submarine, called Khanderi, is launched in Mumbai in January 2017.

THE ASSOCIATED PRESS

to their fleets over the next decade, according to assorted media reports.

"Submarines are the original stealth platform — they clearly give us an asymmetric advantage," Adm. Harry B. Harris, Jr., commander of the U.S. Pacific Command (USPACOM) said in February 2016 testimony before a

U.S. Congress committee in a push to garner funding for more submarines to counter Chinese naval forces. "Our asymmetry in terms of warfare because of submarines is significant. In the modernizing sense, we need to maintain that asymmetric advantage."

"All of the players are changing their strategies when it comes to deterrence and issues of missile defense," Miles Pomper, a senior fellow at the James Martin Center for Nonproliferation Studies at Middlebury Institute of International Studies at Monterey, told *FORUM*. For example, China and India are reportedly rethinking their "no first use" policies. Meanwhile, India and the U.S.

began sharing information about Chinese submarines in the Indian Ocean region, Adm. Harris confirmed in January 2017.

"India should be concerned about the increasing Chinese influence in the region," USPACOM's Harris said, according to *The Indian Express* newspaper.

As the number and sophistication of submarines — "particularly those capable of carrying nuclear weapons or of tracking and killing other submarines — increases, there is a slim but growing danger of accidental or inadvertent escalation," Diana Wueger, faculty associate for research at the Naval Postgraduate School, wrote in the fall 2016 issue of *The Washington Quarterly*, a global security affairs journal. "While SSBNs [ballistic missile-carrying nuclear submarines] may offer some added stability at the strategic or nuclear level, they may exacerbate conventional maritime arms races that

History of deterrence

In the mid-1950s, naval nuclear reactors enabled submarines to stay submerged and undetectable for extended periods. They also had the necessary power to conduct anti-submarine and anti-surface warfare and provide intelligence, surveillance and reconnaissance.

Fleets of SSBNs provided a second-strike capability in the face of a nuclear attack. That is, if a first strike destroys a nation's land-based weapons, its sea-based systems could still attack. They were considered the third leg of the strategic nuclear triad after nuclear-armed intercontinental ballistic missiles and long-range bombers. In essence, SSBNs provided mutually assured destruction, the key to deterrence in the U.S.-Soviet relationship. Given the apparent success of SSBNs to prevent a nuclear war between the U.S. and USSR for nearly 70 years, nations have historically viewed them as a stabilizing force.

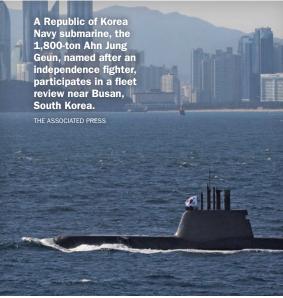
A Russian crew participates in a rehearsal for a Navy Day parade in Vladivostok in July 2016.

REUTERS

The Los Angelesclass attack submarine USS Hampton surfaced at the North Pole. SENIOR CHIEF PETTY

OFFICER KEVIN ELLIOTT/ U.S. NAVY





could lead to crises with strategic effects," she wrote in her article titled "India's Nuclear-Armed Submarines: Deterrence or Danger?"

"As these different powers progress down these paths, it is clear that the maritime spaces of the Indo-Pacific will have an added nuclear dimension that may interact with conventional military forces in unexpected and dangerous ways," the Lowy Institute authors wrote. "The possibility of Pakistan or North Korea also putting vessels to sea adds a new and unpredictable dimension to regional security."

Given that the proliferation of nuclear-armed submarines seems unstoppable, mature command and control, training, doctrine, and communications systems, among other mechanisms, will be necessary to help ensure their deployment results in a new era of stability, experts say. Moreover, getting to this stable state may take decades, they say.

"The idea that submarine-based nuclear weapons are stabilizing remains a key assumption of nuclear strategy," Wueger explained.

In 2009, India announced the launch of a sea-based nuclear platform, the INS Arihant, on the notion that, "nuclear subs earn their keep every day of the year. Ballistic missile submarines save nations on that one fateful day, when the enemy's political leaders look at our SLBMs [submarine-launched ballistic missiles] and stay their hand on the button," Indian Rear Adm. Raja Menon, an expert on Indian submarines, wrote in his 2009 book, *Just One Shark in the Deep Blue Ocean*.

India advanced this position in its 2015 maritime strategy document, "Enduring Secure Seas: Indian Maritime Security Strategy," which gave this explanation for its pursuit of nuclear-armed submarines: "Cold War experience has shown that reduction in the first-strike and increase in the second-strike (retaliatory) component

considerably stabilizes and strengthens deterrence." With its 2016 launch milestone, it joined China, Russia and the U.S. as a triad nation.

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which went into force in 1970 and remains adhered to by more than 190 nations, only recognizes China, France, Russia, the United Kingdom, and the U.S. as nuclear-weapon states. India and Pakistan, however, along with Israel and South Sudan, never accepted the NPT. North Korea withdrew from the treaty in 2003 after a period of apparent noncompliance.

Although many lessons can be learned from the Cold War era, a growing chorus of experts challenge whether deterrence strategies that worked in the 20th century will hold true in the rapidly changing Indo-Asia-Pacific in the current century. In addition, they wonder whether nations in their deterrence planning have failed to fully weigh the

idea that sea-based nuclear weapons could be destabilizing.

For a start, the development of capabilities such as anti-submarine warfare and ballistic missile defense technologies will also factor in the evolution of deterrence strategies. For example, technologies that enable submarines to be more readily detected could change the battlespace calculus, given that nuclear-armed subs may be much more vulnerable than they were during the Cold War. Advanced anti-submarine technologies may be able to detect even the quietest of submarine engines and slightest of acoustic signatures.

How countries adapt conventional strategies also will complicate matters. In this century, adversaries, for instance, may decide to go after another nation's second-strike

capability by conventional means instead of assuming mutual vulnerability.

"India is likely to experience just such a situation as Pakistan and China build up their attack submarine fleets," according to Wueger.

China is projected to increase its nuclear submarine fleet from seven to 15 by 2030 and its overall attack submarine fleet from 58 to 90, while India plans to increase its nuclear fleet from one vessel to two and its overall attack submarine fleet from 14 to 24 by 2030, making survivability an issue, especially in the interim. If one or both of India's deployed SSBNs are destroyed, its second-strike capability would be compromised, she explained.

"Countries may not have thought hard enough about the sea-based piece of deterrence," Wueger told *FORUM*. Moreover, they also need to consider "there is a conventional arms race going on alongside it."

"Countries need to think about all of the costs associated with introducing nuclear-armed submarines, but it seems many haven't really thought through the full cost of this [including opportunity costs] and whether their implementation really gets them where they want to go strategically. Are there other ways to get there that are better options with fewer risks and costs?"

Managing new capabilities and threats

Whether the deployment of sea-based nuclear weapons leads to stability will be decided by myriad factors, technical and political, experts agree.

"The interplay between the introduction of these weapons and existing regional tensions, notably over the South China Sea and the Bay of Bengal, will matter," according to the Lowy Institute report. "As India and China move ahead with their SSBN programs, issues such as command and control, nuclear doctrine, deterrence signaling and force posture will have to be addressed in order to maximize the chances that these platforms contribute to stability rather than promote instability."

To a large extent, the development of the technology has outstripped the evolution of the operational structure to manage it effectively.

"Both on the technical and political deterrence level, a lot of things could go wrong because countries [that recently acquired nuclear submarines] don't have all the systems in place and use them on a regular basis," Pomper told *FORUM*.

Command and control systems in China and India have not reached the level of sophistication that the U.S. and USSR achieved during the Cold War. "As these countries learn to operate their new SSBNs, there will be risks of miscommunication and even of inadvertent escalation," according to the Lowy Institute report. In addition, such nations don't have force structures fully in place to support the weapons.

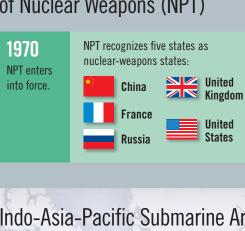
Although most doubt that North Korea's capability to deploy SLBMs from submarines is very far along, there are also risks inherent in the research process. "To launch the missiles under the water is very, very complicated. I think it is still years away before that technology is developed," Adm. Scott H. Swift, commander of the U.S. Pacific Fleet, said during an April 2017 interview with various media in Seoul.

Another problem is that the process by definition is obscured. "Navies don't talk much about submarine plans or doctrines because stealth is crucial for submarines, and their movements and operational patterns are matters of extreme secrecy," Wueger said. Although current seabased nuclear doctrine is not being explained in public, it is also not been adequately explored in private.

"Currently, there is little dialogue between India and Pakistan or China about how each side perceives naval, particularly subsurface, actions and how these states might mitigate worst-case thinking that could



The Treaty on the Non-Proliferation of Nuclear Weapons (NPT)





Four United Nations states have not endorsed the NPT:









2003

North Korea withdraws from the treaty after a period of noncompliance.



- 2016 Total Attack Submarines
- **2030 Total Newly Commissioned Submarines**

SSK = Conventional Attack Submarine

SSN = Nuclear Powered Attack Submarine

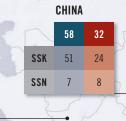
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A Chinese submarine sails past Yalong Bay in Sanya, Hainan province, China.

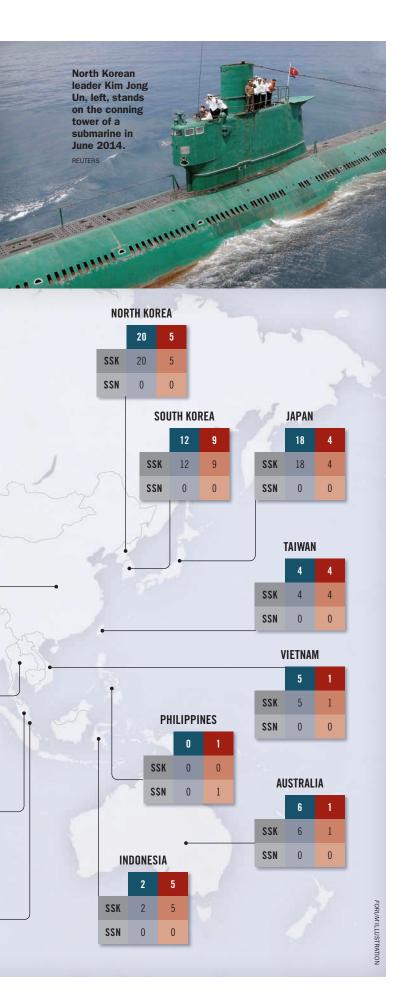
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	MALAYSIA		
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SSK	2	2	
SSN	0	0	

	4	2
SSK	4	2
SSN	0	0

Sources: War on the Rocks, Center for Strategic and International Studies



cause crises at sea to spiral," Wueger wrote in *The Washington Quarterly*.

Nonproliferation and deterrence experts would like to see maritime security discussions started among these nations and more work done within these countries to address how to manage the increasing risks of an accidental incident and other challenges they face. "Nations need to improve communication and understanding and facilitate dialogue, formal and informal, where military and political people can have discussions," Pomper said.

Many look to the Association of Southeast Asian Nations to provide a mechanism for broader discussions to include member states as well as other regional players including Australia, Japan, New Zealand, South Korea, Russia and the United States in such dialogues.

Politics may only complicate the development of sound doctrine, however. Speculation has mounted that China's aggression in the South China Sea has been fueled by its quest to use the region to deploy its SSBNs in the Pacific without being detected. China appears to be building a submarine base at Yulin-East in the South China Sea, according to a March 2017 article in The Diplomat, an online magazine. Its force structure, including "the number and size of submarine piers, the vast network of munitions transport, and the large underground facility sheltered under a mountain" are indicative of its aspirations to make it a command and control center, The Diplomat reported.

Mitigating risk

Today's emerging era of sea-launched weapons in the Indo-Asia-Pacific is complex and likely to challenge existing nuclear deterrence theory and practices, experts agree.

Nations, militaries and the security community at large must work together to devise ways to manage the development and implementation of sea-based nuclear weapons to mitigate potential perils that lurk beneath the subsurface and ensure that these powerful armaments increase stability in the Indo-Asia-Pacific for the long term.

"Assuming that lessons are learned and potential crises managed in the decade ahead, advances in Chinese and Indian SSBN and SLBM technology may eventually contribute to a new phase of relative strategic stability where the existence of nuclear weapons keeps the peace and prevents their use," the Lowy Institute authors concluded in their report.

Until the necessary technological and political advances are achieved and adopted, however, "There's more likely to be instability in the short term," Wueger told *FORUM*.

"In the near future it is going to be a problem," Pomper agreed, "as long as countries are uneven in terms of development."

SKY NET: PROSECUTION OR PERSECUTION?



CHINA'S LACK OF JUDICIAL OPENNESS RAISES EXTRADITION CONCERNS

FORUM STAFF

hina bills its ominously named Operation Sky
Net as a global crackdown on corrupt officials,
law-breaking financiers and money launderers.
Now more than two years in the making, the
operation launched by Chinese President Xi Jinping
has claimed many victories in its quest to root out graft,
including the extraditions of high-ranking Communist
Party and military officials.

"The legal net is vast and the guilty will not escape," the Communist Party's Central Commission for Discipline Inspection (CCDI) wrote on its website in 2015. "You can run from the country but not the law."

China's global dragnet, however, has many scholars, human rights workers and countries harboring Chinese fugitives seeking a pause in the action. The reasons are myriad: China has a history of executing people for noncapital offenses, as defined by the United Nations. Its justice system lacks transparency, and many of its extradition requests are politically sensitive.

In March 2017, Australia's Parliament refused to ratify an extradition treaty with China because of concern over Beijing's human rights record. "There is an obvious dilemma between the need to promote international cooperation against transnational financial crime — including through extradition — and legitimate concerns about China's domestic legal system," said Bertram Lang, a research associate at the Mercator Institute for China Studies in Berlin.

There are only a few Western countries to have extradition treaties with China. France and Spain have extradition treaties, and Beijing has approached Canada about negotiating one.

The Australian Parliament's most recent refusal to ratify an extradition treaty with China is reflective of such human rights concerns. Lang, who studied extradition treaties and policing agreements between European countries and China, said nations hosting Chinese fugitives can't be sure what type of justice will be administered to the people they send back.

"China's domestic anti-corruption campaign, while showing strong political resolve to tackle the problem, is mainly run by opaque, paralegal disciplinary bodies of the Community Party [the CCDI]," Lang said. "They start most investigations by running secret investigations and often interrogating suspects in dark prisons, with only 4 to 5 percent of cases handed over to public prosecutors."

DISSENTERS OR CRIMINALS?

A significant hurdle for countries facing extradition requests is China's unwillingness to offer evidence of criminal behavior, human rights workers say. In a February 2017 report, "They Target My Human Rights Work as a Crime: Annual Report on the Situation of Human Rights Defenders in China (2016)," a coalition of nongovernmental organizations called China Human Rights Defenders (CHRD) said China engages in the harassment, torture and imprisonment of human rights workers. China in 2016 "rolled out a series of draconian laws and regulations which give police greater power to criminalize human rights activities," the CHRD report says.

China's so-called Shuanggui disciplinary process, administered by the CCDI, is "highly problematic" from a human rights perspective, Lang added, "not only because of its opacity, but also because torture is said to be still common practice in these interrogations."

"In addition, corruption continues to be subject to the death penalty in extreme cases. For all these reasons, it is very difficult for other countries to ensure basic standards of international extradition law in cooperation with China," Lang said.

Complicating matters is the fact that execution numbers in China remain a state secret. The U.S.-based human rights group Dui Hua estimates that China executed 2,400 people in 2013 and that number remained largely unchanged in 2014 and 2015, The Associated Press (AP) reported. Although no public figures exist regarding executions linked to Sky Net, the CHRD says Xi introduced laws that limit freedom of expression, association and religion and has criminalized political activities as security threats.

China points to crimes such as telecommunications fraud and bribery as reasons for its crackdown, while the CHRD report illustrates what can happen to Chinese citizens who simply speak out against Communist Party ideology. Wu Gan, a human rights activist detained in May 2015, said his captors kept him away from his lawyers until December 2016. Wu told his lawyers that Chinese authorities tried to force his confession and that



they interrogated him more than 300 times, placed him in solitary confinement and tortured him.

POLITICS AND MONEY

With that stark picture of a domestic legal system in mind, many countries wrestle with the political overtones of Beijing's extradition requests, Lang said. An increasing number of extraditions show China is using economic pressure on countries to deport Taiwan people and ethnic Uighurs back to mainland China, he added.

China claims sovereignty over Taiwan under its "One China" policy, which dictates that only one China exists and Taiwan is part of it. This thorny issue puts extradition partners with China in the sensitive position of taking sides, Lang said. "Many extradition cases are inherently political," he said, adding that a rules-based approach to extraditions by the European Union (EU) and Association of Southeast Asian Nations (ASEAN) "would most certainly increase legal certainty and reduce individual government's discretion."

Spain's extradition of about 200 Taiwan citizens to China is a case in point, he said. Taiwan in February 2017 said it regretted a decision by Spain to deport 200 Taiwan citizens suspected of telecom fraud to mainland China instead of Taiwan, Reuters reported. The Spanish government said the deportations were part of a yearlong internet fraud investigation, while the Taiwan Foreign Ministry said the deportations "infringed upon the rights and interests of our people and ignored the tradition of the EU countries' emphasis on human rights," Reuters reported.

Since China invests heavily in Africa and Europe, financial pressures also come into play. An unusual case unfolded in Kenya in April 2016 when 45 Taiwan citizens were forced out of the country and onto a plane bound for China. Kenya's courts had cleared 22 of the 45 suspects

accused of telecom fraud, according to *Forbes* magazine, and simply asked the others to leave the country. Taiwan objected, but Kenya responded that it enjoyed diplomatic relations with China — not Taiwan. At the time, China hinted the Taiwan detainees had committed fraud against Chinese citizens.

China had the economic upper hand. Between 2000 and 2014, China loaned U.S. \$5.2 billion to government-or state-owned enterprises in Kenya, according to the China-Africa Research Initiative of the Johns Hopkins School of Advanced International Studies. Kenya's decision is not unique either. In addition to Spain's deportation of 200 Taiwan citizens, Malaysia and Cambodia also have deported citizens of Taiwan to China, AP reported.

Taiwan isn't the only politically sensitive narrative surrounding Beijing's extradition requests. Ethnic Uighurs have been favorite extradition targets for China. Thailand, for example, faced a torrent of criticism in July 2015 when it agreed to deport 109 Uighurs to China despite fears the Chinese would persecute them, AP reported. The United Nations refugee agency called Thailand's action "a flagrant violation of international law."

Uighurs are a Turkic-speaking Muslim minority in China's Xinjiang region. While Uighurs say they experience religious oppression, Beijing often blames Uighur separatists for terror attacks. Thailand is one of a handful of Indo-Asia-Pacific countries that have complied with Beijing's requests. Cambodia and Laos have repatriated Uighurs to China, and Kazakhstan in 2011 sent a Uighur teacher to China who was outspoken about torture and death in Chinese jails, Radio Free Asia reported.

CRIME-FIGHTING COOPERATION

Regardless of whether extradition treaties exist, nations in the Indo-Asia-Pacific and around the world find



Taiwan legislator Johnny Chiang displays a video showing Taiwan citizens being detained at a police station in Kenya. Taiwan protested in April 2016 that people cleared of criminal charges by a Kenyan court were being illegally held at China's request. AFP/GETTY IMAGES

Cambodian and Chinese police officials stand guard over 25 Taiwan nationals who were deported to China on fraud charges in June 2016. AFP/GEITY IMAGES

Meng Hongwei, this page, was named president of Interpol in November 2016. His ascension worries some who object to Interpol's involvement in political prosecutions. REUTERS

themselves needing to work with China to fight transnational crime, including drug trafficking, cyber crime and money laundering.

By its own admission, China has become a hub for synthetic drug trafficking and is strengthening its efforts to fight this growing problem. China's seizures of methamphetamine, ketamine and other synthetic drugs surged by 106 percent in 2016 compared with the previous year, said Liu Yuejin, vice director of the China National Narcotics Control Commission, according to an Agence France-Presse report.

The problem extends beyond China's borders. "Domestic production of crystalline methamphetamine, ketamine, and NPS [new psychoactive substances] was severe, not only consumed in the country but also smuggled overseas," Liu said.

Lang and colleague Thomas Eder wrote in a January 2017 article for The Diplomat, an online news magazine, that EU nations should "develop a strategy for cooperating with China in these areas, rather than each member state going it alone. European governments need a consistent common position on demands for judicial reforms in China or for even stronger safeguards. This is the only way to prevent bilateral agreements with China from undermining international legal norms and democratic values."

While many EU member states have legal assistance agreements with China, only seven — Bulgaria, Romania, Lithuania, Spain, Portugal, France and Italy — have formal extradition treaties with Beijing, according to Lang's research.

RED NOTICES

When countries want help tracking down fugitives, they turn to the international police agency Interpol. China, famous for seeking "red notices" — the

equivalent of international arrest warrants — from Interpol, now has a man in the agency's top post. Meng Hongwei, who was China's vice minister for public security, was elected by Interpol delegates as Interpol president in November 2016.

Interpol's charter bars it from engaging in political activities, but human rights advocates worry that China will use Interpol to detain political opponents. As part of Xi's crackdown, China has punished more than 1 million officials. Their sentences ranged from lengthy prison terms to demotions, and many of the suspects were associated with Hu Jintao, who was Xi's predecessor.

"The appointment of Meng Hongwei is alarming, given China's long-standing practice of trying to use Interpol to arrest dissidents and refugees abroad," Amnesty International East Asia Director Nicholas Becquelin said in a statement following Meng's election.

Lang said human rights protections can be negotiable with China. "China's approach to extradition agreements is highly differentiated," he said. "Beijing has been ready to accept high legal standards in treaties with Western countries, like France or Italy, while at the same time undermining international principles through substandard agreements and highly politicized extradition requests to Central and South Asian countries."

Multinational organizations such as ASEAN and the EU could play a role, Lang believes, in setting up a rules-based framework for extraditions.

"While it is unrealistic to promote changes within China's domestic legal system through external pressures," he said, "it is essential to obtain legal guarantees at least in those cases directly concerned by extradition and mutual legal assistance with Chinese authorities." □



Naval Industry Boon

oxed Japan boosts its maritime defense $oldsymbol{oxedsymbol{oxed}}$



As a sea-bound nation formed with four main islands and 6,848 smaller ones, Japan has a formidable task in securing its sea lines of communication by which it receives much of its oil requirement from western Asia, coal supplies from Indonesia and food grains from Australia. Its Defense Ministry is concerned by the "increasingly severe" security situation surrounding Japan.

A helicopter lands on the JS Izumo, a Japan Maritime Self-Defense Force helicopter carrier, at Yokosuka base, south of Tokyo. Across the Sea of Japan lies an intransigent North Korea that unreservedly flaunts its nuclear and conventional clout and a confrontational China determined to dominate the South and East China seas and beyond. China has long sparred with Tokyo in the East China Sea over an island territory it calls Diaoyu and Japan calls Senkaku. Japan also contests South Korea's control of the Liancourt Rocks, an islet cluster in the Sea of Japan that it calls Takeshima and South Korea calls Dokdo. In addition, it has a 60-year dispute with Russia over the Kuril Islands chain that stretches from its northern Hokkaido Island to the southern tip of Russia's Kamchatka Peninsula. Because of this rift, Japan and Russia have not signed a peace treaty to end World War II.

Japan's National Defense Program Guidelines released in 2013 for 2014 and beyond say that "among states, the number of so-called 'gray-zone' situations is increasing over such issues as territory, sovereignty and maritime economic interests." Moroever, "in the maritime domain, in addition to piracy acts, coastal states have been unilaterally asserting their rights and have taken action, thereby unduly infringing the freedom of the high seas."

Japan is thus taking recourse to rapidly deploy naval and amphibious forces as part of its defense strategy. Its plan now is to produce two agile and heavily armed 3,000-ton frigates a year from April 2018 onward. Through 2017, it had produced one 5,000-ton destroyer annually for Japan's Maritime Self-Defence Force (MSDF). This manifests Tokyo's aspirations toward a compact but well-armed and advanced fleet, and the frigates can also be deployable for minesweeping and submarine hunting.

BUILDING BONANZA

Japanese naval shipyards like Mitsubishi Heavy Industries (MHI), Japan Marine United Corp. (JMU), Kawasaki Heavy Industries, Sumitomo Heavy Industries (SHI) and Mitsui Engineering and Shipbuilding may vie for the contract to build eight of these 3,000-ton frigates that are estimated to cost U.S. \$375 million each. To ensure enough business to keep the yards operational, the Defense Ministry has stipulated that the one awarded the U.S. \$3 billion contract will subcontract work to the other bidders.

Contracts have also been parcelled out to multiple bidders in the past — as with MHI, Mitsui, SHI, Hitachi Zosen Corp. and IHI Marine United Inc. (IHIMU). These five companies had been contracted to build the eight Asagiri-class destroyers, commissioned between 1985 and 1991. They were an improved version of the Hatsuyuki-class destroyer and have since been succeeded by the Murasame-class destroyer.

A devastating industry slump during the 1970s and 1980s led many shipbuilders in Japan to diversify, as with Hitachi that reorganized its business domains into environmental, water treatment, and industrial systems and processes. It merged its shipbuilding operations with those

of NKK Corp. in 2002 to form the joint venture, Universal Shipbuilding, and the latter got merged with IHIMU in 2013 to create JMU. Hitachi started out as Osaka Iron Works, founded in 1881, and was renamed Hitachi Zosen in 1943.

Worldwide attention has been drawn to two new JMU-built helicopter carriers, Japan's largest military ships since World War II. The first-in-class 19,500-ton JS Izumo, and its sister ship, JS Kaga, both commissioned in March 2015, are deemed configurable as offensive aircraft carriers capable of operating unmanned surveillance drones, which can be a prelude to fixed-wing flights with appropriate deck alteration.

Many analysts consider this possibility to be proscribed by the country's pacifist Constitution, Article 9 of which proclaims that "land, sea and air forces, as well as other war potential, will never be maintained." Indeed, Japan's Defense Ministry was not born until January 2007, 53 years after establishing its defense agency in 1954. Its Constitution of 1947 was imposed by the U.S., which as part of the Allied occupation forces at the end of the war until 1952 also dismantled the mighty military-industrial complex of Japan, then a militarist state.

Limited to engaging in weapons research and development, Japan started reviving its armament industry from the 1990s to lessen its dependence on U.S. weapons imports. It had moved in this direction even earlier, compelled by the Cold War and Korean War to rebuild its defenses.

In 2014, Japanese Prime Minister Shinzo Abe, who announced his intention to draft an amended Constitution by the end of 2017, revoked a decades-old ban on arms exports and in December 2016 raised defense spending for the fifth straight year to a record U.S. \$43.6 billion. In June 2016, Washington lifted restrictions on imports of Japanese components for military use, facilitating their supply to U.S. defense projects and allowing U.S. arms vendors to access Japanese military technologies.

The U.S. Foreign Military Sales program allows Japanese firms involved in naval systems to participate with U.S. industry as subcontractors. Components and software they were supplied included TR-343 equivalent replacement sonar transducers for SQS-53C sonar to NEC Corp., and partial Aegis display system application software and hardware to MHI and Fujitsu, respectively.

MARITIME TRADITIONS

A mighty seafaring economy with a tradition in shipbuilding and strong orientation to technology, Japan has one of the most powerful and flexible navies, its naval industry having produced versatile hull designs that crafted the most advanced vessels enhanced with high-tech battle management and navigation systems, sensors and potent armaments.

This arsenal had its origins in the weaponsmithing techniques that emerged during Japan's later medieval period (14th to 16th centuries) under the Muromachi

India's Defense Technology Enterprise

INNOVATION IN MILITARY RESEARCH AND DEVELOPMENT

DEBALINA GHOSHAL

To produce indigenously made weapon systems, India's Defence Research and Development Organisation was established in 1958 under the Department of Defence Research and Development and the Ministry of Defence. DRDO formed as an amalgamation of technical development establishments of the Indian Army and the Directorate of Technical and Development and Production with the Defence Science Organisation.

DRDO specializes in aeronautics, armaments, combat engineering, electronics, life sciences, materials, missiles and naval systems.

DRDO's aeronautics division has created such products as avionic, fighter aircraft early warning systems, light combat aircraft, ground imaging exploitation, model-based fusion systems and parachute recovery systems.

The organization, which started with just 10 research laboratories, grew by leaps and bounds over the decades to comprise 47 laboratories that cover everything from defense agriculture and combat vehicle development to defense bioengineering and artificial intelligence to terminal ballistics and avalanche studies.

The DRDO takes four to five years to deliver a system, after the decision to produce a given product has been made, according to former DRDO Director General Avinash Chander.

The organization also provides technical advice to its services, the Indian Army, Air Force and Navy, that includes formulation of requirements, evaluation of systems to be acquired, fire and explosive safety, and mathematical and statistical analysis of operational problems.

The DRDO has made significant achievements in its efforts to meet the requirements of the three services. Notable developments include: flight simulators for aircraft; reusable rocket pods; brake parachutes for fighter aircraft; lightweight small arms systems; night fighting capability enhancements; cluster weapons systems for fighter pilots; naval mines; next-generation bombs; mountain guns; light field artillery and surveillance radars; advanced ship sonar systems and sonobuoys; torpedo launchers; advanced materials and composites for military applications and parallel processing computers for aerodynamic computations, among other developments.

As India aspires to become self-sufficient in weapon systems and equipment under the "Make in India" program, the need for DRDO to reduce imports from other countries is crucial, as Prime Minister Narendra Modi has stated. For the program to succeed, DRDO Chairman Dr. S. Christopher has also stressed in recent years the need to encourage more private sector production of weapon systems. All the while, DRDO has only grown its ambitions for the future, hoping to tilt the defense trade balance with plans to export its innovative weapon systems such as the BrahMos cruise missile, a short-range supersonic cruise missile launchable from submarine, ships, aircraft or land.



VISION

The Defence Research and Development Organisation strives to make India prosperous by establishing a world-class science and technology base and providing India's defense services with a decisive edge by equipping them with internationally competitive systems and solutions.

MISSION

- Design, develop and lead production of state-of-the-art sensors, weapon systems, platforms and allied equipment for the nation's defense services.
- Provide technological solutions to the services to optimize combat effectiveness and to promote wellbeing of the troops.
- Develop infrastructure and committed quality manpower and build a strong indigenous technology base.



shogunate (military oligarchy). These created the highquality "Japanese steel" blades of the times that motivated the samurai to shift from being archers to swordsmen.

The transition to firearms resulted later with the introduction by the Portuguese of the snap matchlock musket that the Japanese called *tanegashima*. By the 1860s, Japan was producing artillery and steamships based on British models.

During the years to follow, Japan's giant naval and civilian shipyards emerged as affiliates of large maritime entities, or *zaibatsu*, the country's age-old conglomerates such as Mitsubishi, Mitsui and Sumitomo.

Japan's naval, and overall military, industry is a system of big corporations that secure contracts directly from the Defense Ministry and delegate much of the work to smaller firms, which often subcontract to more specialized players. Japanese civilian and naval shipbuilders take pride in manufacturing indigenously, relying on locally produced sonar and radar equipment as well as electronic components for submarines. They acquire under license engine technology and vertical launching systems for ships and submarines from U.S. and European suppliers, as well as close-in weapons systems and hull-mounted anti-ship missile systems.

For instance, the two new Atago-class guided missile destroyers (DDGs) and their four Kongo-class predecessors, all made by Mitsubishi, have been fitted with Lockheed Martin's Aegis combat and underwater warfare system, making them powerful ballistic missile defense platforms with advanced sea, air and undersea

threat detection capabilities. The Atago DDGs are among the most powerful surface warfare platforms in the world, and there are options to make two more. Just two of them are believed to fully cover Japan from ballistic missile threats.

In March 2017, Kawasaki delivered the eighth Soryuclass submarine, and two more are under construction. With a displacement of 2,950 tons, this class is the world's largest conventionally powered submarine and will be the first submarine of the MSDF to be equipped with the Kockums Stirling air independent propulsion system.

Work on their construction is split between Kawasaki and Mitsubishi, both based in the port city of Kobe; they also constructed the 11 Oyashio-class submarines between 1994 and 2006. The first Soryu joined service in 2009, and the Oyashios were commissioned between 1998 and 2008. Japan's approach to submarine construction has been to introduce a new submarine class roughly every two decades that builds upon previous ones. Soryu builds upon the Oyashio class, and the latter is an advancement on the Harushio class of the mid-1990s.

Mitsubishi and Kawasaki's Soryu, however, lost out on Australia's lucrative U.S. \$38 billion contract for designing and building 12 next-generation submarines. France's DCNS (now Naval Group) won the bid in April 2016 for its Shortfin Barracuda Block 1A to be designed specifically for the Royal Australian Navy. The third prime contender was Germany's ThyssenKrupp Marine Systems (TKMS), with its Type 216 submarine.

COMPETITIVE BIDDING

Arms purchases have frequently become a political rather than a military decision, with competition becoming fierce in the global military sweepstakes. DCNS managed to influence Australian officials about the noise levels of the TKMS submarine, according to a May 2016 account on www.theaustralian.com.au, an Australian news site. Informing Berlin that the Type 216 had an "unacceptable" level of "radiated noise," Canberra argued that the boat exuded a high acoustic signature at a frequency that was vital to the Royal Australian Navy, implying the submarine's incapacity to collect close-toshore intelligence without detection. However, when the Germans inquired about the frequency and why it had not been emphasized in the bidding process or whether it was coming from internal machinery, propellers or the hull, the Australians withheld comment, explaining that such information was classified.

As the bids were under consideration, there was a wide-ranging data leak on India's underproduction of DCNS Scorpene submarines that was speculated to have been the consequence of corporate espionage.

Australia had also rejected the Soryu as a suitable Collins-class replacement option once before in November 2014. In the recent contract, DCNS had agreed to build submarines in Adelaide under technology transfer, much as with its Scorpenes at Mumbai's Mazagon Dock. Tokyo has, however, been traditionally averse to transfer sensitive military technologies. It later changed its stance, but by then Canberra had other options.

Mitsubishi and Kawasaki will be offering the Soryu, alongside TKMS, Naval Group, Spain's Navantia, Sweden's Kockums and Russia's Rubin Design Bureau, for India's impending U.S. \$8.3 billion tender for six next-generation submarines with air-independent propulsion under the Indian Navy's Project-75 program.

With its wealth of experience and maritime culture, the Japanese naval industry performs to the highest standards it has set for itself, making effective use of research and technology to meet the exacting requirements of a discerning clientele.

This is of comfort to many of the navies of the 10 member states of the Association of Southeast Asian Nations (ASEAN). This bloc with a combined gross domestic product of U.S. \$2.56 trillion and population of 639 million, which turned 50 in August 2017, abuts onto a littoral rendered volatile by a confrontational China determined to dominate the South and East China seas and beyond, and an intransigent North Korea that unreservedly flaunts its nuclear and conventional clout.

Although each of the 10 partners — Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam — is independently modernizing its naval defenses to secure its sea lines of communication and safeguard itself from seaborne threats, the group itself has devised no strategy for joint defense, along the lines of a unified maritime alliance.

ASEAN's Declaration on the Conduct of Parties in the South China Sea, Six-Point Principles on the South China Sea and the Joint Statement of the First ASEAN-China Summit are overtly pacifist, not venturing beyond the intent to "promote consultations and strengthen cooperation in addressing threats and challenges that may affect the security and territorial integrity of ASEAN member states." The summit with China was held in 1997 in Kuala Lumpur, a year after China became a full dialogue partner of ASEAN.

In July 2016, a Hague tribunal ruled on a case brought before it by Manila, holding that Beijing had "violated the Philippines' sovereign rights" and had "no legal basis" for its expansive territorial claims in the South China Sea. China rejected the judgment, terming it "null and void" and one that denied its "territorial and maritime sovereignty."

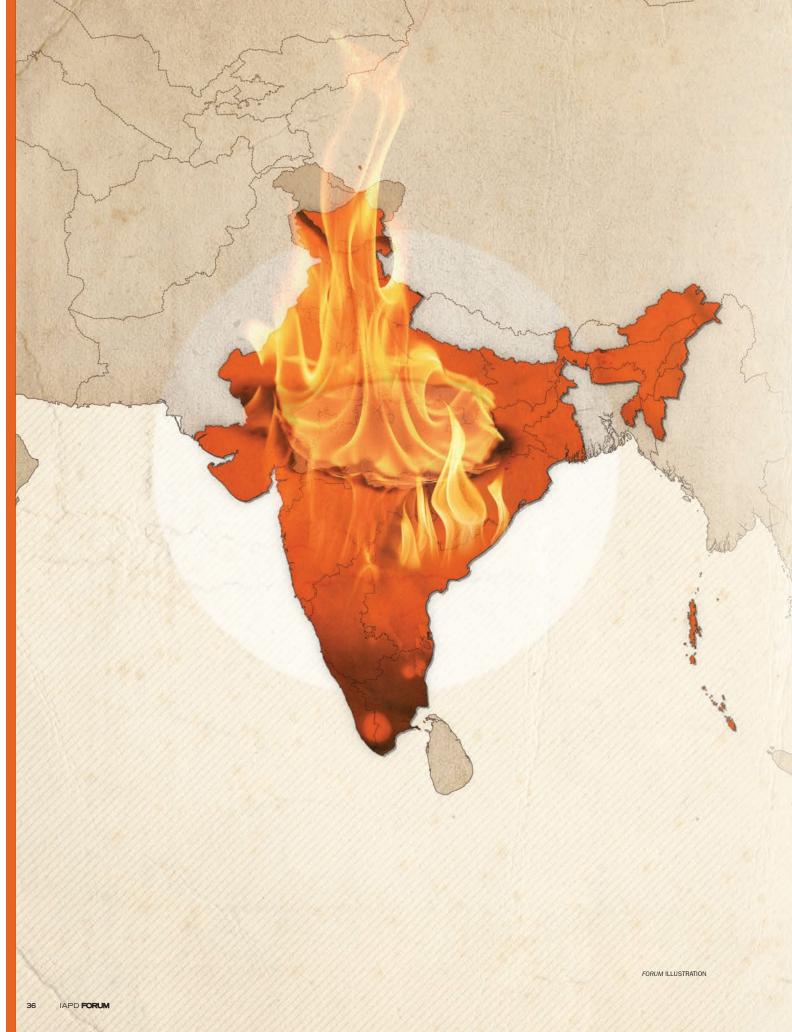
Under the circumstances, an overarching presence of the MSDF can prove to be an effective deterrence to any menacing effort across the seas.

Japan has been benevolent in this regard, having sold, loaned or given naval and maritime assets to several of the nations in the region. Under its Official Development Assistance, it has transferred three of 10 newbuild 44-meter, multirole response vessels to the Philippine Coast Guard, the remaining seven to be delivered by 2018. It is usually coast guard vessels rather than naval warships that are initially deployed in troubled waters in the region to avoid inflaming the situation. Tokyo will also provide Manila with two large 90-meter patrol vessels and lease five used Beechcraft TC-90 King Air aircraft for maritime patrol.

Japan is also supplying six new patrol boats to Vietnam, having earlier provided Hanoi with six used fishing craft that were converted into patrol boats for Vietnam's Coast Guard and Fisheries Ministry. The Japan Coast Guard also donated two of its decommissioned Ojika-class patrol vessels to the Malaysia Maritime Enforcement Agency; the 92-meter platforms have helicopter decks.

In addition to an ocean radar installed in Southeast Sulawesi, Indonesia, which has proved helpful in detecting sea objects, the country's Maritime Affairs and Fisheries Minister Susi Pudjiastuti sought six more from Japan, saying they were crucial for maritime safety. She added that Jakarta would not need to allocate funding for their procurement if Japan agreed to give its used radars. Pointing out that this radar has a range of 250 kilometers, Susi said such a capability was necessary to determine the presence of foreign ships in Indonesian waters.

Ship for ship, Japan's Navy is among the most formidable in the Indo-Asia-Pacific, arguably eclipsing China's navy, and is bolstered by high professionalism and competence. At the same time, it has bonded adroitly with the other maritime powers in the region such as the U.S., Australia and India, casting a sturdy profile in its area of operation. \square



Tackling the TURNIOIL WAR TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TOTAL

India's diversity enriches the country, but it also creates disparity that can present challenges for internal peacekeeping

SAROSH BANA

PHOTOS BY THE ASSOCIATED PRESS

or a 3.29 million-square-kilometer, subcontinental nation densely populated with 1.28 billion people of all faiths and creeds — and confronted by two hawkish adversaries on its frontiers — India has held itself together remarkably well.

Since gaining independence from the British in 1947, the country has broken out of its mold to become the fastest-growing major economy today, overtaking its former colonizer in 2016 to become the world's sixth-largest economy, with a gross domestic product of U.S. \$2.3 trillion.

The retreating British, however, left behind a bitter legacy as the Hindu-majority India and Muslim-dominated Pakistan that they cleaved their colony into have since gone to war four times: at the time of Partition in 1947, and in 1965, 1971 and 1999. Three of these wars were waged over the border state of Jammu and Kashmir (J&K), while

the war of 1971 engendered Bangladesh from the fall of East Pakistan.

Their sustained enmity has strained both sides, diverting vital funding to their militaries at the cost of their impoverished millions. With powerful China siding with Pakistan in this fray, India has had to batten down its hatches. Its federal budget for 2017-2018 allocates U.S. \$42 billion for defense, while giving U.S. \$7.5 billion to public health, U.S. \$12 billion to education, U.S. \$28 billion to women and children, and U.S. \$29 billion to agriculture. The Ministry of Home Affairs (MHA) secured another U.S. \$12.8 billion to oversee internal security.

Indian and Pakistani troops square off perpetually at the Siachen Glacier, at 5,400 meters "the world's highest — and toughest — battlefield" where more of them perish, not from bullets, but from the hostility of the rugged frozen terrain, where temperatures can plunge to minus 45 degrees

Celsius. While the Pakistani side of Siachen is accessible by roads, constructed with Chinese assistance, the Indian side can be served only by helicopter. Even artillery and daily provisions have to be airlifted, and Indian troops use radars and unmanned aerial vehicles for surveillance.



Indian Prime Minister Narendra Modi, center, arrives on the opening day of the budget session of the Indian Parliament in New Delhi in January 2017.

Chinese troops also intrude at will from across the Himalayas to set up pickets and threaten Indian Soldiers and villagers, and at times even build helipads and communications outposts. The beautiful mountainous state of J&K has been riven by infiltrating terrorists from Pakistan-weaned subnational factions.

Internal Threats

India's heterogeneity is unparalleled and makes for an amazingly diversified society that lends itself to the richness of its culture and heritage. It is also disparate, and this diversity and disparity at times have inflamed strife and discord. Though rare and largely localized, communal violence flared from the razing of the 16th-century Babri mosque by Hindu religionists in December 1992 that led to a militant Hindu revivalism and also to the reprisal serial bombings in Mumbai by radical Islamists just three months later. The burning alive of Hindu pilgrims in a train in Gujarat in 2002 also resulted in a retaliatory onslaught against Muslims in that state.

It is civilians more than extremists or security forces who suffer the most in these conflicts. Of the 44,197 who have perished in J&K in the separatist violence since 1988, 14,748 have been civilians, alongside 6,284 security personnel and 23,165 terrorists, according to estimates by the South Asia Terrorism Portal (SATP), run by the New Delhibased Institute for Conflict Management.

Left-wing extremism in the country, in turn, has killed an estimated 13,312 since 1999, of whom 7,640 have been civilians, 2,612 security personnel and 3,060 terrorists. This brutal agenda has long been pursued by the underground Naxalite movement that has been guided by an anarchic Maoist ideology that seeks to uplift the downtrodden and challenge the establishment. Naxal extremism exists in the underdeveloped tribal tracts in the states of West Bengal, Maharashtra, Madhya Pradesh, Jharkhand, Odisha, Chhattisgarh, Andhra Pradesh and Telangana.

Insurgency has also blighted several of the eight exceptionally scenic northeastern states that are linked to the rest of the country via an umbilical neck of land hemmed in by Nepal, Bhutan and Bangladesh. Tibet and China lie to their north and Burma to their east. There are reportedly 94 active terrorist and insurgent groups operating in the region, mostly seeking to secede from secular India along the territories of the ethnic groups they represent. These include the two splinter factions of the National Socialist Council of Nagaland (NSCN) that aspires for a "Greater Nagaland" comprising Naga-dominated areas of the neighboring states and contiguous areas in Burma.

The United Liberation Front of Asom (ULFA) is fighting for a breakaway Assam since 1979, while the National Democratic Front of Bodoland (NDFB), from the same state, is striving for a "sovereign Bodoland" north of river Brahmaputra. Another outfit is the Karbi People's Liberation Tigers (KPLT) that wants to carve an autonomous Karbi State out of Assam. The Muslim United Liberation Tigers of Assam (MULTA) has been coordinating the activities of radical Islamists in the northeast since 1996, while the Kamtapur Liberation Organisation (KLO) is waging an armed struggle for a separate Kamtapur State within Assam.

A troubling development has been the banding together of many of these rebel units against what they identify as their common enemy in a "nationalist colonial India." ULFA, NDFB, KLO and NSCN, for instance, have coalesced under the United Liberation Front of Western South East Asia (UNLFW). SATP estimates this northeastern insurgency to have taken a toll of 21,472 lives since 1992, 10,262 of them civilians, 2,737 security personnel and 8,473 terrorists.



State Security

Law and order is a state subject, not federal, under the Indian Constitution, and state governments are responsible for providing security based on threat assessments by security agencies. The MHA also sensitizes and passes on intelligence and threat inputs to the state governments when necessary.

India's internal security problems hence cannot be treated as merely matters of law and order. They have to be dealt with comprehensively in all their dimensions and at all levels — political, economic and social.

Because India's borders are not fully secured, intrusions occur into frontier states such as J&K, Punjab, Rajasthan and Gujarat from Pakistan, into Uttar Pradesh and Bihar from Nepal, into

J&K, Uttarakhand and Arunachal Pradesh from China, into Bihar and West Bengal from Bangladesh and into Nagaland, Manipur and Mizoram from Burma. Apart from a coastline of 7,517 kilometers, including island territories, India has 15,107 kilometers of land borders, with 4,097 kilometers along Bangladesh, 3,488 kilometers along China, 3,323 kilometers along Pakistan, 1,751 kilometers along Nepal, 1,643 kilometers along Burma, 699 kilometers along Bhutan and 106 kilometers along Afghanistan.

India's internal security problems cannot be treated as merely matters of law and order. They have to be dealt with comprehensively in all their dimensions and at all levels—political, economic and social.

Using stealth, and bearing firearms of various caliber, and at times grenades and improvised explosive devices, indoctrinated and motivated terrorists are causing havoc where they strike. Pakistani extremists entered the heavily fortified Indian Air Force base at Pathankot, in Punjab, in January 2016 and held their ground for over 17 hours in which they killed seven people, including six officers. Search-and-kill operations that continued for five days could not determine whether there were four or six of them, until six of their bodies were discovered.

A month later, three cross-border militants struck in the Kashmiri town of Pampore, killing four security personnel and one civilian. They then fled and found refuge in the J&K Entrepreneurship Development Institute (JKEDI) where they battled

for more than 48 hours security forces who were using heavy artillery and other weapons. A dozen more security personnel were injured before the extremists were gunned down.

Border Solutions

Federal and state authorities hurriedly charted plans to upgrade security and strengthen intelligence and counteroffensive measures, but were stunned when two militants from Pakistan struck JKEDI the second time in October 2016. Firing from the building, the terrorists injured a Soldier and a policeman. They withstood the rockets and heavy automatic gunfire of the elite paracommandos of the Army for more than 56 hours until they were finally slain and the 60-room, seven-story government

building reduced to a burning skeleton.

An official committee recommended periodic security audits of all armed forces establishments after examining their standard operating procedures. It has also recommended technology-based security infrastructure and deployment of quick reaction teams at "highthreat" military bases. Another committee addressing the issue of border protection has recommended measures to strengthen security and address vulnerabilities in fencing along the Indo-Pakistan border.

Indian Minister of State for Home Affairs

Kiren Rijiju informed Parliament of plans for "smart fencing" in difficult terrain and riverine and marshy areas where regular fencing cannot be erected. It will have nonphysical barriers such as laser walls, closed-circuit cameras and acoustic radars that map vibration. Gaps in the border areas are also to be plugged, floodlights installed and manpower increased, apart from border roads and outposts being constructed, and high-tech surveillance equipment and more effective mobile patrolling introduced. Though these measures are crucial, there have been instances when intruding Chinese troops have smashed Indian bunkers and destroyed and even carted away surveillance equipment.

Minister of State for Defence Dr. Subhash Bhamre told Parliament that accreting the Armed



Forces and developing their combat capabilities to tackle the entire spectrum of security challenges is an ongoing process. "Procurement of arms and ammunition is as per the Long Term Integrated Perspective Plan, the five year and annual acquisition plans, and the 12th defence plan," he explained. India has a standing Army of 1.2 million, with an additional 140,139 in the Air Force and 67,109 in the Navy.

A multitier security apparatus is tasked for operations at the center, at the states and at the borders. Responsible for national stability, the MHA is the nodal agency for dealing with all matters of internal security through its various arms that perform preventive, regulative and investigative roles. Its seven central armed police forces number over 1.3 million and are the National Security Guard, Central Reserve Police Force, Central Industrial Security Force, Border Security Force, Indo-Tibetan Border Police, Assam Rifles and Sashastra Seema Bal — the Armed Border Force. The last four have a specific border management mandate and also are assigned counterinsurgency duties regularly.

An Indian Army Soldier points out a rebel position to his colleagues during a gun battle in March 2017 in Chadoora town, about 25 kilometers south of Srinagar, in Indian-administered Kashmir.

The National Security Council, an executive government agency, also advises the Prime Minister's Office on matters of national security and strategic interest, integrating policymaking and intelligence analysis at a national level. Other stakeholders in internal security are the Directorate of Revenue Intelligence, Customs and Central Excise, and Railway Protection Force.

Given India's rich diversity, many challenges remain for the nation to fully unite within its borders. Despite the obstacles, India is making progress toward keeping the internal peace. The government and private sectors are working toward better cooperation in political, economic and social arenas. India's military and security forces will continue to be key to achieving a whole-of-government solution. \square

STRATEGIC DETERRENCE

Allies and partners key to security posture in the Indo-Asia-Pacific region

MAJ. PATRICK APPLEGATE/U.S. AIR FORCE

he Indo-Asia-Pacific region has long been an area of strategic importance to the United States with respect to trade, economics and global security. Historically, the U.S., while appreciative of partner nations and willing to work beside them, has predominantly worked unilaterally for security and deterrence. However, during the past two decades, free market globalization and global societal changes, coupled with U.S. forcestructure changes, have created a shift in that philosophy to one in which the U.S. recognizes that allies and partners are a critical enabler to deterrence posture. While U.S. forces are equipped and trained to operate unilaterally to defend U.S. interests and international norms, regional allies and partners provide a means to create synergistic and force-multiplying effects, especially with respect to deterrence operations.

At the end of the 20th century, military deterrence primarily was used to describe the prevention or dissuasion of weapons of mass destruction programs to include proliferation, weaponization and use. This definition is still vital to national security. Allies and partners rely on U.S. nuclear deterrence to dissuade the use of nuclear weapons and prevent nuclear proliferation.

In turn, the U.S. works with allies and others to encourage them not to pursue their own nuclear weapons, which could have destabilizing impacts on the region. An example of this effort is the ongoing situation

on the Korean Peninsula where North Korea has demonstrated its nuclear capabilities and has threatened weaponization as a form of hostility toward its neighbors, including the Republic of Korea (ROK) and Japan. The ROK and Japan have both taken into account their partnership with the U.S. and an



adherence to international laws and norms to counter North Korean proliferation by not pursuing nuclear weapons of their own to counter North Korea.

BROADER DETERRENCE OPERATIONS

Deterrence does not revolve around a nuclear focus, and in recent years common discussion has returned to a more broad and classical definition. Deterrence encompasses operations and activities designed to dissuade a state or nonstate actor from pursuing a course of action that could be seen as threatening to U.S. and partner nation interests. In terms more relevant to the Indo-Asia-Pacific region, this would be actions in violation of customary international laws or norms. Under this more broad definition, the ROK and Japan are critical partners and allies to U.S. deterrence operations.

The recent partnership between the ROK and Japan — in combination with

U.S. operations in the face of ongoing aggression by North Korea — is an example of the importance of allies and partners in deterrence operations. In March 2017, the U.S. used Continuous Bomber Presence (CBP) B-1 bombers and conducted a routine training mission from Guam to the ROK.

During this mission, the B-1s integrated with Japan Air Self-Defense Force fighters in formation training in the East China Sea prior to reaching the Korean Peninsula. After departing the formation with the Japan Air Self-Defense Force fighters, the B-1s later

Australian and New Zealand Soldiers and Republic of Korea and U.S. Marines rehearse an amphibious assault on Doksuri Beach, South Korea, during exercise Ssang Yong 16. ALLISON LOTZ/U.S. MARINE CORPS

U.S. Air Force, Japan Air Self-Defense Force and Royal Australian Air Force aircraft fly off the coast of Guam during Cope North 15. They worked on developing combat capabilities including air interdiction and aerial refueling during the exercise. TECH. SGT. JASON ROBERTSON/U.S.AIR FORCE







rejoined with ROK Air Force fighters for similar training over ROK-controlled airspace. Both countries operated bilaterally with the U.S., and planning for this mission required detailed coordination among all three countries. While the ROK and Japan share a history of diplomatic and military conflict, their current partnership and communication demonstrate the ability for countries to work together to peacefully solve problems and the importance of moving beyond past grievances to pursue shared interests. The ROK, Japan and U.S. can then focus on coordinated ways to deter North Korea's aggression while ensuring mutual defense and support.

IMPORTANCE OF REGIONAL PARTNERSHIP

This same spirit of cooperation applies to other areas of the Indo-Asia-Pacific region.

The South China Sea is an area where allies and partners are critical to deterrence objectives. It is a vital international waterway for a significant portion of the global economy where freedom of navigation and adherence to international norms are in the best interest of all regional nations. The U.S. supports the cooperation among all nations in this region to settle disputes via communication following the principles of the United Nations Convention on the Law of the Sea and internationally recognized bodies such as the International Tribunal for the Law of the Sea.

The U.S. also maintains several partnerships in the region with countries such as Australia, Indonesia, Malaysia, the Philippines, Singapore and Thailand. Vietnam is a key strategic and economic partner despite the previous conflict between the two countries. The U.S. supports the Association



of Southeast Asian Nations, a humanitarian, economic and key leader engagement organization. These 10 Southeast Asian states promote a growing intergovernmental, close-knit partnership that ensures all countries have equal access to shared international airways, waterways and resources.

These partnerships demonstrate the collective understanding of partner nations with respect to the importance of international cooperation and peaceful resolution of disputes, while adhering to international laws and norms. Working together in partnership with the U.S. is critical to ensuring continued deterrence in the South China Sea.

To maintain national security and preserve national interests, the U.S. will continue to work with partners and allies across the Indo-Asia-Pacific region on a daily basis. These A U.S. officer shows members of the Thai Navy's Riverine Patrol Regiment how to fire a .50-caliber machine gun during Cooperation Afloat Readiness and Training 2015 in Sattahip, Thailand. PETTY OFFICER 1ST CLASS JOSHUA SCOTT/U.S. NAVY

Thai and U.S. Soldiers push a truck stuck in sand during joint military exercise Cobra Gold in Chonburi province, eastern Thailand, in February 2017. THE ASSOCIATED PRESS

partnerships provide the most efficient means of demonstrating resolve with regard to respecting and defending access to international air, waterways, global common natural resources and protecting exclusive economic zones, while safeguarding territorial sovereignty. Clear multilateral cooperation will deter aggression and ensure regional nations understand it is not in their best interest politically, economically or militarily to resolve differences independently by force. \square

COUNTERING IMPROVISED EXPLOSIVE - DEVICES-

ASIA PACIFIC COUNTER-IMPROVISED EXPLOSIVE DEVICE FUSION CENTER

U.S. Pacific Command's fusion center engages the emerging threat

series of bombings struck five provinces in Thailand, including the popular Hua Hin tourist resort, on August 11, 2016. These attacks used a combination of firebombs and improvised explosive devices (IEDs) to kill four and wound 27. On September 2, 2016, an IED detonated at a night market on Mindanao Island in the Philippines, killing 14, including a 12-year-old child and nine police officers, and wounding 67. These events demonstrate that IEDs remain a constant threat across the Indo-Asia-Pacific region.

In 2016, within the U.S. Pacific Command's (USPACOM's) area of responsibility (AOR), 1,123 reported IED events, involving a range of civilian and government targets, caused more than 1,300 casualties. Violent extremist organizations (VEOs) operating throughout the region employ IEDs in a variety of ways with demonstrated effectiveness. In addition to the IED efforts by local extremist groups, the Islamic State of Iraq and Syria (ISIS) continues to transform the threat landscape by influencing local attacks to achieve global goals.



Prime examples include the Jakarta attacks in January 2016, killing two and wounding 24, and the July 2016 Holey Artisan Bakery attack in Bangladesh that killed 29 and wounded 50, mostly police personnel. Coupled with increasingly violent ideologies, the availability of new technologies such as unmanned aerial vehicles to deliver IEDs and the use of increasingly sophisticated electronics provide adversaries the means to elevate their effectiveness. With new technologies, the continued use of IEDs by local VEOs and ISIS' evolving presence in the region, USPACOM drives a requirement for a dedicated capability to identify emerging IED threats and provide effective training to counter these threats in the Indo-Asia-Pacific.

DEFINING THE THREAT

The wide range of countries and cultures across the Indo-Asia-Pacific region provide an assortment of IED tactics, techniques and procedures (TTPs). IEDs in the USPACOM AOR range from relatively simple pipe bombs crafted with construction materials to sophisticated radio-controlled devices that employ commercial-grade explosives and additional fragmentation enhancements for maximum effect. VEOs tend to rely on locally acquired material and training for their devices. In areas where ordnance or commercial-grade explosives are not readily available, groups have adapted by using available components to produce

homemade explosives such as triacetone triperoxide, used in the Paris and Brussels terrorist attacks. Increasing ISIS influence in the region requires constant vigilance for IED TTP migration from devices currently used in Syria and northern Iraq. The use of unmanned aircraft as a delivery system for IEDs and sophisticated booby-trapped devices targeting explosive ordnance personnel are two techniques recently employed against Iraqi forces that pose a future threat for military and security forces in the Indo-Asia-Pacific and require constant monitoring.

ENGAGING THE THREAT

The Asia Pacific Counter-IED Fusion Center (APCFC) provides cutting-edge training, intelligence analysis and regionally tailored IED information to U.S. service members and organizations operating across the USPACOM AOR, to include joint, interagency, intergovernmental and multinational (JIIM) personnel. It is organized in four unique elements to maximize engagement opportunities to train forces and provide critical IED information and intelligence to our allies and partners across the region: Training Division, Irregular Warfare Analysis Cell (IrWAC), Partner Nation Engagement Section, and the Identity Activities (IDA) Section.

TRAINING DIVISION

The continued deployment of the U.S. military throughout the region where IEDs remain a threat to military and civilian personnel requires an aggressive training program. Accordingly, the fusion center's training division develops and conducts Indo-Asia-Pacific-tailored

C-IED training in accordance with higher headquarters guidance and the fusion of current intelligence to prepare U.S. forces for operations in an IED environment. In addition, the fusion center conducts subject matter expert exchanges (SMEEs) and trains partner nation forces using the same principles to further interoperability. For example, the Master C-IED Train-the-Trainer Course is a focal point of these interoperability efforts and incorporates standards used to familiarize U.S. and partner nation military. This three-week course provides units with leaders capable of training their formations on current C-IED equipment, IED TTPs, and integrating IEDs as part of the training environment.

This enables regional militaries to adopt the same C-IED terminology and practices, thereby

dedicated intelligence products to support tailored C-IED training and SMEEs to enhance U.S. and partner nation forces survivability and build partner nation capability. An example of these products is the monthly IED report, which focuses on irregular warfare across the Indo-Asia-Pacific region, specifically highlighting IED attack and casualty trends and VEO activity. The reports are available to JIIM personnel at http://www.usarpac.army.mil/apcied/IEDMonthlyMain.htm.

PARTNER NATION ENGAGEMENT SECTION

The partner nation engagement section builds capacity and fosters or maintains relationships through SMEEs, key leader engagements, interoperability reviews, follow-on training and other events. It's



enhancing their interoperability with other forces. The training also results in developing the C-IED proficiency of U.S. and partner nation members to the level that they are capable of training their forces when they return to their units with a much higher degree of effectiveness. APCFC has successfully trained students in Bangladesh, Japan and Thailand, as well as Marines and Airmen from the U.S. Marine Corps and U.S. Air Force.

IRREGULAR WARFARE ANALYSIS CELL

IrWAC conducts intelligence analysis and production against irregular warfare threats and VEOs in the Indo-Asia-Pacific. It is a unique component of the APCFC and not found in any other Army service component command around the globe. The IrWAC collaborates with partner nations and interagency organizations to illuminate the threat in order to disrupt facilitation networks. They also provide

APCFC's way of sharing the U.S. military's hard-won experience operating in the IED environments of the Iraq and Afghanistan battlefields. During partner nation engagements, the APCFC aims to develop capacity and interoperability across all warfighting functions and tailors engagement strategies based on host nation capabilities and desired end states. By following the same train-the-trainer format it uses with U.S. forces, the APCFC empowers partner nation unit commanders to conduct C-IED training tailored to their unit's strengths and weaknesses and their operating environment.

IDENTITY ACTIVITY SECTION

The evolving nature of warfare points to an adversary's ability to employ individuals to operate within the local populations, refugee camps and detention facilities to disrupt friendly force operations. The fusion center's newest section, IDA,

provides an optimal tool for analyzing actors and networks. It works toward establishing and characterizing the identity of persons of interest, known adversaries and other relevant actors, such as IED manufacturers, operating in the region. IDA accomplishes its objective of differentiating entities using biometrics, forensics, document and media exploitation, and identity intelligence. The APCFC provides training on multiple hand-held biometric enrollment devices such as the Secure Electronic Enrollment Kit II (SEEK II) and SEEK Avenger. More important, the APCFC's IDA Section can weave the enrollment data from these devices into training vignettes to support larger Attack the Network/Network Engagement collective training scenarios. The APCFC trains U.S. forces and collaborates with allies and partner an inclusion of weapon technical intelligence and identity intelligence. Deployment of the expeditionary FXL-P assets during operational preparation of the environment supports the training of U.S. forces and engagements with partner nations through the inclusion in combined exercises. The FXL-P's capabilities proved vital to commanders in Iraq and Afghanistan by providing the evidence that removed scores of VEO members from the battlefield. Another example of an IDA capability is the biometric-enabled intelligence team, which supports organizations with biometric tracking intelligence packages to deliver specialized biometric products for the purpose of monitoring and/or neutralizing the operational capacity of individuals, cells, and/or networks of interest and transnational threats.



Source: U.S. Army Pacific

nations to enhance IDA capabilities. The IDA program relies on team members' expertise in biometrics, site exploitation and intelligence reports to streamline information and evidence from the point of collection through analytical centers to the exploitation facilities. The APCFC IDA program is postured to provide support to a variety of missions, including counterterrorism, counterinsurgency, homeland defense, force protection and support to civil authorities.

An example of an IDA capability is the Forensics Exploitation Lab Pacific (FXL-P) at Schofield Barracks, Hawaii. It is capable of forming the central physical and procedural structure of a combined exploitation center in support of a combined joint task force. The FXL-P provides biometric, DNA, latent fingerprint, explosive triage, explosive and drug chemistry, electronic engineering, firearms and tool mark analysis with

The threat in the Pacific is real; the fusion center continues to work with other military services, government agencies, partner nations and allies to counter the threat resulting in regional security and stability. JIIM personnel's preparation for combating the IED threat during peacetime will reduce the strategic impact of IEDs on a future battlefield.

Commanders in all types of military formations need to be ready for the ever-evolving IED threats. Capabilities must also be tied to real-time intelligence and analysis. The APCFC can provide training and awareness to help commanders protect their forces and defeat terrorists. For more information, contact the APCFC at usarmy.shafter. usarpac.list.apcfc-requests@mail.mil. \square

The Asia Pacific Counter-Improvised Explosive Device Fusion Center, established in 2010, works for the U.S. Army Pacific G3 and conducts C-IED and irregular warfare analysis, develops C-IED and explosive ordnance disposal programs, and supports identity activities while facilitating engagements with U.S. allies and partner nations to minimize the impact of IEDs.

COUNTERNARCOTICS TRAINING FFORTS IN MALDIVES

RISE IN DRUG ACTIVITY BRINGS COUNTRIES TOGETHER TO FIGHT BACK

JOINT INTERAGENCY TASK FORCE WEST

he Republic of Maldives — a nation composed of a chain of 26 atolls with 1,192 islands — is one of the world's most geographically dispersed countries. Though Maldives is home to fewer than 400,000 inhabitants, it receives almost twice its population in visitors annually. With tourism as the source of 90 percent of the country's tax revenue, Maldives does not require visitors to obtain a visa before arrival, regardless of their country of origin.

This internationally friendly stance toward visitors comes with a price. To protect the nation from myriad challenges ranging from drug trafficking to arms proliferation, Maldives have an active military comprised of a Coast Guard, Marine Corps, Special Forces, Service Corps and a Corps of Engineers that all fall under the Maldives National Defense Force (MNDF).

The MNDF has a multifaceted mission. It protects Maldives' territorial waters and marine environment, conducts search and rescue and salvage operations, enforces maritime law, provides VIP and convoy protection and conducts coastal surveillance. The task is daunting given the nations' 200 inhabited islands span 55,297 square kilometers, and the MNDF must police them from only 50 substations.

In recent years, Maldives has experienced a rise in criminal activity from gangs selling heroin from Asia as well as the smuggling of alcohol in contravention of Muslim law. In



Members of the Maldives National Defense Force (MNDF) practice at a range during joint military training in the Maldives.



MNDF Special Forces and Coast Guard members conduct counternarcotics training with a member of the U.S. military.

addition to the rise in criminal activity, the MNDF also has to contend with violence by radicalized individuals who return to the capital, Male, after having studied abroad. Though there have been no documented terrorist attacks in Maldives since the September 29, 2007, bombing of Sultan Park in downtown Male — where 12 foreign tourists died from a blast carried out by a Maldivian terrorist with ties to Pakistan — concerns are growing over the proliferation of the Islamic State of Iraq and Syria (ISIS). The U.S. Overseas Security Advisory Council states in its 2017 Sri Lanka and Maldives crime and safety report that a number of Maldivian nationals have traveled to Syria to join ISIS.

To help thwart drug-related activities of transnational criminal organizations, the MNDF has been working with U.S. PACOM's executive agent for counterdrug programs, Joint Interagency Task Force West (JIATF West). Since 2010, JIATF West has supported Maldives law enforcement and military efforts through special counter narco terrorism (CNT) and maritime law enforcement training. To develop the training programs, coordination with Maldives was done through the Office

of Defense Cooperation's Counter Terrorism Capacity Building Program — part of the U.S. Sri Lanka – Maldives Embassy in Colombo.

To provide the niche skills training needed in CNT work, JIATF West teamed up with interagency partners such as the U.S. Federal Bureau of Investigation and the Drug Enforcement Agency to train members of MNDF Marines and Coast Guard, and the Maldives Police Department. In addition to law enforcement techniques training, tactical skills are also part of the JIATF West CNT program with courses led by a cadre of Pacific Special Operation Forces Maritime members. The training was designed to give participants the opportunity to practice reacting to various trafficking scenarios including drug, weapons, human trafficking and piracy. Training initiatives cover a wide range of law enforcement and counterterrorism skills including such topics as intelligence analysis techniques, interview techniques, small boat handling, tactical combat casualty care, marksmanship training, visit, board, search and seizure, room clearing, mission planning and sensitive site exploitation (SSE).

TACTICAL TRAINING CENTER LAUNCHES IN THAILAND

JOINT INTERAGENCY TASK FORCE WEST

Construction began in December 2016 on an indoor tactical training center in the Thai town of Nong Sarai in Nakhon Ratchasima province.

U.S. Pacific Command's counterdrug task force, Joint Interagency Task Force West (JIATF West), is sponsoring the U.S. \$2 million-plus project in support of Royal Thai Police (RTP) counterdrug efforts.

The building, which is to be completed by the end of June 2017, will provide the police with a 7,200-square-meter, state-of-the-art indoor tactical training facility that will be part of a 304-hectare training complex called the Royal Thai Police National Training Center. The large building is needed to house a simulated town that will provide an urban setting for police officers to practice tactical maneuvers day and night regardless of outdoor weather conditions.

RTP has had a long and cooperative partnership with JIATF West since it began providing counternarcotics training in Thailand in 1994. To date JIATF West has conducted over 160 training missions with more than 8,000 police officers in Thailand.

The project is a joint effort of the U.S. Embassy's Law Enforcement Working Group and the RTP Police

Education Bureau. The working group includes the Bureau of International Narcotics and Law Enforcement, Diplomatic Security, the U.S. Drug Enforcement Administration and the Naval Facilities Engineering Command.

The building dedication was part of a ceremony celebrating the fourth anniversary of the Royal Thai Police Central Tactical Training Center.

Presiding over the ceremony was Police Gen. Adul Saengsingkaew, minister of social development and welfare and former commissioner general of the Royal Thai Police. Police Commissioner

Gen. Chakthip Chaijinda and Police Maj. Gen. Sornkrit Kaewpalek, deputy commissioner of the Police Education Bureau, also attended.

The ceremony included a tour of the RTP Central Tactical Training Center, a tree planting ceremony, remarks by Gen. Chakthip and U.S. Ambassador Glyn Davies. "The United States has been, and will remain, a strong partner in fostering the joint law enforcement relationship between our two countries. Projects such as this will serve as the cornerstone of this relationship for years to come," Davies said.



JIATF WEST ADDS SCANNING ABILITY TO MAE SAI

BORDER CROSSING

JOINT INTERAGENCY TASK FORCE WEST

Mae Sai, Thailand's northernmost city, is nestled in the Golden Triangle, where the borders of Laos, Burma and Thailand meet. Across the border is the Burmese town of Tachileik, frequented by travelers who leave their passports with the immigration office. They are free to stay within Tachileik and the surrounding district of Kengtung for up to 14 days without having to obtain a visa.

The Mae Sai-Tachileik border is the busiest crossing point between the two countries and an increasingly popular transit point for transnational criminal organizations moving illicit narcotics, according to the United Nations Office on Drug and Crime (UNODC).

Thai authorities estimate that more than a billion pills of methamphetamine (called *yaa baa*, or crazy medicine) are trafficked across the borders of Thailand and Burma annually. In addition to the trafficking of meth, other drugs such as heroin and precursor chemicals, human trafficking takes place through both official land checkpoints and informal crossings. The Golden Triangle is famous for the production of opium.

The region's porous borders and shallow river crossings between Tachileik and Mae Sai allow traffickers and migrants to wade across the Sai River during the dry season. UNODC estimates that 450,000 migrants are smuggled into Thailand, with one-third moving through official checkpoints.



To support the counterdrug efforts of Thai customs and border officials, U.S. Pacific Command's counterdrug task force, Joint Interagency Task Force West (JIATF West), has undertaken an initiative to improve security in the northern border region of Thailand.

One component of JIATF West's initiative is to rebuild the Mae Sai Customs House X-Ray Center and incorporate the border crossing's first full-body scanner. The improvements will have a significant impact, according to Scott Hawman, JIATF West's base development program manager.

"For a relatively small amount of money — we're talking a few hundred thousand dollars — we'll be drastically improving the ability of Mae Sai Customs and Border officials to interdict illicit drugs," Hawman said.

JIATF West
estimates that
more than 1,000
people a day travel
through the Mae
Sai-Tachileik checkpoint.

bridge between Mae Sai, Thailand, and Tachileik, Burma. During the dry season, traffickers and migrants can wade across the Sai River.

JIATF WES

The project became operational on December 1, 2016, and includes gutting the existing building and adding a new structure that will include interview rooms, changing rooms, evidence storage, an administrative room and a full-body scanner. U.S. Naval Facilities Engineering Command is overseeing the construction, which was nearing completion in May of 2017.

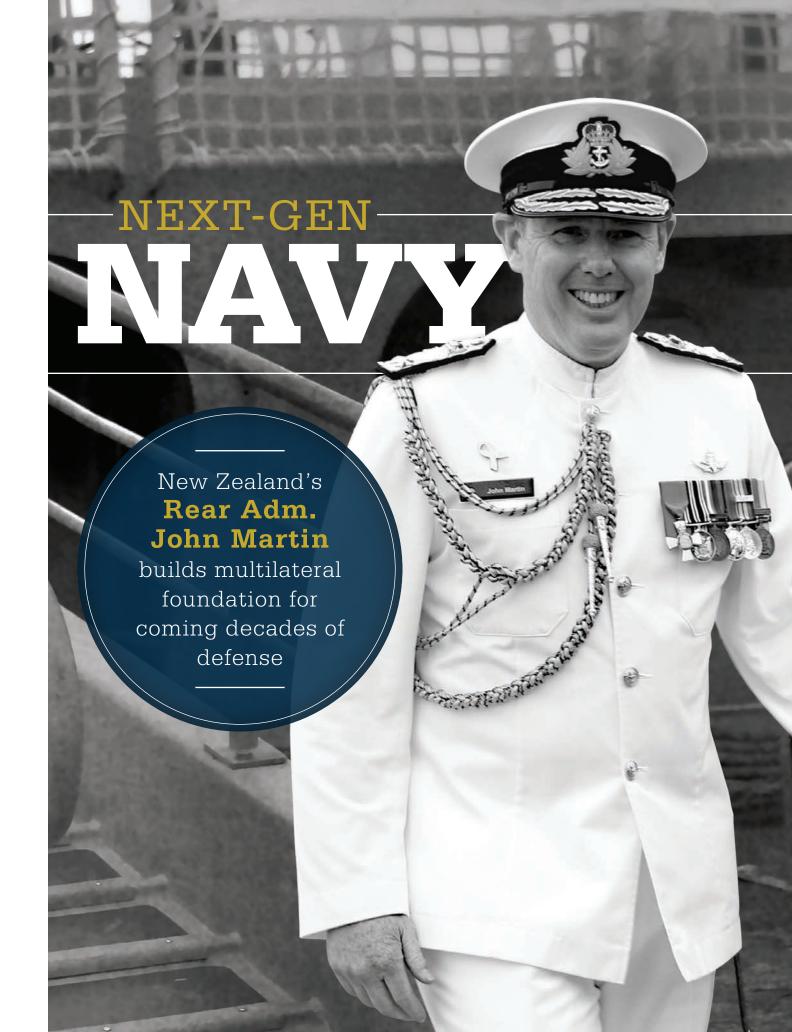
Beginning in 2013, JIATF West added a series of trainings that combined law enforcement and maritime skills together known as Integrated Maritime Skills or IMS. The IMS team comprised of U.S. Coast Guard and Navy Reservists who have unique backgrounds in both law enforcement and maritime maintenance. "The IMS team provides a critical bridge in skills development at the basic operator level, allowing security force partners to build competency to a level where U.S. military trainers can provide advanced training," said Tom Wood of JIATF West's Commanders Action Group.

The most recent round of CNT training called "Fusion Metal" took place in early February 2017, with MNDF Marine and Coast Guard units in the Laamu atoll, Maldives largest atoll. The four-week evolution

encompassed a range CNT training including tactical skills, weapons handling, marksmanship, visit board search and seizure, SSE, prisoner handling and mission planning. The goal of the Fusion Metal training evolution was for MNDF members to develop expertise with compliant and noncompliant boarding, develop standard operating procedures, and learn to conduct thorough SSE to support counternarcotics operations.

"The security situation in the Indian Ocean is changing," explained Col. Mohammed Ibrahim, MNDF Coast Guard Commander, also a U.S. Naval Academy graduate. "And the threats the Maldives are facing will be shared with other regional countries."

Since 2010, JIATF West has conducted 15 various counternarcotics training events in Maldives and trained over 500 law enforcement and MNDF members. □





FORUM STAFF

ear Adm. John Martin assumed the role of chief of the Royal New Zealand Navy (RNZN) on November 30, 2015. In 2016, the Navy celebrated its 75th anniversary. During his three-year tenure, the Navy is promoting enhanced combat capability and preparing itself for the delivery of new vessels that will aid in conducting maritime tasks in the 2020s and beyond. Martin also sits on the boards of the Whole of Government Radio Network and the Customs Investment Board. He became an Officer of the New Zealand Order of Merit in 2003, after becoming a member in 1996.

Prior to becoming chief of the Navy, Martin was the assistant chief capability on the staff of the Chief of Defence Force. In this role, he served as the capability sponsor for the Defence Force, managing the capability life cycle from definition to disposal. Additionally, he acted as the deputy director for the 2014 Defence Assessment, a strategic review of the security environment, and the deputy director of the Defence White Paper 2015, a document that will set the Defence Force tasks, capability and fiscal requirements out to 2035.

Please tell FORUM more about your career path. You started out as a radar plotter and impressively ascended the ranks to the senior executive level.

I joined as a radar plotter in 1979, but commissioned from the ranks in 1980 after identifying that I wanted the opportunity to command a warship.

Since completing my officer training, I have served in ships of the RNZN, Royal Navy and U.S. Navy, fulfilling the functions of bridge watchkeeper, maritime air traffic controller instructor, frigate navigator, principal warfare officer and finally as the commanding officer.

After I finished my final sea posting as commanding officer of HMNZS Te Kaha, I held a number of operational staff appointments, as well as positions responsible for leadership development, portfolio management, operational planning and capability development.

As a senior leader in the RNZN, I have also had roles as the

maritime component commander, commanding the fleet and have also been responsible for capability development across the New Zealand Defence Force (NZDF).

Overall, my career reflects the varied opportunities available within the RNZN and NZDF, working in a number of areas and gaining valuable experience in each position, which has all helped me in my current rank.

What do you think enabled you to succeed?

Throughout my career, I have enjoyed working with great people, in a wonderful environment all working together for a worthy cause. To be successful in any military career, you need to be motivated, resilient and determined.

A major enabler for success is my family, who have supported my career and the different demands of the postings I have had.

What are some of the highlights of your career before you assumed the role of chief of Navy?

A significant highlight was the opportunity to command HMNZS Te Kaha, and the range of deployments the ship undertook during my time in command.

But I've also had the honor of leading our officer training school, shaping the next generation of officers and leaders for the organization, many of whom are still serving today and enjoying successful careers of their own.

As the maritime component commander, I led our fleet during a busy period for our Navy, including the first New Zealand ship to participate in the Rim of the Pacific exercise after the Australia, New Zealand, United States Security Treaty changes in the late 1980s. We were also developing and embedding the ability to conduct routine Southern Ocean patrols with our offshore patrol vessels, as well as conducting routine deployments to the Southeast Asian region.

In terms of influence, scope and challenge, the role of assistant chief of capability — working with government agencies, across defense, and with industry to map out the future Defence Force was a key role.

Of course, my current role is also a highlight and represents a significant achievement in my career. It is my honor to lead the RNZN.

For a time (from 2001 until August 2003), you commanded the HMNZS Te Kaba?

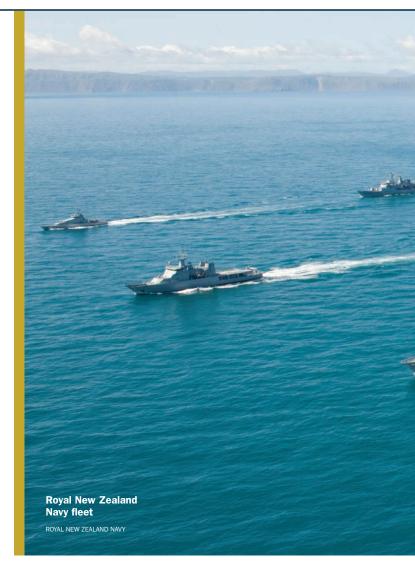
As I have already mentioned, this was a major career highlight and something most young bridge watchkeepers work toward but not many achieve. While I was in command, the ship undertook a number of deployments to Australia, Southeast Asia, China, Korea and Japan. We also did a mission to the Gulf of Oman to conduct maritime interception operations, which was a satisfying personal contribution to global maritime security.

We worked with a large number of navies to achieve a common aim, and it was in that context that I came to the conclusion that our Navy is as professional and wellperforming as our large cousins.

Why is the Defence Capability Plan instrumental to the White Paper?

The White Paper describes New Zealand's view of the international strategic environment, our national security interests and how defense contributes to these, and the roles and tasks the government expects the Defence Force to undertake.

The Defence Capability Plan is a companion document to the White Paper. It lays out in detail the range of capabilities the Defence Force requires to give effect to the government's defense policy intentions. It also assists industry to prepare for potential defense



acquisitions and provision of services.

By defining how we will develop and generate the effects that the government wants, the Defence Capability Plan is instrumental in shaping our capability development and major asset acquisition program.

What does the RNZN need to do to be prepared for 2020? 2035?

The 2016 White Paper demanded new tasks of us. It also reinforced the importance of New Zealand's defense and security relationships with allies, key partners, industry and friends.

The government's intent to deliver maritime effects in the local region, as well as farther afield, has set the NZDF on a growth path that will see significant capability investment between now and the early 2020s.

For the Navy, this includes an upgrade to our frigates, a new tanker, and a single ship replacement for the Navy's diving support ship and previously decommissioned survey and oceanographic research



vessels. The government has also signaled a commitment to an ice-strengthened ocean patrol vessel (OPV) to join the current two OPVs. All of these capabilities will need to be operational by the early 2020s, and so the RNZN's preparations for this horizon are focused on ensuring that we will have the necessary people, support arrangements and operational processes in place to exploit the new capabilities. This Navy is what I like to call the "Next Navy" — the die has been largely cast, and we just need to implement.

Initial preparations for 2030-2035 involve a large amount of work now to define what I refer to as the "Navy-after-next." In the 2035 time frame, we can expect the current Anzac-class frigates to have been replaced with some sort of combat capability, but in what form is unknown, which opens up all sorts of exciting possibilities. Technology, ways of learning and training, support mechanisms, expectations of new generations of Sailors, concepts of operations, our future culture, where we will base our ships ... all of these areas will need to be explored over the next year as we define what that Navy might look

like. Once that is done, we will quickly move to planning and implementing the necessary transformation.

On becoming chief of the Navy in 2015, what were the top goals that you hoped to achieve during your tenure?

I have three goals: First, to invest in our leadership. I need to guide and mentor our future leaders at the senior level and to enable the Navy to lead and shape the debate around naval capability, sea worthiness and force generation.

Second, to celebrate the Navy's 75th anniversary by leading it to acknowledge those who have gone before, celebrate and recognize those serving, and look forward to our exciting future.

My third goal is to lay the foundation for the Navyafter-next. We need to start the transformation that will allow us to adopt and master new technologies that will be delivered in 2030. This means reviewing the nature of work, career structures and competencies. We also need to look at new ways of accomplishing our tasks.



The Royal New Zealand Navy's HMNZS Te Kaha, an Anzac-class frigate, forefront, and HMNZS Endeavor, a replenishment oiler, cruise together.

ROYAL NEW ZEALAND NAVY

What advice do you have for individuals who think they would like to pursue a military career?

Do it! The military offers a range of career options and opportunities that will suit a number of people. It does not resemble the Hollywood stereotype that is seen in movies and is instead a dynamic organization, which will grow the development of our people while also meeting the higher purpose of providing security for our nation.

A military career is a foundation for success in a lot of different areas, whether in private industry, the wider defense and security sector, or public service.

What are the biggest challenges the RNZN and NZDF face today?

On a strategic level, maintaining maritime domain awareness is a critical security issue for New Zealand. This has always been a challenge, given the sheer size of that domain. In population and economic terms, New Zealand is a relatively small nation; however, it is a large maritime nation, and we have the world's fourth-largest exclusive economic zone (EEZ). In 2016, at our maritime security

forum, we developed the view that we may be a small nation but are also an "oceanic superpower." We also have responsibilities beyond our immediate area, for example in supporting Pacific states to patrol their EEZs and contributing to international operations farther afield.

For the NZDF as an organization, we need to meet government expectations and deliver NZDF outputs within tight fiscal parameters.

In particular, for the RNZN we need to meet the operational demands of government's expanding calls for our services, while building an organization capable of providing future maritime options to our country. Both require the careful balancing of resources, often the same resources, in a competitive time frame, and therefore, the careful management of expectations.

Specifically, we need to maintain the ongoing development of deployable combat capability (ships, aircraft, mine countermeasures teams), the development of command teams for coalition maritime operations, and the concurrent preparation of forces that can deploy as a task group. We also need to manage the capability gaps brought about by replacements and upgrades. Over the next five years, we will be generating and



integrating new capabilities because we will have a 20 percent turnover of ships, with an associated increase in size, sophistication and complexity of our fleet.

Ensuring that we have the right number of suitably qualified and experienced people is a perennial challenge, not unique to the RNZN, but one that has exaggerated impacts due to our small size. It is our people, as much as the number of ships that we have, that make or break our operational capabilities and options.

But with these challenges also come opportunities to exploit technology, operate more smartly, to innovate and to transform quickly. This is why exploring and defining the Navy-after-next is so important.

Why do you believe multilateral approaches are important for security in the region?

Security is a common goal to all countries, although each state will maintain its own perspectives on the best way to address the common security challenges it faces. But it makes sense to work together to address these.

To do this, though, we need a common language, common laws and a framework to help us effectively communicate and achieve these shared goals. Multilateral institutions provide mechanisms for transparency and predictability. They allow states to share a broader range of perspectives, intelligence and expertise than if we operated on a bilateral basis. They support a better understanding of the international strategic environment, and of each other.

It's important that we remember that for the RNZN, our region includes the Antarctic and the Southern Ocean — an area of increased focus for the government and for the Navy, too. The Antarctic Treaty System stands as an excellent example of what multilateral approaches can achieve, in this case over a large part of the globe that has multiple and often overlapping territorial claims. The continent has been successfully and peacefully managed for many decades due to the articulation of common interests and a strong multilateral commitment to protecting those.

What do you think are the top security concerns for the Indo-Asia-Pacific in the coming years?

There are a number of challenges to the international rules-based order. These may be wider than the Indo-Asia-Pacific but clearly manifest in the region:

- Maritime disputes involving multiple states have the potential to escalate quickly.
- Closer to home, transnational crime and illegal access to resources by fishing vessels is

- undermining the ability of many small Pacific Island states to control their borders.
- Population growth is increasing pressure on international fisheries and other resources.

There are also a number of nongeographic security issues such as violent extremism (whose impact is exacerbated by increasing access to technology) and an accelerating cyber threat.

Why is maintaining a rules-based international order especially important to New Zealand?

New Zealand is a small country, so we rely on a stable international rules-based order to provide a level playing field. For us, this means a system that accords the same rights to all states regardless of their size, economic power or strategic weight.

How will the RNZN contribute to help allies address these challenges in the Indo-Asia-Pacific region?

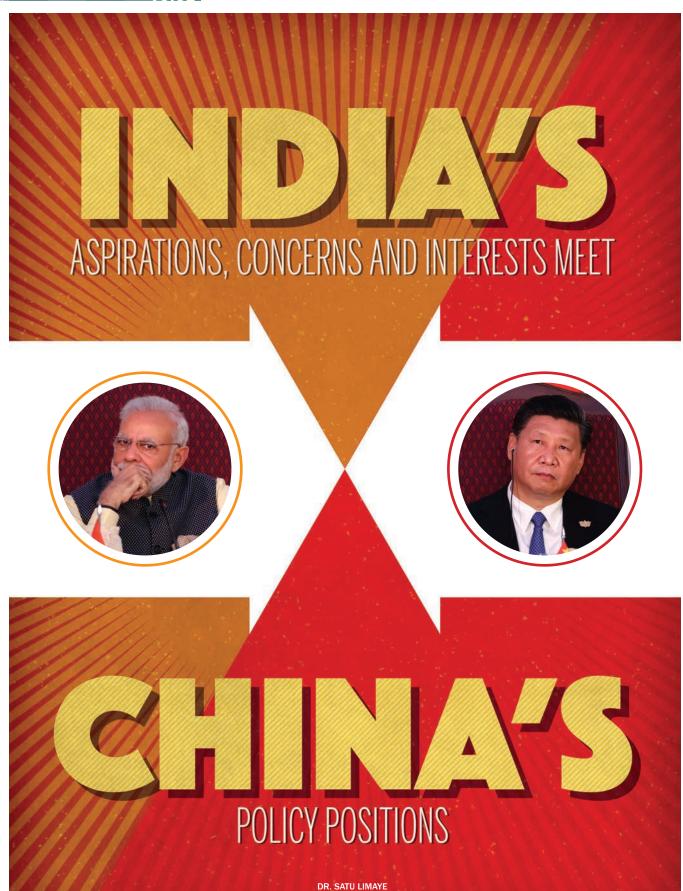
As a defence force, we regularly deploy throughout the Indo-Asia-Pacific region to engage with and support like-minded nations in a collective effort to maintain regional and global security. Every year, the NZDF participates in more than 100 plus joint, combined and single-service exercises or activities in the Indo-Asia-Pacific.

We conduct maritime operations with our allies in support of a shared situational awareness for the region. We commit naval capabilities to multinational maritime security exercises and operations, including hosting multinational exercises in New Zealand waters such as the recent ADMM-+ (Association of Southeast Asian Nations Defence Ministers' Meeting-Plus) Maritime Security Field Training Exercise off Auckland in November 2016.

We are also active members of the Five Power Defence Arrangements and organizations such as the Western Pacific Naval Symposium (WPNS), and contribute to security mechanisms such as the development and eventual implementation of the WPNS Code for Unplanned Encounters at Sea.

The Navy is just one part of the NZDF, and we work with the wider defense organization, including the Ministry of Defence, to evaluate the strategic environment and develop and introduce naval capabilities. We also contribute our views and expertise to conversations about maritime security through bilateral and multilateral channels such as the ASEAN Defence Ministers' Meeting.

Overall, New Zealand's strength has been our ability to work multilaterally and develop strong international relationships to maintain both our government's economic and security objectives and those of our partners and allies. \square





here were only two visits between Indian and Chinese heads of government during 2016 — both for multilateral meetings with brief sideline bilateral interactions. Indian Prime Minister Narendra Modi traveled to Hangzhou for the G20 Summit in early September, and Chinese President Xi Jinping visited Goa in mid-October to attend the eighth Brazil, Russia, India, China and South Africa (BRICS) Summit.

However, Indian President Pranab Mukherjee did make a state visit to China, focusing on the mutually declared "Closer Development Partnership" earlier in May 2016. It was his first visit since taking office in July 2012 and the first visit by an Indian president since 2000.

Overall, India-China relations during 2016 were hobbled by specific disagreements that also reflected more fundamental divergences. China's policy positions on placing a well-known militant leader on a United Nations terrorism list, India's entry into the Nuclear Suppliers Group (NSG), as well as border and trade differences were interpreted in India as examples of insufficient Chinese regard for India's aspirations, concerns and strategic interests. Prime Minister Modi linked bilateral relations and broader constraints during his September 2016 visit to China, saying, "To ensure durable bilateral ties and their steady development, it is of paramount importance that we respect each other's aspirations, concerns and strategic interests."

In another formulation, Modi called for both countries to "be sensitive to each other's strategic interests ... promote positive convergences ... and prevent the growth of negative perceptions." Clearly, he did not think China was doing its part, but claimed India was doing its part through the Closer Developmental Partnership and cited "maintaining peace and tranquility on the border" and increasing cultural and people-to-people ties as specific successes.

In March 2016, China did not support designating Masood Azhar, leader of the banned militant organization Jaish-e-Mohammed (JeM), as a terrorist at the U.N. Sanctions Monitoring Committee for al-Qaida, the Islamic State and other extremist groups. This came on the heels of a January 2, 2016, attack on the Indian Air Force Base at Pathankot, which Indian officials claim emanated from Pakistan and JeM.

In a bizarre and still unclear development soon afterward, Uighur dissident Dolkun Isa, executive committee chairman of the World Uighur Congress, was reportedly given an Indian visa to attend a conference in Dharamsala, only to have it retracted, according to news reports. India's lively media covered the issues repeatedly throughout the year; Indian officials were muted but clear about the continuing disagreement.

For example, when asked at a news conference about the issue on the eve of Indian President Pranab Mukherjee's visit to China in May 2016, a Ministry



Indian President
Pranab Mukherjee,
right, and Chinese
President Xi Jinping
attend a welcoming
ceremony at the
Great Hall of the
People in Beijing,
China, in May 2016.

REUTERS

of External Affairs (MEA) official said: "Look on the issue of Jaish-e-Mohammed, I totally agree with what the Chinese government has said that they are in close communication with the Indian side, and we are in close communication with the Chinese side."

That was the full extent of the official explanation. During Modi's September 2016 visit to China, Indian officials said he condemned a recent terrorist attack on the Chinese Embassy in Bishkek, Kyrgyz Republic, and reiterated to Xi "that our response to terrorism must not be motivated by political considerations." Indian briefers did not indicate whether Xi responded.

Indian Foreign Secretary S. Jaishankar was slightly less constrained than his boss, but still careful at a joint meeting of Indian and Chinese think tanks in December 2016. He noted that both countries "face threats from fundamentalist terrorism. Yet, we do not seem to be able to cooperate as effectively as we should in some critical international forums dealing with this subject. Even on sovereignty, surely there can be more sensitivity and understanding."

The latter sentence appears to reflect the Indian interpretation that China's reticence about supporting the terrorist designation for Azhar stems from China's

concerns about state sovereignty. This may well be so, but what the incident signifies is that even on an issue where China and India are said to share an interest and principle (anti-terrorism), differences regarding Pakistan and U.N. action trumped the ability and willingness to fully accept the other's interests and positions.

Nevertheless, the two sides continued to insist that they were cooperating on counterterrorism. In a November 2016 meeting with Meng Jianzhu, secretary of the Central Political and Legal Affairs Commission of the Communist Party of China, Modi said that "terrorism poses the gravest threat to international peace and security, and welcomed increased cooperation between India and China on counterterrorism related matters."

Another incident complicating India-China relations over the latter half of 2016 was India's bid for membership in the NSG. Prior to a plenary meeting of the NSG in June in South Korea, China's Foreign Ministry issued an online statement that noted "large differences" remain among NSG members over including non-Nuclear Nonproliferation Treaty (NPT) signatory countries. India dispatched Foreign Secretary Jaishankar to Beijing for talks June 16-17, 2016. According to the Chinese press briefing: "During this visit, the Indian side expressed its desire of joining the NSG for the purpose of developing nuclear energy to



combat climate change. The Chinese side understood India's need to develop nuclear energy.

Meanwhile, China reaffirmed the importance of the NPT as the cornerstone of the international nonproliferation regime, stressing that the group remained divided on the accession of non-NPT countries. China also noted that "NSG meetings have never put the accession of any specific non-NPT countries on their agenda. The upcoming NSG plenary meeting in Seoul will not cover this issue either. Therefore there is no point talking about supporting or opposing the entry of a particular non-NPT country at this moment. ... China's stance does not target any particular country, but applies to all non-NPT countries."

India responded later in the year, expressing frustration that shared principles were not being translated into convergent policies. Foreign Secretary Jaishankar said,

"Given our Closer Development Partnership and commitment to the [Brazil, South Africa, India and China] group on climate change, we should be supporting each other on implementation of our Paris Agreement commitments."

In India's case, predictable access to civilian nuclear energy technology is key. The broad basing of the nuclear technology control group is also helpful to a more representative international order. Keeping in mind this solidarity of major developing states, it is important that China view this as a developmental aspiration and not give it a political coloring.

India's interpretation of China's position regarding India's NSG membership drive was clearly much broader than Beijing's focus on uniform criteria for membership. This was echoed in other divergences regarding "international order."

Foreign Secretary Jaishankar highlighted another gap saying, "And for all the talk of China and India sharing interests in global forums despite bilateral differences, ongoing differences are quite stark. Though we have a commitment to a more democratic world order, our actions in respect of the reform of the U.N. Security Council are in contrast to our approaches to usher in a more equitable international economic order through reform of the existing multilateral institutions and our cooperation in creating

new institutions such as the Asian Infrastructure Investment Bank and the New Development Bank, formerly the BRICS Development Bank."

These situations are paradoxical because we actually hardly differ when it comes to principles. Ironically, given the above differences during the year, the nearly six-decades-old border dispute was quiescent in 2016, with only the usual military meetings and special representatives talks taking place.

Speaking to a joint think tank forum in December 2016, Jaishankar focused on the positive, saying the two sides "have generally established peace and tranquility while agreeing on political parameters and guiding principles for a boundary settlement." He said that ongoing incidents "emanate from different logistical capabilities and a lack of commonly agreed line of actual control" but intriguingly expressed the hope that "as these gaps narrow (presumably referring both to the asymmetry of capabilities and the lack of a shared view of the Line of Actual Control, or LAC), we will see a greater stability that would be helpful toward arriving at a final boundary solution."

The subtle wording seemed to combine a warning and signaling about India's efforts to reduce the logistical capability problems on its side of the LAC in Arunachal Pradesh through infrastructure and military upgrades with a reference to India's consistent diplomatic request for clarification of the LAC — an "ask" that Modi had made during his May 2015 visit to China.

Trade and investment relations were mixed. According to MEA officials, Modi in September 2016 did not cite commercial relations as a positive factor in the relationship — and it is not clear whether he brought them up at all. This was in contrast to Mukherjee's May 2016 visit, which purposefully kicked off in Guangzhou with its U.S. \$1 trillion provincial economy, and during which the president noted that bilateral trade had risen since 2000 from U.S. \$2.91 billion to U.S. \$71 billion in 2015 despite a trade imbalance, and hoped for "expanding our commerce to make it more equitable" including a greater market for Indian products in China.

Mukherjee also noted as "a matter of satisfaction that there is emerging focus on two-way investment flows." Jaishankar echoed these sentiments later in the year, saying, "Again, it is not altogether surprising that economic differentials and systemic characteristics created over time pose some significant trade challenges." He worried that "the growing deficit legitimately raised questions about the sustainability of the current way of commerce." He ended on a mostly upbeat note, saying, "But it is a testament to our maturity that we have sincerely tried to address this problem through greater investment and wider market access, the former more successfully than I must confess the latter, so far." \square

Dr. Satu Limaye is director of the East-West Center in Washington, D.C., and senior advisor at the Center for Naval Analyses. This is excerpted from his article, "India-East Asia Relations: Robust but not Riveting," and was edited to fit this format. The original article was published in January 2017 in the online publication Comparative Connections, Volume 18, Issue 3.



Preserving Pacific Island Culture Amid Climate Change

REUTERS

To protect her low-lying island home from climate change, Kathy Jetnil-Kijiner is building an unusual army.

The poet, performance artist and teacher at the College of the Marshall Islands, seeks out promising young people in the Pacific nation's villages to train them to apply for grant money to help families cope with worsening extreme weather and rising seas, and find innovative ways to protect their communities and threatened culture.

"Our big concern is the loss of culture. We're so rooted in our land. We could point at a reef and know the story behind it, the fishes there. If we lose the reef, we lose all the stories, all the knowledge," she said.

"This program is about safeguarding that knowledge and preserving it for the future."

Jetnil-Kijiner, who was among her country's 2016 delegation to United Nations climate talks, came to prominence in 2014, when she performed one of her poems — a heartfelt letter to her baby daughter, Matafele Peinem — at a climate change summit hosted by the U.N. chief in New York.

Now the 28-year-old — who published a first book of her poetry in February 2017, and whose mother, Hilda Heine, became the nation's first female president in 2016 — hopes the experiences of other islanders could be a driving force to spur more rapid



international action to curb climate change and prevent countries like hers from being eaten up by rising seas.

"We're the ones living these experiences," she said. "I recognize poetry is a weird thing to have in this climate world, but it seems to work. And I want to do more of what works."

FLOODS AND DROUGHT

Most of her students don't dwell much on climate change, she said. However, for them — and for her own family — it's becoming harder to ignore. The nation of about 53,000 people and more than 1,000 atolls and islands has just emerged from one of the worst droughts she



Poet Kathy Jetnil-Kijiner, right, and climate change activist Milan Loeak walk along the shore at low tide in Majuro Atoll in the Marshall Islands in November 2015. THE ASSOCIATED PRESS

can remember. In 2014, one of her cousins lost the house she had lived in all of her life to flooding, she said.

For many people, "it's something you're waiting to see happen. You never know when the high tide will hit, but you're prepared for it," she said. "When there's a high-tide warning, everybody's worried about the sea wall."

The result of these growing pressures, she said, is that the government — which had always focused on developing the country — is slipping into a different kind of mindset.

"It's not development anymore. It's more like preservation," Jetnil-Kijiner said. "It's changing how we think of our country, how we prepare for its future."

Just how at risk the country will be from sea-level rise is evident in its geography, with its 181 square kilometers of land sitting an average of 2 meters above sea level now.

As rising seas fuel larger "king tides," which regularly sweep the island, as well as more severe storm surges, roads and homes are going underwater more often, leading some to collapse or be abandoned.

Scientists predict the world could see as much as 2 meters of sea-level

rise by 2100 or sooner, at current rates of climate change. Already some Marshallese have migrated to join growing communities of fellow expatriates in Hawaii and elsewhere in the United States.

The changes Jetnil-Kijiner's students see make them increasingly anxious. At a youth arts camp she organized, one picture drawn showed the country's capitol building, in Majuro, underwater. Much of the poetry young people produce, she said, "comes out of their fear of losing their culture and their island."

"They don't know how to use that fear. That's why we're trying to empower them," she said. "They shouldn't just be seen as victims."

In schools across the islands, teachers are now discussing climate change with their students, she said.

Jetnil-Kijiner's "earth champions"
— young people trained through
her youth nonprofit group JoJikum — are being taught practical
skills, including how to navigate
the complicated process of making
applications for climate change funds.

"A lot feel we will have to move at some point," she admitted. "Lots of the outside rhetoric they hear tells them that. But I tell them it's not over yet. There's still time to fight."

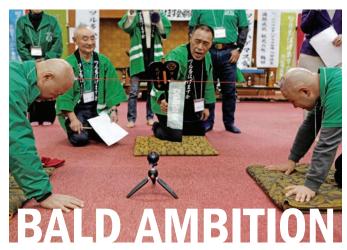
Elephant showers

Trained elephants sprayed motorists and passers-by with water in Thailand's old capital city of Ayutthaya in April 2017 to welcome the Buddhist New Year, known as "Songkran."

The jumbos from an elephant camp in Ayutthaya were brought out to rake passing traffic, soak passengers in open vehicles and spray anyone foolish or brave enough to venture within range. The holiday, the longest in the Thai calendar, runs officially for three days. Cities empty out as workers head home to see family and celebrate by cleansing images of the Buddha, washing the hands and feet of elders, and throwing water on each other in what is sometimes called the world's biggest water fight.

The festival — which is also celebrated in neighboring Burma, Cambodia and Laos — falls at the hottest time of the year, when temperatures often creep above 40 degrees Celsius. THE ASSOCIATED PRESS





ore than 30 bald men gathered at a hot spring facility in Tsuruta City, Japan, in February 2017 to show off their hairless heads and have fun.

Members of the city's Bald Men Club took turns competing in a unique game of tug of war by sticking a suction cup, which is attached to a single red rope, to each of their heads. Both sides then attempt to pull the cup off of their opponent's head.

"My head still hurts," Toshiyuki Ogasawara, 43, said with a smile. "I think I need to ice it!"

Masatomo Sasaki, 64, a first-time participant at the tournament, said he used to feel insecure about his baldness but now feels differently. "I feel

proud. Or maybe I should say, I feel good about being a bald man. And that is thanks to this bald men's club," Sasaki said, adding that he started losing his hair when he was 40.

The club, which has attracted roughly 65 members from all over the country since its founding in 1989, encourages people to "view baldness in a positive manner, to have fun, and to brighten the world with our shiny heads," according to its website.

Teijiro Sugo, 70, the club's chairman, hopes the gathering will turn into something much larger. "I want all the bald men all over the world to gather here, so we can organize a bald men's Olympic tournament," Sugo said. REUTERS

BOTTLED A I

Even as Chinese Premier Li Keqiang pledges to ensure that blue skies never become a luxury, a state-backed firm is doing brisk business selling 48 yuan (U.S. \$6.95) cans of fresh air bottled in a forest in western China.

Each bottle is good for two minutes of uninterrupted use. From air-filter necklaces to anti-smog stockings, Chinese companies are touting innovative — if not odd products to consumers worried about the quality of the air they breathe.

At the close of the annual meeting of parliament in March 2017, Li said air pollution must be brought under control, and blue skies should never be a luxury.

Smog alerts are common in northern China, especially during bitterly cold winters when pollution masks are frequently out of stock. "We set up a factory in Ningdong Forest Park in Shaanxi province and compress air directly into the bottle," said Zhai Wenjun, sales manager at Sanqin Forest Industry, which is backed by the local Taibai Forestry Bureau.

"Consumers will feel like they are breathing in the forest," Zhai said.

Despite widespread criticism on China's Twitter-like microblog Weibo, Shaanxi media reported that the first batch of Qinling Forest Oxygen-Enriched Air had been sold out.

"The air reminds me of the forest," said a user on Taobao, China's most popular consumer-to-consumer online shopping website, adding that the price is "reasonable."

Zhai refused to disclose sales data to Reuters, saying it is a business secret. "As the price is a bit high, we suggest customers use it little by little," said Zhai. REUTERS



Nepalese Army Soldiers rehearse for Army Day in Kathmandu in February 2017. Nepal commemorates Army Day annually at the same time as Mahashivratri, a festival dedicated to the Shiva, one of the principal deities of Hinduism. Mahashivratri celebrates the overcoming of darkness and ignorance in life. Nepalis often observe it with prayer, fasting and meditation.

Photo By: NIRANJAN SHRESTHA | The Associated Press

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