

FORUM



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China's Theft of Intellectual Property Undermines Trust



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ABOUT THE COVER:

This illustration portrays the People's Republic of China stealing technological secrets to obtain a competitive advantage.

FORUM ILLUSTRATION



Dear Readers,

Welcome to *Indo-Pacific Defense FORUM's*

second-quarter edition for 2019 on conflict resolution.

Indo-Pacific nations remain committed to the peaceful resolution of conflicts in keeping with international norms, standards, and laws. Together, allies and partner nations can enhance

regional security by preventing escalation and recurrence of conflicts and by cooperating to address evolving threats, whether conventional or nonconventional.

Retired U.S. Army Col. Art Tulak sets the stage for this edition of *FORUM* by calling for new approaches to deterrence, given that conventional ones have largely failed to suppress the proliferation of hybrid warfare. He cites the People's Republic of China's (PRC) territorial conquest of maritime features in the South China Sea and Russia's seizure of Ukrainian sovereign soil in Crimea as leading examples. After employing hybrid tactics ranging from proxies to propaganda in the "gray zone" between peace and crisis, these authoritarian regimes then deployed military assets to occupy and hold their territorial gains. Tulak discusses the challenges of effective deterrence in today's operations and information environments and what manifestations of hybrid warfare portend for the future balance of power in the region.

Other articles in this edition build on the premise that hybrid warfare continues to complicate regional security. An investigative piece probes how the PRC has become the world's greatest perpetrator of economic espionage (a type of hybrid warfare) and how outright theft of intellectual property, trade secrets, and technical data propels political hostilities. Another thought-provoking article focuses on what ally and partner nations can do to counter PRC aggression and coercion in the South Pacific. The importance of multi-domain operations in megacities is also highlighted in this issue.

I hope this edition energizes the regional conversation on preventing conflicts, and I welcome your comments. Please contact the *FORUM* staff at ipdf@ipdefenseforum.com with your perspectives.

All the best,

P. S. DAVIDSON
Admiral, U.S. Navy
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in IO, in doctrine development and in the field as a staff officer supporting operations in Bosnia, Kosovo and Afghanistan. He has served in various Army, joint and allied headquarters in the Central, European and Indo-Pacific theaters. *Featured on Page 10*



MARC JULIENNE graduated from the French National Institute of Oriental Languages and Civilizations, Paris, with a master's degree in international relations, specializing in Asian studies and Chinese. A Ph.D. candidate, he is a two-year resident associate fellow at the Asia Centre in Paris. His research focuses on China's security policy, military affairs and

foreign policy, among other topics. *Featured on Page 24*



CAPT. ROBERT T. HENDRICKSON serves as chief, Response Division, 14th Coast Guard District, U.S. Coast Guard, where he oversees daily search and rescue, law enforcement, maritime pollution response and homeland security operations throughout the Western and Central Pacific. A decorated, 37-year U.S. Coast Guard veteran, his assignments ashore include

chief instructor at the National Search and Rescue School, deputy chief of the U.S. Coast Guard's Fisheries Law Enforcement Program and liaison to National Oceanic and Atmospheric Administration, among other posts. *Featured on Page 42*



MAJ. GEN. JOHN R. BOSWELL, chief of staff of the New Zealand Army, enlisted into the Army in 1984 and has extensive international service. He has deployed on operations with the United Nations in Angola, Timor-Leste and the Middle East and, in April 2010, he deployed to Afghanistan, as the senior national officer and commanding officer of the New Zealand

Provincial Reconstruction Team, Bamyán. Boswell received the Distinguished Service Decoration in recognition of his service there. More recently, he served as the head of strategy management (Army, from 2010 to 2012), acting deputy chief of Army (March to June 2012), chief plans officer Joint Force Headquarters (2012 to 2014), and assistant chief Strategic Commitments and Engagement (2016 to February 2018, following attendance at the National Defence College of India). *Featured on Page 46*



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Join the Discussion

We want to hear from YOU!

Indo-Pacific Defense FORUM caters to military and security personnel in the Indo-Pacific region. A product of U.S. Indo-Pacific Command, the quarterly magazine provides high-quality, in-depth content on topics that impact security efforts across the region — from counterterrorism to international cooperation and natural disasters.

FORUM provokes thoughtful discussions and encourages a healthy exchange of ideas. Submit articles, pictures, topics for discussion or other comments to us ONLINE or at:

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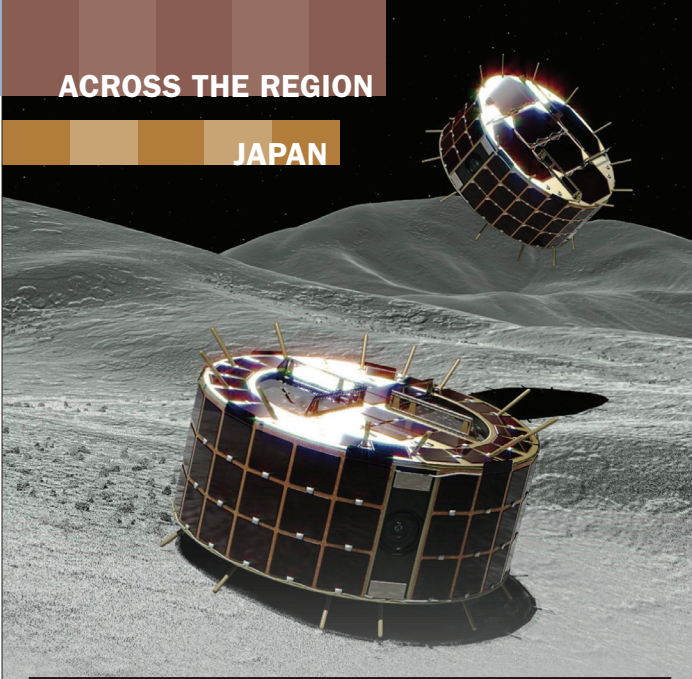
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FORUM

Exploring the issues that impact so many lives



ROVERS EXPLORE ASTEROID

A Japanese spacecraft released two small rovers on an asteroid in September 2018 in a mission that could provide clues to the origin of the solar system.

The Japan Space Exploration Agency (JAXA) said the two Minerva-II-1 rovers were lowered from the unmanned spacecraft Hayabusa2 to the asteroid Ryugu. The spacecraft arrived near the asteroid, about 280 million kilometers from Earth, in June 2018.

Hayabusa2 approached as close as 55 meters to the asteroid to lower the rovers, waited for a minute and then rose back to its waiting position about 20 kilometers above the surface. JAXA said the release was successful.

The solar-powered rovers' voltage plunged as night fell on Ryugu, a sign that they are on the asteroid, said Hayabusa project team spokesman Takashi Kubota.

"We are very hopeful," project manager Yuichi Tsuda said. "I'm excited about seeing the pictures. I want to see the scenery of space seen from Ryugu's surface."

The rovers, each about the size of a cookie can, are to capture images of the asteroid and measure surface temperatures before a larger rover and a lander are released later. The rovers move by "hopping" up to 15 meters at a time because the extremely weak gravity on the asteroid makes rolling difficult. They can continue jumping as long as their solar panels and power last, JAXA said.

The Associated Press

DISASTER RESPONSE BUDGET TO DOUBLE

Indonesia will more than double its disaster response budget to 15 trillion rupiah (U.S. \$1.06 billion) in 2019, officials said, after a series of major natural disasters devastated three regions of the vast archipelago in 2018.

The Southeast Asian country suffered its deadliest year in over a decade in 2018, when more than 3,000 people died in tsunamis and earthquakes in Sulawesi, Lombok, and West Java and Sumatra islands.

Indonesia straddles the seismically active Pacific Ring of Fire and sees frequent earthquakes, volcanic eruptions, tsunami, and localized incidents, including landslides, floods and forest fires.

Five trillion rupiah will be allocated to rehabilitation and reconstruction, while 10 trillion will be reserved for disaster response, said Finance Ministry spokesman Nufransa Wira Sakti.

President Joko Widodo said more money will be channeled toward disaster education and response.

"Given our disaster-prone geographic conditions, we must be prepared, responsive, alert and resilient in facing any natural disaster," he said during the first cabinet meeting of 2019.

Widodo has also called for disaster preparedness to be included in the national school curriculum and for a defunct countrywide early tsunami warning system to be renewed.



In 2018, the Finance Ministry said it planned to launch a new strategy in 2019 to fund disaster recovery, which could include selling "catastrophe bonds." The central government would insure state assets against disaster and then create a disaster-risk financing instrument for affected regions to draw upon.

Reuters



AFP/GETTY IMAGES

STANDING TALL

India inaugurated the world's tallest statue — 182 meters high — in late October 2018. It's a reproduction of an Indian independence hero.

Prime Minister Narendra Modi officially opened the tribute to Sardar Vallabhbhai Patel with an Air Force jet flyover, helicopters showering flowers on the statue, and fireworks in the green, orange and white national colors.

"Today is a day that will be remembered in the history of India," said Modi, who hailed Sardar Patel's "strategic thinking" in bringing together the disparate country after

independence in 1947 and the Statue of Unity as "a symbol of our engineering and technical prowess."

The statue, which cost 29.9 billion rupees (U.S. \$400 million) and took nearly four years to complete, is made of nearly 100,000 tons of concrete and steel.

Sardar Patel's name had been largely overshadowed by the Nehru-Gandhi dynasty that has dominated Indian politics since 1947. Modi-inspired nationalists have sought to put their hero back in the forefront.

The statue dwarfs the 128-meter-high Spring Temple Buddha in China, the world's next-biggest statue.

Indian authorities hope the statue will attract 15,000 visitors a day to the remote corner of Gujarat, which is about 100 kilometers from the nearest city of Vadodra.

Agence France-Presse

EYES ON THE CONSTITUTION

Japanese Prime Minister Shinzo Abe won re-election as head of his ruling Liberal Democratic Party in a September 2018 landslide, paving the way for up to three more years as the nation's leader and a push toward a constitutional revision that would give the military more leeway to conduct operations.

The decisive victory may embolden Abe to pursue his long-sought amendment to Japan's U.S.-drafted pacifist constitution, although the hurdles remain high and doing so would carry political risks. "It's time to tackle a constitutional revision," Abe said in a victory speech.

Abe said he's determined to use his last term to pursue his policy goals to "sum up" Japan's postwar diplomacy to ensure peace in the country. "Let's work together to make a new Japan," he said.

Abe, who has been prime minister since December



GETTY IMAGES

2012, has cemented control of his party and is poised to become Japan's longest-serving prime minister in August 2021. He has several policy challenges, including dealing with Japan's aging and declining population, a royal succession in the spring, and a consumption tax hike to 10 percent he has already delayed twice.

Amid international effort to denuclearize North Korea, Abe seeks to meet with Kim Jong Un to resolve their disputes, including the decades-old problem of Japanese citizens abducted to the North. He also faces China's increasingly assertive activity in the region.

The Associated Press

North Korean **CHARGED** *in crippling Sony hack, WannaCry virus*

STORY AND PHOTO BY THE ASSOCIATED PRESS

Authorities charged a computer programmer working for the North Korean government with devastating cyber attacks that hacked Sony Pictures Entertainment and unleashed the WannaCry ransomware virus that infected computers in 150 countries and crippled parts of the British health care system, federal prosecutors said in September 2018.

Park Jin Hyok, who is believed to be in North Korea, conspired to conduct a series of attacks that also stole U.S. \$81 million from a bank in Bangladesh, according to charges unsealed in Los Angeles federal court following years of investigation. The U.S. believes he was working for a North Korean-sponsored hacking organization.

The U.S. government previously said North Korea was responsible for the 2014 Sony hack that led to the release of a trove of sensitive personal information about employees, including Social

Security numbers, financial records, salary information, as well as embarrassing emails among top executives. The hack included four yet-to-be released Sony films, among them *Annie* and one that was in theaters, the Brad Pitt film *Fury*, and cost the company tens of millions of dollars.

The FBI had long suspected North Korea was also behind last year's WannaCry cyber attack, which used malware to scramble data on hundreds of thousands of computers at hospitals, factories, government agencies, banks and other businesses across the globe.

"The criminal conduct outlined in this case is intolerable," said Tracy Wilkison, the first assistant U.S. attorney in Los Angeles. "The North Korean-backed conspiracy attempted to crush freedom of speech in the U.S. and the U.K. It robbed banks around the world, and it created indiscriminate malware that paralyzed computers and disrupted the delivery of medical care."

Prosecutors filed the charges under seal June 8, 2018, four days before U.S. President Donald Trump's historic meeting with North Korea's leader, Kim Jong Un, to discuss ending decades of hostility between the countries. Prosecutors said the complaint was sealed for a variety of reasons and wasn't done to prevent derailing the Singapore talks.

"This has nothing to do with the summit and nothing to do with denuclearization," Wilkison said.

U.S. officials believe the Sony hack was retribution for *The Interview*, a comedy starring Seth Rogen and James Franco in a plot to assassinate Kim. Sony canceled the theatrical release of the film amid threats to moviegoers. The company released it online through YouTube and other sites.

The hackers used the same aliases and accounts from the Sony attack when they sent spear-phishing emails to several U.S. defense contractors, including Lockheed Martin, and others in South Korea, officials said.

The criminal complaint says the hackers committed several attacks from 2014 into 2018, attempting to steal more than U.S. \$1 billion from banks around the world. The investigation is continuing.

The hackers also targeted technology and virtual currency industries, as well as academia and electric utilities, authorities said.

"This case warrants attention whether you are an individual, a small business or a major corporation," FBI Special Agent Jennifer Boone said. "Terms you'll see in the complaint, such as watering holes and back doors, don't sound menacing, but in reality, they describe malicious cyber techniques that wreak havoc on our computer systems and our lives."

Cyber security experts have said portions of the WannaCry program used the same code as malware previously distributed by the hacker collective known as the Lazarus Group, which is believed to be responsible for the Sony hack.

The complaint said Park was on a team of programmers employed by an organization called Chosun Expo that operated out of Dalian, China, and that the FBI described as "a government front company."

A North Korea-registered website bearing that company's name described it as the country's "first internet company," established in 2002.

A 2015 version of the Chosun Expo website said it focused on gaming, gambling, e-payments and image recognition software. It looked in many ways like a typical tech company, boasting of its pioneering information technology talent and customer satisfaction. By July 2016, internet archival records show, the company dropped the reference to North Korea from its home page. The site later vanished from the web.

It is the first time the U.S. Justice Department has brought criminal charges against a hacker said to be from North Korea. In recent years, the department has charged hackers from China, Iran and Russia in hopes of publicly shaming other countries for sponsoring cyber attacks on U.S. corporations.

In 2014, for instance, the Obama administration charged five Chinese military hackers with a series of digital break-ins at American companies. Similar arrests have continued under President Trump. The U.S. in December 2018 unsealed indictments against accused Chinese hackers Zhu Hua and Shang Shilong, who were charged with conspiracy to commit computer intrusions, conspiracy to commit wire fraud and aggravated identity theft. The men were part of a hacking group known as Advanced Persistent Threat 10.



The U.S. government charged Park Jin Hyok, a computer programmer accused of working for the North Korean government, in September 2018 with conducting a series of devastating cyber attacks.

Just two months earlier, Chinese intelligence officers and hackers working for them were charged with commercial espionage that included trying to steal information on commercial jet engines. The indictments named two officers working for the Nanjing-based foreign intelligence arm of China's Ministry of State Security and six other defendants who allegedly conspired to steal turbofan engine technology.

Iran also was implicated. In March 2018, the U.S. announced criminal indictments against an Iranian hacker network that targeted the intellectual property of hundreds of U.S. and foreign universities, as well as dozens of U.S. companies and government agencies.

As for the Sony hack, the Treasury Department added Park Jin Hyok's name to its sanction list, which prohibits banks that do business in the U.S. from providing accounts to him or Chosun Expo. Park, whose age is not known, is charged with two counts alleging conspiracies to commit computer and wire fraud — crimes that could carry a prison term up to 25 years.





NEW ERA

OF DETERRENCE

THE RETURN OF GREAT POWER COMPETITION BLURS THE LINE BETWEEN CONFLICT AND PEACE

COL. (RET.) ARTHUR TULAK/U.S. ARMY

The world today is not at war, but neither is it truly in a condition of peace. To help visualize the complexity and scope of the 21st-century security environment, visit the Council on Foreign Relations' online Global Conflict Tracker (page 14). It shows 25 ongoing conflicts — six of which are rated as having a critical potential impact on U.S. strategic interests, and six of which are characterized as territorial disputes. These include conflicts where the communist People's Republic of China (PRC) and Russia are making claims to the sovereign territory or maritime rights of other nations, but not all such unresolved disputes are included, so the current and potential conflicts are actually more numerous.

The U.S. National Security Strategy (NSS), published in December 2017, and the National Defense Strategy, published in March 2018, have sharpened the national focus on interstate competition and conflict and elevated the need for effective deterrence.

In the new approach, deterrence is returning as a priority in response to the aggressive actions and policies of great powers that seek to undermine and overturn the current world order.

The renewed interest in deterrence parallels the deterioration of the security environment, which the U.S. Army has described as the “complex world” that is constantly changing, where the anticipated enemies are operating with the advantages of interior lines, while also fielding increasingly modern and capable combat systems. Not surprisingly, in Europe, where NATO faces a resurgent and revisionist Russia, deterrence is making a comeback as NATO is once again re-examining the role of deterrence to prevent war. In the Indo-Pacific,

A Japan Ground Self-Defense Force Soldier guards a surface-to-air Patriot Advanced Capability-3 missile interceptor launcher vehicle at Narashino Exercise Area in Funabashi, Chiba prefecture, east of Tokyo. THE ASSOCIATED PRESS

the U.S. and its allies and partners are collaborating to deter the PRC from further eastward expansion at the expense of its neighbors, and the PRC's ever-expanding claims of air and sea space obtained via military means.

The 2017 NSS lists the potential adversaries of the United States in the following order: China and Russia, followed by North Korea and Iran, all of which have seen tremendous growth in key military capabilities designed to counter U.S. strategies, operations, theater access, warfighting concepts and weapons systems. Likewise, the State Department and U.S. Agency for International Development (USAID) joint strategic plans imply the PRC is threatening the international rules-based order.

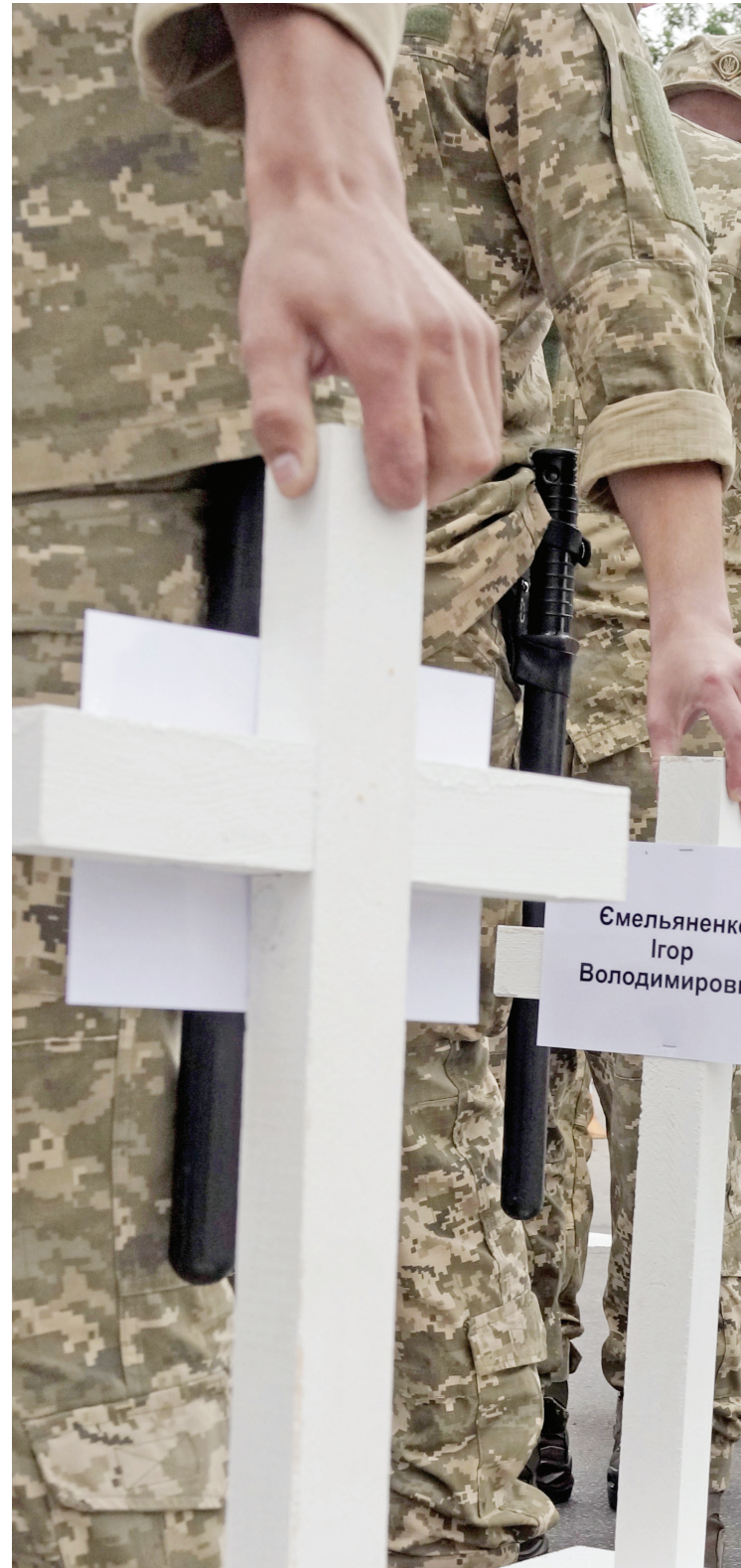
Across the globe, the United States faces near-peer adversaries who seek to fracture U.S. alliances and defeat U.S. allies and security partners below the threshold of armed conflict, employing hybrid warfare, which “challenges the traditional metrics of deterrence by conducting operations that make unclear the distinctions between peace and war,” according to U.S. Army doctrine.

The 2017 NSS consistently identifies the PRC and Russia as challenging U.S. power, influence and interests while attempting to erode U.S. security and prosperity. The NSS also characterizes both nations as “revisionist powers” and singles out the PRC as seeking to “displace the United States in the Indo-Pacific region.” A shared characteristic of both countries is their use of hybrid warfare in peacetime competition to achieve military objectives below a threshold that would trigger a direct military response and potentially a larger military conflict, according to the U.S. Joint Chiefs of Staff Joint Concept for Integrated Campaigning published in March 2018. As potential U.S. adversaries continue to catch up with U.S. capabilities and carry out aggressive territorial conquests, “the risks of actually fighting a major war are more significant than ever,” observed Michael Mazarr, a Rand analyst.

HYBRID WARFARE

U.S. National Military Strategy published in 2015 was the first to mention hybrid warfare. It's described as a blending of conventional, nonconventional, law enforcement and criminal gangs, information warfare, media warfare, and even terrorist means and methods in deliberate actions carried out by military, paramilitary, mercenary and nonmilitary forces to achieve traditional military objectives, including territorial control or conquest. Hybrid warfare seeks to create uncertainty by increasing ambiguity of national aims and official involvement, providing plausible deniability. Hybrid warfare also seeks to complicate adversary decision-making on how to appropriately respond and slow the coordination of effective responses.

In this manner, nations deploying hybrid warfare carry out operations in a manner designed to avoid triggering a larger military conflict. As then-U.S. Secretary of Defense Jim Mattis has said, today's revisionist powers and rogue



Ukrainian Soldiers carry crosses to place in front of the Russian Embassy in Kiev, Ukraine, on August 29, 2018, to symbolize the Ukrainian Soldiers killed in the ongoing war in Ukraine's east. THE ASSOCIATED PRESS

J15 fighter jets crowd the People's Republic of China's first operational aircraft carrier, the Liaoning, in April 2018 as part of a live combat drill in the East China Sea that riled neighboring nations. AGENCE FRANCE-PRESSE



regimes deploy the techniques of hybrid warfare such as “corruption, predatory economic practices, propaganda, political subversion, proxies, and the threat or use of military force to change facts on the ground.”

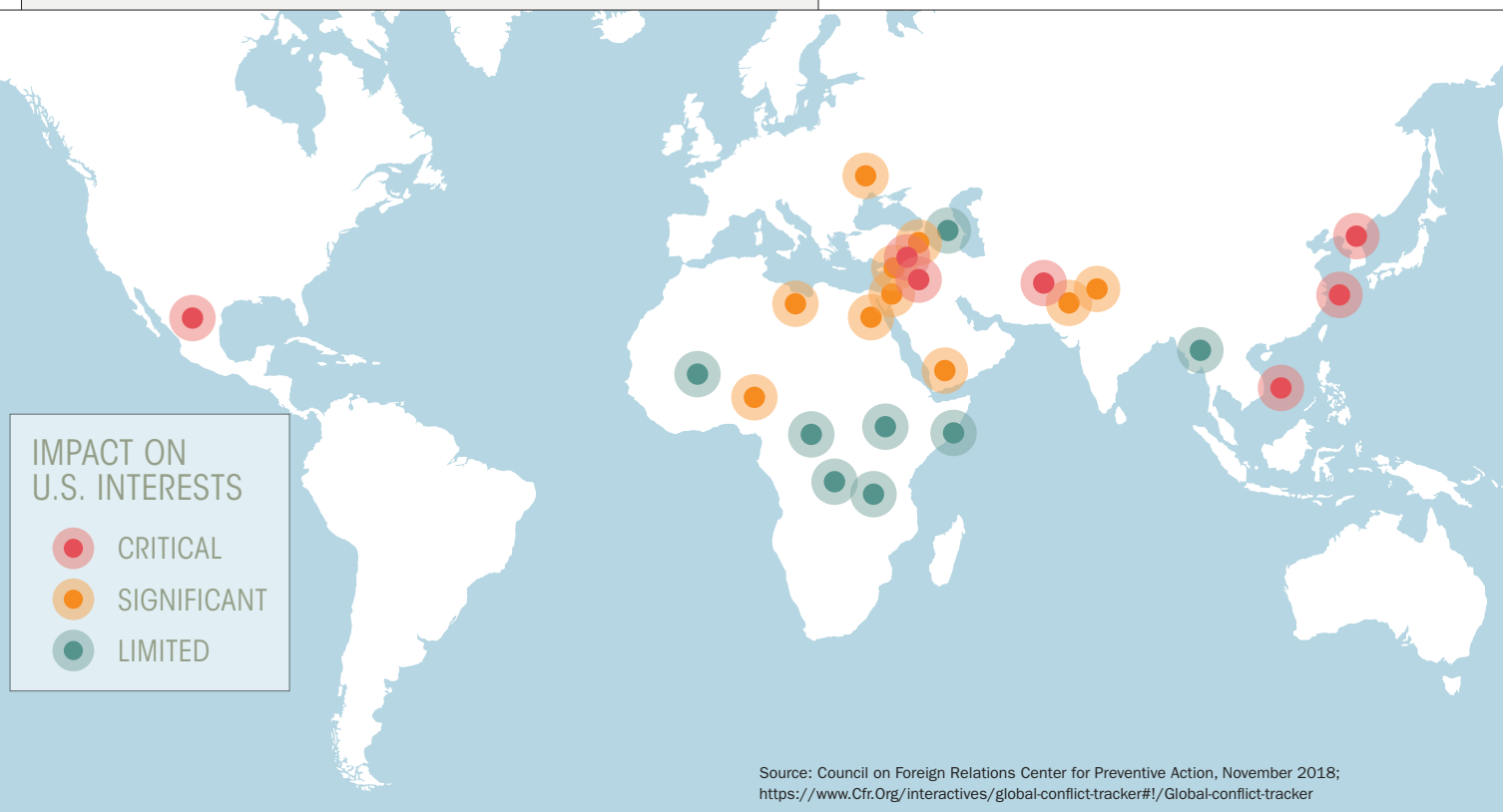
As employed by the PRC and Russia, hybrid warfare disrupts and sidesteps traditional deterrence efforts by using combinations of surrogates and proxies, along with military, paramilitary and nonmilitary forces supported by information warfare, subversion, coercion and unconventional warfare. The U.S. Joint Concept for Integrated Campaigning predicts that the interstate competitions challenging the United States will be persistent and enduring and that adversaries will continue to use coercion and hybrid warfare techniques in pursuit of their strategic objectives.

Dictatorial regimes are now seeking territorial conquest by military means simultaneously in the European and Pacific theaters for the first time since World War II. The PRC, using the world’s largest ocean-going dredging fleet, has created artificial islands atop maritime features that are within the economic exclusion zones of countries belonging to the Association of Southeast Asian Nations (ASEAN) and at a great distance from Chinese shores. Having secured them by hybrid warfare, the PRC has built

airstrips capable of handling intercontinental strategic bombers, installed hardened fighter shelters, anti-aircraft and anti-ship missiles, and more. One of the most famous examples of this fight is the Scarborough Shoal, which is only 354 kilometers from Manila, the capital of the Philippines, but it is 2,658 kilometers from the nearest Chinese shore. This maritime feature, once a popular fishing spot for Filipino fisherman, is now patrolled by the PRC’s People’s Armed Forces Maritime Militia and the People’s Armed Police China Coast Guard — both watched over from a distance by the People’s Liberation Army Navy. The PRC has already extensively militarized other outposts in the Paracel Islands and South China Sea, increasing tension in the region.

In Europe, the Russians employed hybrid warfare to support seizing Crimea from the Ukraine in 2014, and to start and fuel an insurgency in the Donbass region of eastern Ukraine. There, the Russians have deployed sophisticated electronic warfare weapons and unmanned aerial vehicles in support of targeting and reconnaissance, modern tanks and even advanced anti-aircraft missile systems. These missile systems, manned by Russian soldiers posing as separatists, succeeded in shooting down Malaysia Airlines Flight No. 17, killing 298 civilians in 2014. Pushing their hybrid warfare

GLOBAL CONFLICT TRACKER



to new locales, the Russians have used mercenaries in Syria to launch a ground attack against U.S. forces, and electronic warfare attacks against U.S. aircraft are rising, *Jane's Defence Weekly* reported.

What is exceptionally concerning about the foregoing examples of hybrid warfare is that upon securing ground using hybrid forces in military operations, the PRC and Russia then deployed the sophisticated military capabilities just described to occupy and hold their territorial gains. Each nation then subsequently projected combat power along ever-expanding range-rings, extending their battlespace control via anti-access and area denial (A2/AD) capabilities, while using multifaceted strategies that would delay and complicate U.S. military deployment in a crisis.

Conventional deterrence concepts are being challenged in novel ways by hybrid warfare, as opponents use these methods to steadily achieve territorial victories, short of war, while changing the battlefield geometry to their future combat advantage, should armed conflict occur.

GRAY ZONE

From these previous examples, it is clear that the U.S. is entangled in a new conflict with the PRC and Russia over ideological differences, a conflict that is being carried on by methods short of sustained overt military action without breaking off diplomatic relations. Traditional conventional deterrence designed to deter armed conflict has largely failed to deter the hybrid warfare that the PRC and Russia successfully employ.

The consequences of failed deterrence strategies are a seemingly continuous cycle of competitor nations using hybrid warfare to seize terrain to control the battlespace, followed by A2/AD threat envelopes via the deployment of weapon systems to deny entry, supported by a steady information campaign attacking the strength and cohesion of U.S. alliances and security partnerships. The United States and its allies have a compelling need to disrupt that cycle through deterrence, and this effort must be carved out during the competition (peacetime) phase. The new U.S. NSS addresses this, highlighting that deterrence today is “significantly more complex to achieve than during the Cold War.”

The new 21st-century security environment presents a new condition of “challenged deterrence,” which the U.S. Army and Marine Corps have defined as “the effectiveness of U.S. conventional deterrence being put into question both by the adversary’s use of actions below the threshold of conflict to achieve strategic aims, and by the adversary’s potential ability to conduct aggressive actions and consolidate gains rapidly before the U.S. and allies can respond.”

The concept of challenged deterrence highlights the impact of subversion, information warfare, hybrid and unconventional warfare on conventional deterrence, as the state using these methods will deploy hybrid means and methods to exploit opportunities, while simultaneously

avoiding responsibility and complicity with the actions of hybrid forces.

U.S. RESPONSE OPTIONS

The traditional concept of deterrence is straightforward, as analysts at the Brookings Institution explain: “Persuade a potential adversary that the risks and costs of his proposed action far outweigh any gains that he might hope to achieve.” Rand’s Mazarr provides the framework of deterrence, explaining that it can be either direct or extended, general or immediate. Direct deterrence is characterized by efforts to prevent an adversary from attacking the U.S. and its territories and possessions, while extended deterrence aims to deter attacks and aggression against U.S. allies and partners. Extended deterrence is more challenging than direct deterrence, relying on credible force projection of capable forces to reinforce the threatened ally or partner. When the U.S.’ extended deterrence has failed, as it did in the Korean War and prior to Desert Shield, costly wars have followed. According to Mazarr, general deterrence is the steady-state effort in the competition phase, or in noncrisis situations. In contrast, immediate deterrence is the short-term and urgent effort to prevent imminent attack that would be considered as the crisis phase. Having forces and capabilities forward deployed, carrying out general deterrence in the competition phase, provides trained and ready forces who can respond in crisis for immediate deterrence.

Several lessons learned have emerged regarding deterrence of hybrid warfare, Dr. Christopher Chivvis, a Rand Corp. senior political scientist, testified in 2017 before the U.S. House Armed Services Committee. First, military forces alone cannot deter hybrid warfare strategies: Effective deterrence will require nonmilitary efforts and capabilities, such as diplomacy and foreign aid, experts contend. Second, simply responding to hybrid warfare actions by deploying forces to the incident area is usually insufficient, even if deployed rapidly, because these enemy actions are designed to unfold “under the radar,” deliberately delaying and confounding United States and ally decision-making to achieve objectives before friendly forces are able to exert any influence.

Third, hybrid warfare strategies are always underway, dispersed across the battlespace, modulating the amplitude of action, taking advantage of opportunities in the gray zone between peace and crisis, now known as the “competition phase,” and the use of military force that is acknowledged as a crisis requiring a prompt military response.

The Joint Concept for Integrated Campaigning explains that “competition below [the threshold of] armed conflict requires different ways of thinking about escalation and deterrence” and provides a three-pronged framework for military operations in the competition phase — contest, counter and improve. For

example, today it is possible to defend or mitigate the effects of a cyber attack. However, deterrence will need to focus on shaping targeted actors' behavior and deterring actions (individually or as part of a larger campaign) above a certain threshold, rather than preventing all forms of cyber attacks, which is impossible.

Deterrence in a complex world characterized by hybrid warfare and A2/AD can be accomplished by conducting military operations and activities in the competition phase designed to achieve effects in this framework. Efforts to prevent the competitor from achieving its aims and improve the overall strategic position, efforts to prevent the adversary from achieving further gains, and efforts to contest adversary actions seek to obtain the best possible strategic outcome (policy goals), while managing risks.

Prevention efforts in competition can be achieved by using conventional forces to strengthen the conventional and irregular capabilities of U.S. allies and partners and by operating in areas or spaces the enemy seeks to control. The U.S. Army Training and Doctrine Command explains this approach as “demonstrating the ability to turn spaces the adversary can deny into contested spaces and demonstrating the ability to maneuver from operational and strategic distances.”

In this complex environment, deterrence efforts to contest adversary actions will require observable action, as a static theater force posture model alone is insufficient to deter hybrid warfare. What is required to defeat aggression is to actively disrupt the adversary's systems that enable its operational approach of using hybrid warfare.

DETERRENCE AS A COMPLEX AND NUANCED ENTERPRISE

The traditional concept of deterrence in the modern era is exemplified by the “frozen conflicts” of the Cold War front lines along the inner-German and inner-Korean borders. A 2008 Rand Corp. report predicted that deterrence would once again feature prominently in U.S. national security and defense strategies and advised that understanding the logic of Cold War deterrence will be crucial to developing effective deterrence against peer/near-peer competitors, regional powers and nonstate actors. The character of these frozen conflicts was that of forward-stationed conventional forces prepared to engage in combat within the well-recognized battlefield geometry of three areas of engagement: close, deep and rear. In these settings, conventional forces, supported by tactical, theater and strategic nuclear forces, held opposing forces at bay.

The extensive battlespace of focus for NATO and the Warsaw Pact militaries was bounded to the north and south by the Baltic and Mediterranean seas,

organized into Army Group sectors, and separated by the Iron Curtain. Alert-ready, forward-stationed forces, supported with prepositioned war stocks, conducted annual exercises to practice war plans and demonstrate immediate readiness. This has also been the model for United Nations and Combined Forced Command, which postures United States and Republic of Korea military forces for action along the Demilitarized Zone (DMZ) against the North Korean military. These Cold War battlefields fit the pattern of contiguous, well-defined, and mostly contained battlespace, with little room for maneuver due to the lack of uncontested space at the front line. In both cases, the border was the first line of defense in a “forward defense” posture.

The Cold War battlefields of these frozen conflicts did not see any movement of the front lines, which remained static until the end of the Cold War in Europe and remain fixed today on the Korean Peninsula. The contested space was filled by occasional flare-ups,

demonstrations near the main battlefield, and by proxy wars in Asia, Africa, South America and Central America. By comparison, the front lines of the 21st-century security environment are in flux, as national borders are shifted by irregular and hybrid warfare means and methods, and then secured and defended by conventional military force and anti-access and area denial (A2/AD) capabilities.

With the exception of the DMZ on the Korean Peninsula where the first Cold War never ended, the current battlespace in the Indo-Pacific is characterized by opposing forces that are separated by great distances. Much of the battlespace, or competition space, in between these forces is contested, as demonstrated by U.S. Navy freedom-of-navigation operations, competing territorial claims and efforts by nations to assert physical control in support of their claims. This environment provides many opportunities for adversaries operating according to their own rules of hybrid warfare.



CHALLENGING TASK

If the U.S. and its allies and partners intend to stop the enemy's advance, hybrid warfare must be contested with more than just a demonstration of forces and capabilities. The enemy's forward advance must be blocked by turning areas the enemy believes it does or can control into contested space. Effective deterrence, which prevents the adversary from deploying hybrid warfare, or initiating open-armed conflict, requires that the U.S. and its allies and partners defeat the adversary's systems during the peacetime competition phase.

Russia is now in a state of permanent confrontation with the United States and its NATO allies, according to Gen. Valery Gerasimov, chief of staff of the Russian army. Russian aggression typical of the so-called Gerasimov Doctrine was recently put on display on November 26, 2018, when Russian coast guard ships rammed, fired upon, boarded and seized three Ukrainian Navy ships that were conducting peaceful transit of the contested Kerch Strait separating the Sea of Azov and the Black Sea. The Russian law enforcement vessels

used asymmetry of forces to attack Ukrainian military vessels, wounding two sailors, imprisoning the crews and impounding the vessels, the Associated Press reported.

In the Indo-Pacific, communist China has ratcheted up tensions, exhibiting the very "Cold War mentality" of which it has accused of the United States and its allies. Speaking as the commander in chief of China's military forces, during a tour of several military commands, Xi Jinping told his admirals and generals to "prepare for war" and to ramp-up opposition to U.S. Freedom of Navigation operations in international waters, according to Australia News Corporation reports. Xi's threats of military action followed actual aggressive maneuvers by the Chinese navy's Luyang Class Destroyer Lanzhou against the USS Decatur on September 30, 2018. The dangerous confrontation was in breach of the Convention on the International Regulations for Preventing Collisions at Sea and the Code for Unplanned Encounters at Sea, which China joined as a signatory in 2014, according to an October 2018 Maritime Executive report.

FUTURE DIRECTIONS

With the latest set of security, defense and diplomacy strategies, the U.S. has a coherent framework to counter adversary activities. More resources, including greater force strength, are needed to implement this policy and enable these strategies. The world is more complex, more volatile, uncertain and ambiguous than it has been in years. Gen. Martin Dempsey, then chairman of the Joint Chiefs of Staff, said today's global security environment was "the most unpredictable I have seen in 40 years of service." These are the security conditions of which military professionals and citizens must stay abreast. □



A U.S. Navy Sailor scans the water from the bridge of the USS Carl Vinson during a routine freedom of navigation exercise in the South China Sea in March 2017. REUTERS



Intellectual Pursuits

THE PEOPLE'S REPUBLIC OF CHINA USES BUYING POWER, THEFT, SPYING TO **GAIN TECHNOLOGICAL EDGE**

FORUM STAFF

Operating outside the bounds of global norms to steal technological and corporate secrets, the People's Republic of China (PRC) is pursuing policies of economic aggression that threaten the security of intellectual property and endanger the global economy, a White House report said.

In its analysis, "How China's Economic Aggression Threatens the Technologies and Intellectual Property of the United States and the World," the White House Office of Trade and Manufacturing Policy said the PRC wants to capture emerging high-tech industries that will drive future economic growth, including advancements in the defense industry.

"The People's Republic of China has experienced rapid economic growth to become the world's second largest economy while modernizing its industrial base and moving up the global value chain," the June 2018 report said. "However, much of this growth has been achieved in significant part through aggressive acts, policies and practices that fall outside of global norms and rules (collectively, economic aggression)."

The PRC's strategic goals, according to the 2018 "Foreign Economic Espionage in Cyberspace" report by the National Counterintelligence and Security Center (NCSC), are to achieve comprehensive national power, an innovation-driven economic growth model and military modernization. To reach these goals, the PRC's industrial policy aims to "introduce, digest, absorb and re-innovate" technologies and intellectual property (IP) from around the world, the White House report said.

The PRC's methods include state-sponsored IP theft, cyber espionage, evasion of export control laws,

counterfeiting and piracy, the report said. "China appears to be conducting a campaign of commercial espionage against U.S. companies involving ... human infiltration to systematically penetrate the information systems of U.S. companies to steal their intellectual property, devalue them, and acquire them at dramatically reduced prices," according to the U.S.-China Economic and Security Review Commission.

The PRC's efforts target innovations by private companies and governments. The independent Commission on the Theft of American Intellectual Property concluded the PRC was the chief culprit in the loss of between U.S. \$225 billion and U.S. \$600 billion annually from intellectual property theft. The PRC also targets other Indo-Pacific economies. SecureWorks, a U.S.-based firm that provides information security, said in an October 2017 report that a China-based group called Bronze Butler has been attempting to steal the intellectual property of technology companies in Japan since 2012.

An analysis by the Counter Threat Unit of SecureWorks found that Bronze Butler exploits unknown software flaws and security gaps in computer systems, creates strategic web compromises and also uses the technique called spearphishing, which is a method of acquiring sensitive information by masquerading as a trusted person or entity.

Sometimes, the PRC's efforts to steal technological secrets have military applications. A Chinese businessman was sentenced to four years in a U.S. prison in July 2016 for conspiring to hack into the computer networks of major defense contractors. Su Bin, 51, was convicted of taking part in a scheme by Chinese military officers to obtain sensitive military information, including plans relating to

the C-17 military transport plane and F-22 and F-35 fighter jets. He received a 46-month prison term and was ordered to pay a \$10,000 fine.

“Su Bin’s sentence is a just punishment for his admitted role in a conspiracy with hackers from the People’s Liberation Army Air Force to illegally access and steal sensitive U.S. military information,” John Carlin, assistant attorney general for national security, said in a statement.

Just a few years earlier, officials at the credit-reporting company Equifax Inc. told the FBI and the Central Intelligence Agency that it was the victim of corporate espionage by the PRC, *The Wall Street Journal* newspaper reported. The company’s security officials in 2015 feared that former employees had removed thousands of pages of proprietary information before leaving the company and moving back to China.

The materials included code for planned products, personnel files and manuals. What added to the suspicion was the fact that the Chinese government at the time had asked eight companies to help it build a national credit-reporting system. The FBI case

according to the NCSC report. Trade secret theft alone could account for losses of between U.S. \$180 billion and U.S. \$540 billion in the United States annually, according to the White House report.

Verizon worked with private companies and government agencies to produce a 2012 study of cyber intrusions. The study analyzed more than 47,000 security incidents that resulted in 621 confirmed data disclosures. At least 44 million records were compromised. Of the disclosures linked to economic espionage, 96 percent were attributed to “threat actors in China.”

EVADING EXPORT LAWS

Sometimes, PRC operatives physically take technological innovations to their homeland for study and duplication. In September 2016, a U.S. federal judge sentenced a Chinese woman to nearly two years in prison for illegally shipping parts for submersible vehicles to a Chinese university, including some that she tucked in her suitcase, the *Orlando Sentinel* newspaper reported.



Verizon worked with private companies and government agencies to produce a 2012 study of cyber intrusions. The study analyzed more than 47,000 security incidents that resulted in 621 confirmed data disclosures.

ultimately stalled even though the agency believed trade secrets were stolen, the newspaper reported.

The PRC invests enormous resources in collecting intelligence. The White House report said the PRC’s Ministry of State Security deploys 40,000 intelligence officers abroad and maintains more than 50,000 more in mainland China. This investment enables the PRC to be responsible for 50 to 80 percent of cross-border intellectual property theft worldwide and more than 90 percent of all cyber-enabled economic espionage in the United States, according to a report from the Foundation for Defense of Democracies.

CYBER THREATS

China engages in expansive efforts to acquire U.S. technology by uncovering sensitive trade secrets and proprietary information through cyber espionage,

Amin Yu, who was 55 at the time of her sentencing and a former employee at the University of Central Florida, was accused of failing to disclose that she worked on behalf of the Chinese government and of lying about what she was shipping to China. She pleaded guilty to exporting goods to a foreign country without registering as a foreign agent and conspiring to commit international money laundering. U.S. District Judge Roy B. Dalton Jr. sentenced her to 21 months in prison followed by two years of probation.

Yu, according to Assistant U.S. Attorney Daniel Irick, was part of a conspiracy that involved shell companies, offshore accounts and false documents, the *Sentinel* reported. She was involved in illegal transactions amounting to U.S. \$2.6 million.

In her plea bargain, she admitted to working for



Harbin Engineering University, a state-owned entity of the PRC. Yu obtained systems and components for marine submersible vehicles from companies in the United States and exported them to China for the development of marine submersible vehicles, unmanned underwater vehicles, remotely operated vehicles and autonomous underwater vehicles, according to the White House report.

Chinese businessman Su Bin was sentenced to nearly four years in a U.S. prison in 2016 for conspiring to steal secrets about military aircraft such as the F-35B stealth fighter.

REUTERS

Her case illustrates a significant problem for countries trying to enforce export control laws — the growth in dual-use technologies that have military and civilian applications. “For example, aero-engine technologies have an obvious commercial application,” the White House report said.

“When acquired by a strategic economic and military competitor like China, commercial items can be exploited for military purposes.”

PRC INFILTRATION OF SOCIAL MEDIA

Like actions taken by intelligence services of other countries, China has infiltrated social media sites in the U.S. to recruit human sources. William Evanina, director of the National Counterintelligence and Security Center, told Reuters in August 2018 that Beijing is liberally using LinkedIn, a popular business networking site, to recruit U.S. citizens with access to government and commercial secrets.

He said Chinese intelligence officials have

contacted thousands of LinkedIn members. British and German authorities previously warned that the PRC was using the social media site to recruit potential spies. Evanina urged LinkedIn, which is owned by Microsoft Corp., to copy the responses of Twitter, Google and Facebook, which all purged fake accounts linked to Iranian and Russian intelligence agencies.

“I recently saw that Twitter is canceling, I don’t know, millions of fake accounts, and our request would be maybe LinkedIn could go ahead and be part of that,” said Evanina, who heads the U.S. National Counterintelligence and Security Center.

Although Iran, North Korea and Russia also use LinkedIn and other platforms to identify intelligence targets, U.S. intelligence officials said the PRC poses the biggest threat. About 70 percent of China’s overall espionage is aimed at the U.S. private sector, rather than the government, said Joshua Skule, the head of the FBI’s intelligence branch, Reuters reported. “They are conducting economic espionage at a rate that is unparalleled in our history,” he said.

Experts have been sounding a warning about China’s aggressive campaign for more than a year. In June 2017, experts told the U.S. Senate Committee on Foreign Relations that Chinese hackers were laser-focused on U.S. companies. After a brief lull in activity, it appeared that cyber espionage against U.S. companies returned to “business as usual, meaning the wholesale theft of [intellectual property] on the private sector side,” said Samantha Ravich, an advisor to the Foundation for Defense of Democracies, a Washington, D.C., think tank.

The slowdown in Chinese hacking of American companies occurred after a 2015 agreement in which then-U.S. President Barack Obama and Chinese President Xi Jinping agreed that neither the U.S. nor China “will conduct or knowingly support

cyber-enabled theft of intellectual property, including trade secrets or other confidential business information,” for commercial advantage. Although cyber intelligence firms reported an initial slowdown in cyber espionage by the PRC in 2016, they issued multiple reports in 2017 that it was back on the upswing.

The PRC also targets Western European countries through social media. The German Federal Office for the Protection of the Constitution alleged in late 2017 that Chinese intelligence used LinkedIn to target at least 10,000 Germans, possibly to recruit them as informants. The German newspaper *Süddeutsche Zeitung*

also reported in June 2018 that Chinese agents were using fake social media profiles to contact members of the German parliament and offer them money in exchange for expertise and insider knowledge. The agents would invite them to China to try to pressure them for information.

Germany’s domestic intelligence service in late

2017 published the details of social network profiles it said were fronts faked by Chinese intelligence to gather personal information about German officials and politicians.

The service warned public officials about the risk of leaking valuable personal information on social media sites. “Chinese intelligence services are active on networks like LinkedIn and have been trying for a while to extract information and find intelligence sources in this way,” the service said in a statement.

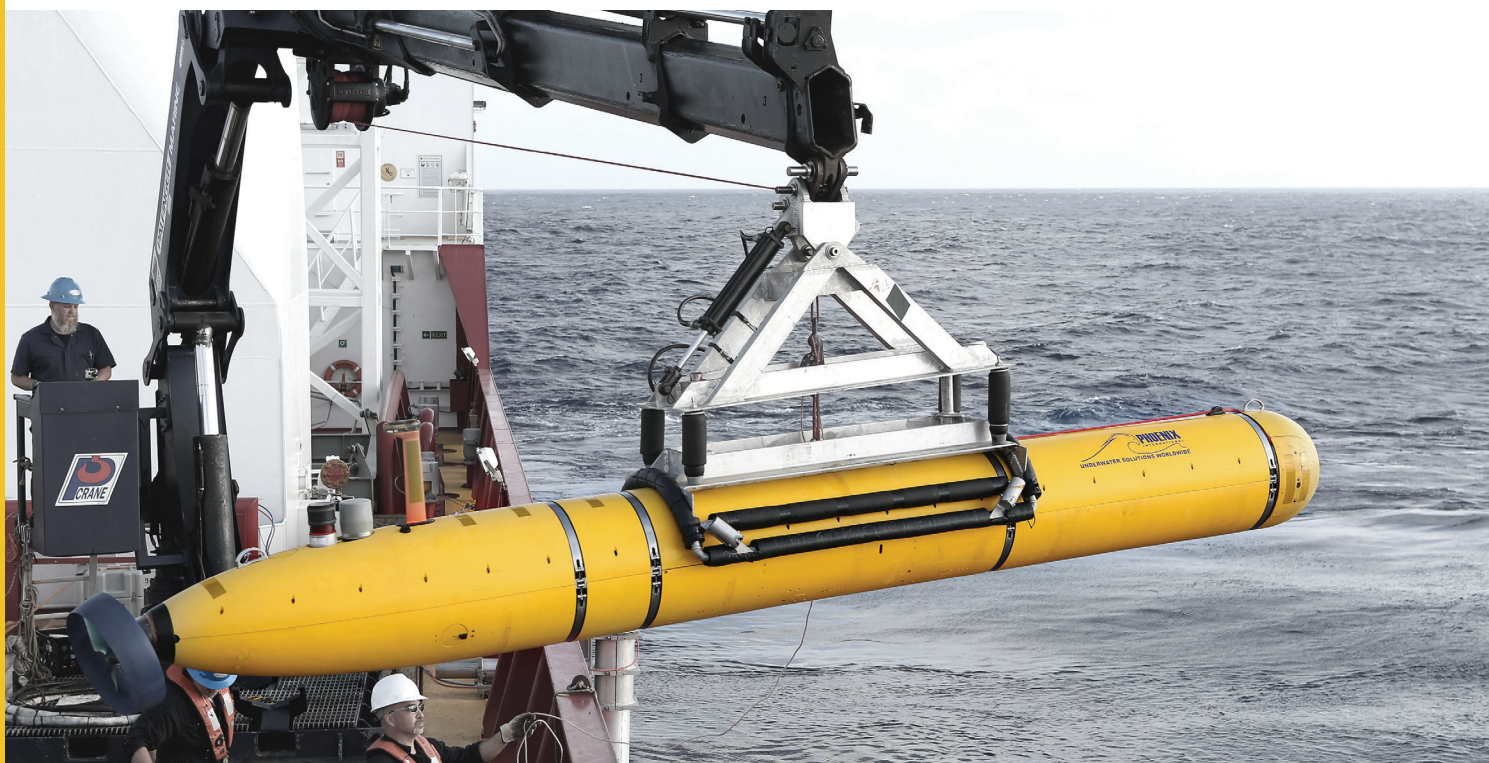
OPERATORS IN ACADEMIA

PRC operatives actively recruit scholars, researchers, technology experts and scientists who are at the top of their fields, the White House report said. The efforts typically target top employees of a company a Chinese entity wants to buy, partner with or invest in. The PRC’s Thousand Talents Plan, a recruitment program run by the government, targets scholars with top-level research capabilities who may hold intellectual property rights, key technologies or patents in technological fields. They often are offered lucrative and prestigious positions at Chinese research institutes, laboratories or universities.

China also fills up U.S. universities, think tanks and laboratories with its scholars. More than 300,000 Chinese nationals annually attend U.S. universities or find employment at U.S. national labs, innovation centers, incubators and think tanks, the White House report said. About 25 percent of Chinese graduate students specialize in science, technology, engineering or math. The Chinese government,

Below: Military secrets dealing with submersibles, such as this U.S. Navy Bluefin-21, were delivered to Beijing by a Florida woman who was born in China. U.S. NAVY

Bottom right: Chinese intelligence services are using multiple social media networking applications to uncover corporate secrets. AFP/GETTY IMAGES



the report said, has put in place “programs aimed at encouraging Chinese science and engineering students to master technologies that may later become critical to key military systems.”

FBI Director Christopher Wray, speaking before the U.S. Senate Intelligence Committee in February 2018, warned about possible operatives at the nation’s learning centers who are professors, scientists and students. The FBI is monitoring academies within universities that are sponsored by the Chinese government. Some of the institutions, he said, seem unaware of who could be spying on their campuses. “I think the level of naiveté on the part of the academic sector about this creates its own issues,” Wray said.

The concern in academia is not confined to the U.S. In October 2017, Australian Security Intelligence Organization Director-General Duncan Lewis told politicians in Canberra that universities need to be “very conscious” of foreign influence on Australian campuses.

Lewis also said foreign powers were “clandestinely seeking to shape” the opinion of the Australian public, media organizations and government officials to advance their countries’ own political objectives, Reuters reported.

An October 2018 report by the Australian Strategic Policy Institute explained that the risk of Chinese infiltration into public universities is greater than influence wielding. Military secrets are at stake. Since 2007, China’s People’s Liberation Army (PLA) sponsored more than 2,500 military scientists and engineers to study abroad, particularly in Five Eyes countries. Five Eyes is an intelligence-sharing alliance involving Australia, Canada, New Zealand, the United Kingdom and the U. S.

“Dozens of PLA scientists have obscured their military affiliations to travel to Five Eyes countries and the European Union, including at least 17 to Australia, where they work in areas such as hypersonic missiles and navigation technology,” the report said. “Those countries don’t count China as a security ally but rather treat it as one of their main intelligence adversaries.”

The PLA describes the process of gleaning military secrets in academic settings as “picking flowers in foreign lands to make honey in China,” the report said.

IP FOR SALE

One way the PRC gains a technological edge is through its checkbook. People working on behalf of the PRC government use vehicles that include mergers and acquisitions as well as seed and venture capital financing to strategically target high-tech industries all over the world.

In 2016, acquisitions accounted for 96 percent of Chinese investment in the United States, according to the U.S.-China Economic and Security Review Commission. In the first half of 2017, that trend continued with acquisitions accounting for 97.6 percent of Chinese investment in the U.S.

A relatively newer phenomenon is China’s willingness to engage in venture funding deals that finance startup firms and early-stage technology companies. Since its founding in 2009, the China-based venture capital fund Sinovation has accumulated U.S. \$1.2 billion in capital and has invested in almost 300 startups, including 25 that are working on projects dealing with artificial intelligence, according to a U.S. Department of Defense report titled, “China’s Technology Transfer Strategy: How Chinese Investments in Emerging Technology Enable A Strategic Competitor to Access the Crown Jewels of U.S. Innovation.” Sinovation was founded by the former leader of Google China, Kai-Fu Lee.

One way the PRC acquires this technology is by keeping an eye on U.S. bankruptcy courts. Chinese companies target small companies that make valuable technology, such as semiconductors, according to an October 2018 report by National Public Radio. Also, the PRC has learned that engaging in joint ventures with U.S. companies allows Chinese companies to escape scrutiny from the Committee on Foreign Investment in the United States.

The White House report warned of the risks associated with Chinese venture funding. “The technologies China is investing in are the same ones that we expect will be foundational to future innovation in the U.S.: artificial intelligence, autonomous vehicles, augmented/virtual reality, robotics and block chain technology,” the White House report said. “Moreover, these are some of the same technologies of interest to the U.S. Defense Department to build on the technological superiority of the U.S. military today.” □



The **DISCRIMINATION** Campaign in Xinjiang

THE PEOPLE'S REPUBLIC OF CHINA'S REPRESSION IS LIKELY TO BACKFIRE

MARC JULIENNE



THE ASSOCIATED PRESS

Recently, the People's Republic of China (PRC) firmly denied reports of "re-education camps" in the western region of Xinjiang, where Muslim minorities, mainly Uighurs and Kazakhs, are detained. Chinese official Hu Lianhe declared before the United Nations Committee on the Elimination of Racial Discrimination (CERD) that "there is no arbitrary detention" and "no such thing as re-education centers" in Xinjiang. Foreign Ministry spokeswoman Hua Chunying stated that reports on Xinjiang's detention camps "are based on unverified and irresponsible 'information' that has no factual basis at all."

Yet, a huge amount of factual and publicly available material proves the opposite: local government public documents, pictures and satellite pictures, a plethora of testimonies. Based on an academic methodology, the brilliant work of international scholars such as Adrian Zenz, Rian Thum, Jessica Batke and Shawn Zhang (to name a few) greatly helped to unveil this reality.

With the debate on the existence of the camps settled, discussing the possible impact of these policies on the People's Republic of China's (PRC's) own interests is now more pertinent.

In brief, the PRC's goal is to fight extremism, separatism and terrorism (the "three evil forces") through a massive surveillance and "de-extremization" system. Rather than being successful, this strategy could result in the definitive alienation of the Uighur population as well as other Muslim minorities and could drastically worsen radicalism at home and abroad.

China experienced a harsh rise in terrorism in 2013 and 2014, with hundreds of casualties across the country. Outside China, several thousand Uighur fighters have taken up arms in Syria since 2013, gaining training with an eye toward eventually fighting their ultimate enemy, the Chinese authorities in Xinjiang. China's anti-terrorist campaign since 2015 has proven to be efficient since almost no attack in China has occurred since. This decrease is due to the omnipresent security apparatus deployed in Xinjiang. Surveillance is tighter than it has ever been before in China or even elsewhere in the world. Police and military personnel are constantly watching and patrolling Xinjiang's streets and countryside. Technology is the new factor here, with internet surveillance, facial and voice recognition, integrated CCTV cameras, DNA records, and so forth. In addition, the "transformation through education" campaign has led to the detention of a massive number of Chinese Muslim citizens (at least several hundreds of thousands).

They are detained in new camps built to de-extremize the elements of the society that are "infected by religious extremism and violent terror ideology."

While effective on the surface, the PRC's draconian approach will have consequences.

First, extremism and separatism may grow stronger silently. Under the current security apparatus, terrorist violence seems unlikely since any attempted act would be repressed immediately. However, religious extremism can only grow stronger in the hearts and minds of people who feel persecuted and suppressed for their cultural identity and religious belief.

Second, PRC policy toward the Uighurs is already galvanizing the Uighur diaspora and human rights nongovernmental organizations worldwide to pressure governments and the U.N. to oppose the PRC on this matter. Instead of accusing the United States and Western media of willingly spreading false information to harm China, Beijing should provide more information and transparency about the situation in Xinjiang. In fact, Western media discourses are not the main harm to the world's view of the PRC (most of the information was revealed by international scholars); it is rather the fact that the PRC never provided any comment on the issue until it was forced to, before the CERD of the U.N. Office of the High Commissioner for Human Rights, on August 13, 2018. Stating that "the Xinjiang Autonomous Region always respects and guarantees the human rights of people of all ethnic groups and protects the freedom and rights of citizens of all ethnic groups" and that "their freedom of religious belief are fully guaranteed" achieves nothing other than discrediting Beijing's voice on the international stage.

Third, the PRC's actions will also galvanize militants worldwide. Uighur separatist organizations exist outside Chinese borders, namely the Turkistan Islamic Party (TIP) that operates in Afghanistan, Pakistan and Syria. TIP and other organizations such as the Islamic State of Iraq and Syria are likely to benefit from the resentment against the PRC among the Uighur and Kazakh populations in South and Central Asia to recruit fighters. China has plenty of infrastructure projects abroad, especially in Central Asia and Pakistan, that could be chosen as targets for terrorists seeking to avenge fellow ethnic and religious groups in Xinjiang.

Analyzing the Xinjiang situation from the perspective of Chinese government interests, it is hard to see how the PRC benefits from its massive repression of Muslim populations. There is a highly significant risk that these kinds of policies could exacerbate interethnic resentment, separatism and extremism at home, harm the PRC's international image, and make China a target of terrorist organizations abroad. In short, the cure might prove to be worse than the disease. □

Indian Muslims in Mumbai in September 2018 protest the People's Republic of China's detention of thousands of members of the minority Uighur Muslim ethnic group in political indoctrination centers in the Xinjiang region of China. Placards read, left, "Chinese government must stop atrocities on Muslims" and "China stopped NSG (Nuclear Suppliers Group) membership of India by veto. End veto power of China."

The online news magazine The Diplomat originally published this article on September 15, 2018. It has been edited to fit FORUM's format.

Multi-Domain OPERATIONS



Coming to a megacity near you

In the coming decades, militaries in the Indo-Pacific will engage in operations in cities with populations of more than 10 million people. These complex missions will potentially invoke all operating domains and services at once to keep the advantage over threats whether natural or man-made. That is the emerging reality in the region, according to Gen. Stephen Townsend, commanding general of U.S. Army Training and Doctrine Command (TRADOC).



“It will be impossible to avoid combat in large cities and megacities in the future,” Gen. Townsend said during his presentation via satellite to the sixth annual Land Forces of the Pacific (LANPAC) symposium and exposition held May 22-24, 2018, in Honolulu, Hawaii. The conference brought together more than 1,600 participants from armies and the defense industry sector, including military leaders from 26 Indo-Pacific nations, to discuss future challenges.

Under the multi-domain operations concept, the U.S. military and its allies and partners will operate in and work effectively across all domains — land, air, maritime, cyber and space — and with all service components — army, air force, navy, marines and coast guard — to deter and outmaneuver increasingly capable potential adversaries and effectively manage other security concerns.

By 2030, two-thirds of the world’s population will live in big cities, according to the United Nation’s Department of Economic and Social Affairs. The number of megacities will increase from 33 to 43 and the number of large cities with populations between 5 million and 10 million from 45 to 63. As it is, more than half of the world’s megacities are in the Indo-Pacific. The world’s largest, Tokyo, has an agglomeration of 37 million inhabitants, followed by New Delhi with 29 million, and Shanghai with 26 million, according to 2018 U.N. data. Mumbai, Beijing and Dhaka each has close to 20 million inhabitants.

“The complexities that go on in this scale are unimaginable,” retired Lt. Gen. James Dubik, a senior fellow with the Association of the U.S. Army, said at LANPAC.

Further complicating the dynamics of the region is that many of its leading nations sit on the ring of fire, an expansive

basin in the Pacific Ocean where earthquakes and volcanic action regularly occur, and they often stare down natural disasters with greater frequency than other parts of the world. The region incurred about 57 percent of the global death toll from natural disasters or more than 2 million deaths since 1970, mainly from earthquakes, storms and floods, according to a recent United Nations analysis, the “Asia-Pacific Disaster Report 2017 – Leave No One Behind.”

The complexities revolve around not just how to fight in the megacity environment but how to conduct noncombat campaigns in it. That is why the U.S. Army expanded the multi-domain battle concept to reflect that many future operations that employ the evolving doctrine will entail providing humanitarian aid and disaster relief and other forms of noncombat assistance and services.

Supercharged urban vulnerability

Megacities are distinguished by more than their sheer size of 10 million inhabitants or more. A megacity is defined as “an urban area of extraordinary population size, geographic spread, physical and social complexity, and similarly exceptional characteristics, to include influence with at least international and broader regional scope,” Dr. Russell Glenn, director, plans and policy for intelligence at U.S. TRADOC, explained at LANPAC.

Megacities are different, “because the influence they have far exceeds other cities in a country or in the region,” Glenn said.

Moonlight illuminates the Bangkok, Thailand, skyline.

THE ASSOCIATED PRESS

Consider Tokyo. The city not only has the largest urban population in the world but also the greatest influence within the country of Japan. Tokyo's urban area spreads out 3,925 square kilometers and holds 30 percent of the country's population, 37 million people, or roughly 8,790 people per square kilometer. The city produces nearly 35 percent of Japan's gross domestic product. Tokyo's GDP is larger than that of Spain and about the same size as that of Texas. Half of the major companies and 84 percent of foreign companies operating in Japan are based there.

If Tokyo were compromised, much of the nation's economy, and the region's economy, could be affected as well. Imagine the logistical challenges involved if Japan merely needed to evacuate the city. Finding lodging for more than 37 million people overnight would be a daunting task.

"So, when we look at having to operate in megacities, whether it be in times of war or because of a natural disaster or other event, the logistics command and control elements that are going to be inherent are anything but straightforward and simple," Glenn said. "The challenge of megacities is unlike what we've had to deal with in history in the past."

In previous conflicts, such as World War II or the Korean and Vietnam wars, forces never operated on anything close to this scale. Seoul, for example, was a city of 1 million during the Korean War. Today, it possesses an urban expanse of more than 25 million if the surrounding metropolitan region is factored.

The reach of megacities is only going to expand and intensify. "Urbanization began in the industrial age, was accelerated by the industrial age and now is being hyper-accelerated in the information age for many of the same reasons and a bunch of different reasons," said Dubik, also a former commander of the Multi-National Security Transition Command-Iraq.

Combat operations

Fighting in megacities will be especially challenging, experts warned at LANPAC.

"Urban combat, especially in a megacity, is going to be extraordinarily violent and extraordinarily destructive

for both the security forces on either side of us and our adversaries and the people who remain there," Townsend said.

The nine-month-long operation in Mosul, Iraq, from October 2016 to July 2017 launched by the Iraqi government and its allies to liberate the city and region from the Islamic State of Syria and Iraq (ISIS) offered a glimpse of what's to come.

"Our sensors are degraded in the urban environment, the range of sensors are degraded, the range of our weapons is degraded, the effects of our weapons are degraded," Townsend said.

"As powerful as our mission command systems are, they are all challenged by the environment — the complex terrain that is a city ... modern city," Townsend said. "You can't go more than one floor deep without losing [communication] with everybody who's up on the surface. ... So, this whole notion of conveying commanders' intent, and empowering subordinates ... to achieve that commanders' intent, and trusting them to do that is exactly how we'll have to fight in even small cities.

"Our armies, the coalition forces, if we would have fought the battle of Mosul, we would have done it faster and with less destruction and probably fewer casualties, but even so, Mosul would have been a very hard problem for us as well," Townsend said.

Mosul is small compared to the world's emerging megacities. At the time the fighting started, Mosul's population hovered at about 1.5 million. Less than 150,000 troops participated in the battle, and about 15,000 casualties were incurred.

"The enemy has watched Mosul, ISIS has watched it, the heightened threats of the world have, nation states have watched it. I think they are going to deliberately go to the cities to dig into fight because it takes away a lot of our technological advantages," Townsend said. "We're going to see battle in megacities, and there is little way to avoid it."

"Urban terrain is a great equalizer when facing determined combatants," Lt. Gen. Michael Bills, Joint Forces Korea chief of staff, said at LANPAC. "The megacity magnifies power of defender and diminishes the attacker's advantage in firepower and mobility."



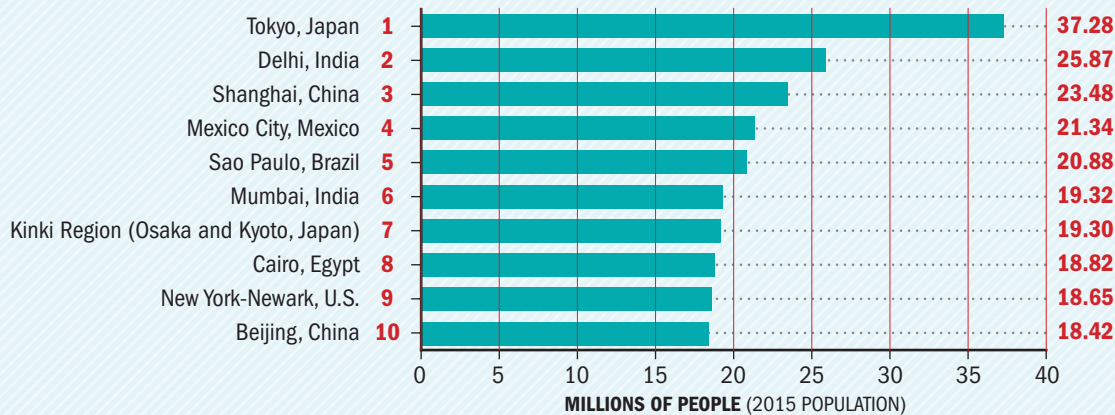
"Urban combat, especially in a megacity, is going to be extraordinarily violent and extraordinarily destructive for both the security forces on either side of us and our adversaries and the people who remain there."

U.S. Army Gen. Stephen Townsend, right, talks with an Iraqi officer during a tour of Baghdad in February 2018.

THE ASSOCIATED PRESS

Urban Statistics

Top 10 Largest Cities in the World



2028

Year when Delhi is expected to overtake Tokyo as the world's largest city

1 in 8 people live in one of 33 megacities worldwide



Number of people living in cities today
4.2 billion or 55 percent of world's population



Percent of population now living in cities



NORTH AMERICA



LATIN AMERICA AND CARIBBEAN



EUROPE



PACIFIC ISLAND NATIONS



ASIA



AFRICA

Snow-capped Mount Fuji towers over the skyscrapers of Tokyo, highlighting the potential of natural and man-made threats to the world's largest megacity.

THE ASSOCIATED PRESS

Rural Statistics

Nearly **90 percent** of the world's rural population lives in Africa and Asia.



Between 2018 and 2050, the U.N. estimates that **35 percent** of urbanization will occur in China, India and Nigeria.

India has the largest rural population.

893 million

China has the second-largest rural population.

578 million

Consider the challenges of defending today's Seoul, for example, where there are hundreds of kilometers of subways and hundreds of subway stations and shopping malls built underneath the city. Although there have been some technological advances in communications systems, such as hockey-puck-sized repeaters for use in tunnels, contemporary construction will constrain activities, Bills said.

For these reasons, multi-domain operations will be critical for missions in megacities, U.S. senior leaders said at LANPAC.

Multi-domain operations offer military leadership a larger array of options to resolve emerging threats. The new doctrine strives to integrate capabilities from various services and partner militaries from other nations to

The multinational forces hit the amphibious ship with long-range artillery, air and sub-based attacks and shore-based missiles in real time, according to media accounts. For example, Japanese Ground Self-Defense Forces fired Type 12 surface-to-ship missiles that travel at high-subsonic speeds with range of over 100 nautical miles.

"Multi-Domain Operation relies on multi-domain targeting," explained Col. Christopher Wendland, commander of the 17th Field Artillery Brigade, which participated in the SINKEX. The brigade forms the basis of the Multi-Domain Task Force, which was established to test the multi-domain doctrine in the field.

"Our goal is to create joint interoperability to be able to deter our adversaries across all domains," Wendland said.

This requires coordination to synthesize information from all the domains to identify and strike targets at the right time.

Multi-domain operations seek to overcome near-peer adversary denial of access threats by integrating and synchronizing capabilities such as unmanned surveillance assets, aviation, long-range artillery, air defense, electronic warfare, cyber and space assets.

Retired Col. Christopher Garver, then spokesman for U.S. Army Pacific, said that multi-domain operations build on combined arms efforts of the past and add cyber and space domains.

"What the Soldier on the ground will see in the future is more direct access at the lower levels into all five domains," Garver said.

Fleeing Iraqi civilians walk past the damaged al-Nuri mosque as Iraqi forces continue their advance against Islamic State of Syria and Iraq militants in the Old City of Mosul in July 2017.

THE ASSOCIATED PRESS



defeat adversaries. For example, a given nation such as Australia could detect a threat, South Korea could track it, and Japan could eliminate it.

Field tested

The U.S. Army first put its multi-domain operations concept into action in mid-July 2018 during the Rim of the Pacific (RIMPAC) exercise, the world's largest international maritime exercise. Twenty-five nations, 46 ships, five submarines, and about 200 aircraft and 25,000 personnel participated in RIMPAC 2018 from June 27 to August 2 in and around the Hawaiian Islands and Southern California.

During RIMPAC's multi-domain operation Sinking Exercise (SINKEX), the U.S. Joint Forces together with service personnel from Japan and Australia conducted a series of coordinated precision strikes by land, sea and air that linked all the services across the domains. They targeted and sank the USS Racine, a decommissioned naval vessel, into the Pacific Ocean.

Challenges of large urban systems

Historically, U.S. forces have sought to surround, isolate or avoid large cities. Now, however, they must learn how to fight in and around megacities. Although it was still possible to surround Mosul, it's impossible to surround a city with a population of more than 10 million, Bills said.

"You can't surround a megacity, you can't avoid a megacity, if you want to impact centers of gravity in the future of human terrain, you have to enter and operate inside of this city."

Beyond their sheer size, megacities present other challenges. While a military's actions can be isolated in a rural setting, they tend to have more of a domino or ripple effect in a city.



Passengers at a Seoul subway station watch South Korean police officers during an anti-terror drill as part of an Ulchi Freedom Guardian exercise in August 2017.

THE ASSOCIATED PRESS

“Every act you do in a city reverberates,” Townsend said.

Military leaders must also factor the impact of an action in a megacity on the region.

“A megacity is itself a system comprised of many, many subsystems but also part of a much larger system that can extend worldwide,” Glenn explains.

There are formal and informal sources of power and imbedded threats.

“Social structure may be more important than the physical. ... Decisive terrain may not be ground or may not even be in the urban area.”

For these reasons, “Megacities will likely have greater strategic advantage beyond military advantage,” Bills said.

Moreover, crisis and conflict interrupt the normal flow of a large city and create a new flow. Understanding the unique flow of a city will be among the top challenges for military leaders. Civil concerns such as providing good governance and environmental concerns such as protecting water and power supplies will also limit activities.

Megacities not only change block by block but day by day. “The urban landscape changes so rapidly,” Townsend said. In Mosul, for example, “Our C2 systems, our targeting systems ... became outdated quickly because the urban landscape was changing faster than we could update our imagery.”

Urban sprawl is also continuously changing the dynamic during times of peace. “A landing zone becomes a shopping mall or a parking lot overnight,” Bills said.

Information, cyber and electronics operations will be key in multi-domain operations in megacities. The magnitude of information and analysis required to maintain situational awareness alone is daunting. Fluency

in languages and cultures will also be important for managing operations and responses.

“We don’t have the luxury of being months and years in the megacity, so we need to turn to citizenry to determine what is normal to restore after a disaster,” Bills said.

Continuing to build relationships, share information and working to understand the intricacies of partnerships will be key for success, senior leaders said. By taking “advantage of those military and civilian [relationships], only then can we fully understand the environment that we’re working in,” Glenn explained.

Interoperability entailed

Changing demographics means disasters and conflicts are likely to be in megacities in the future and especially in the Indo-Pacific, given the region is already conducive to both. Moreover, operations in megacities will put demands on all domains across all services and challenge alliances, the senior leaders said.

“There are adversaries there that are going to conflict our partnerships in the region, and we have to continue to work on our common understanding of these challenges and our interoperability,” Townsend told LANPAC participants, who hailed from nations ranging from Australia and New Zealand to the Philippines and Indonesia to Japan and South Korea to Mongolia, Nepal and Taiwan to Fiji and Vanuatu.

“We will need your help as we evolve this concept that we are calling multi-domain operations. We will need your help, and as we look at combat in megacities, we will need your help for that,” Townsend told the military leaders. “For combat in megacities, you can count on the U.S. as a partner, and we are looking to improve our interoperability.” □



THE WINDING ROAD TO DISARMAMENT

**A Denuclearized North
Korea Remains the Goal,
Despite Skepticism**

Historic face-to-face meetings between U.S. President Donald Trump and North Korean leader Kim Jong Un have yet to produce a consensus on a way to denuclearize the Korean Peninsula.

U.S. officials remain optimistic, however, that the talks in June 2018 in Singapore and February 2019 in Vietnam still could lead to smaller, trust-building agreements that eventually could lead to North Korea's denuclearization.

"There are various smaller deals that maybe could happen," President Trump said in April 2019, speaking alongside South Korean President Moon Jae-in in Washington, D.C., according to *The New York Times* newspaper. "Things could happen. You can work out step-by-step pieces, but at this moment we are talking about the big deal. The big deal is we have to get rid of the nuclear weapons."

The challenges on this winding road to disarmament are daunting. Since the talks, North Korea said in April 2019 that it test-fired a new type of tactical guided weapon, The Associated Press (AP) reported. The test didn't appear to be a banned intermediate- or long-range ballistic missile, AP reported, but rather an effort to show a domestic military audience that talks with Washington were not a sign of weakness. Then in early May 2019, North Korea appeared to test a similar tactical guided weapon, which experts believe to be a short-range ballistic missile, AP reported.

Adding to the challenge is North Korea's lack of transparency. In November 2018, the Center for Strategic and International Studies in Washington, D.C., revealed that it had located 13 of an estimated 20 North Korean missile operating bases that had not been declared by the government.

Along the way, however, leaders of Japan and South Korea have stepped forward to help soften North Korea's leadership and support the U.S. push for denuclearization at a time when Kim is securing increased support for his position from Russia.

Even while experiencing setbacks, the U.S. and its allies continue to press for a deal. In a September 2018 meeting in New York with South Korean President Moon, President Trump commended President Moon on conducting a successful third inter-Korean summit, while acknowledging there remained much work to be done. President Trump had just canceled a trip to North Korea by U.S. Secretary of State Mike Pompeo in late August 2018, citing the lack of progress on denuclearization. Presidents Moon and Trump agreed on the importance of maintaining vigorous enforcement of existing sanctions to ensure North Korea understands that denuclearization is the only path to economic prosperity and lasting peace on the Korean Peninsula.

Kim, however, criticized the sanctions, during a 30-minute speech on New Year's Day 2019, and made explicit requests of the United States. He warned that North Korea may choose a "new path" if the United States continued to "break its promises and misjudges our patience

by unilaterally demanding certain things and pushes ahead with sanctions and pressure." He also called for an end to U.S. and South Korean joint military exercises.

Through it all, skeptics continue to scrutinize every meeting and communicate and remain quick to criticize each step. Some analysts, for example, say Kim's promise to permanently close a major missile test site — in the presence of international inspectors — has no effect on the North's capabilities to continue its missile and nuclear weapons programs.

Closing the site "may not be completely cost-free, but in the grand scheme of things, it's not a particularly big step toward disarmament," Vipin Narang, an arms control researcher at the Massachusetts Institute of Technology who follows the North's program, told National Public Radio (NPR) in September 2018.



North Korean leader Kim Jong Un, center left, and South Korean President Moon Jae-in, center right, hold hands atop Mount Paektu in North Korea while flanked by their spouses. REUTERS

Narang noted that the site Kim has touted as permanently closing is the same site he promised to partially dismantle following talks with President Trump. "The fact that Kim is milking a single test site for basically months on end is pretty remarkable," Narang told NPR.

The site also has multiple names: Tongchang-ri, Dongchang-ri and Sohae. Following talks with President Trump, it was largely referred to as Sohae. In a more recent statement from Kim, he referred to it as Dongchang-ri. Using different names is confusion by design, according to Narang. Rotating monikers could convince some that North Korea is making new concessions, Narang said, when, in fact, they are not.

EVOLVING RELATIONSHIPS, NEW OPPORTUNITIES

President Trump isn't the only leader navigating a new and evolving relationship with Kim. Diplomatic ties between Kim and the South Korean president have also experienced a dramatic boost.

The North and South held five inter-Korean summits since 2000. The most significant outcome of the latest involved the signing by respective defense ministers of a deal to reduce military tension along the boundary separating the countries. The agreement calls for provisions to manage and lower the military presence in the air, on land and at sea, reported in September 2018.

North and South Korea completed withdrawing troops and firearms from 22 front-line guard posts

NORTH KOREA'S NUCLEAR FACILITIES



Sources: Reuters, Nuclear Threat Initiative, Federation of American Scientists, U.S.-Korea Institute, Johns Hopkins University, U.S. Geological Survey

Kim agreed to accept international inspectors to monitor the closing of a missile test site. Both leaders vowed to work together on a bid to host the Summer Olympics in 2032.

“We have lived together for 5,000 years and lived in separation for 70 years,” Moon said, according to AP. “I now propose that we completely eliminate the hostility of the past 70 years and take a big step forward in peace so that we can become one again.”

OUTSIDE INFLUENCE

North Korea has maintained relatively warm relations with the People’s Republic of China (PRC), with which it shares a border, and Russia.

President Trump and others have historically pressured the PRC to do more to tame North Korea’s bad behavior. Smugglers use the porous border between China and the North to bring black market goods and goods that are banned by sanctions into North Korea. The PRC has largely remained docile when urged to flex its big brother muscle to push North Korea toward better behavior.

During a September 2018 United Nations Security Council

meeting, then-U.S. Ambassador Nikki Haley called out the PRC and Russia for consistently skirting sanctions against North Korea. “Step by step, sanction by sanction, and time and time again, Russia is working across the board to undermine the sanctions regime,” Haley said, according to CBS News.

She had called the urgent meeting of the U.N. Security Council to blast Russia and the PRC for not enforcing sanctions that pressure North Korea to abandon its nuclear and missile programs. “Difficult, sensitive talks with North Korea are ongoing. But we are not there yet,” Haley said. “And until we get there, we must not ease the powerful worldwide sanctions that are in place.”

COMPETING VIEWPOINTS

Some experts say North Korea and the United States have different views of the order and scope of implementing four articles of the June 2018 declaration to denuclearize.

“Pyongyang believes that halting missile and nuclear tests, decommissioning certain weapons sites and beginning the process of returning U.S. servicemen remains from the Korean War satisfies the agreement’s

in November 2018 as part of an agreement to reduce tensions at the Demilitarized Zone, AP reported. The agreement — reached in September 2018 — called for the implementation of steps to build trust, stabilize peace and move toward reconciliation. More contact between families separated by the Korean War will also take place, AP said. The warming relations have also led to proposals for the South to help build up the North’s infrastructure and open cross-border rail links.

Kim and Moon concluded a September 2018 summit by standing together atop Mount Paektu, a volcano considered sacred by both Koreas and that has historically been a centerpiece of propaganda to legitimize the Kim dynasty. The leaders of the two Koreas held hands in a triumphant pose at the mountain’s peak.

“We have agreed to make the Korean Peninsula a land of peace that is free from nuclear weapons and nuclear threat,” Kim said, according to AP. “The road to our future will not always be smooth, and we may face challenges and trials we can’t anticipate. But we aren’t afraid of headwinds because our strength will grow as we overcome each trial based on the strength of our nation.”



A military parade in Pyongyang features intercontinental ballistic missiles in April 2017. REUTERS

confidence-building measures,” Nate Kerkhoff wrote for Australia-based East Asia Forum in August 2018. “Now, Pyongyang is demanding progress on the remaining article and calling for the United States to make a ‘bold move’ towards establishing a peace regime.”

Doug Bandow, a senior fellow at the Cato Institute and a former special assistant to U.S. President Ronald Reagan, argued that North Korea’s engagement could be nothing more than puffery, and skeptics have good reason to cast doubt.

“Few Korea specialists believed the North was prepared to yield its nukes. They offer prestige, are useful as a tool of extortion, and cement the military’s support for the regime. They also ensure that Kim and his cohorts won’t end up like Libyan leader Muammar Al Gaddafi,” Bandow wrote for *The National Interest* magazine in September 2018 in an article titled “North Korea Denuclearization Isn’t Free.” “After all, Gaddafi gave up his nuclear and missile programs only to end up starring in a gruesome YouTube video in which rebels found and executed him. Therefore, while Kim could reasonably make a deal on the margin — halt missile and nuclear testing, cap the number of weapons, allow some forms of safeguards/inspections, adopt other tension-reducing measures — getting rid of everything was a long-shot under the best of circumstances.”

Still, the possibility exists.

For Japan, however, that possibility is extremely low — at least for now.

An August 2018 Japanese defense white paper, and subsequent National Defense Program Guidelines published in December 2018, said North Korea remained

a military threat. The August paper said Japan should add to its own missile capabilities and be fully prepared while watching to see whether North Korea keeps its promises.

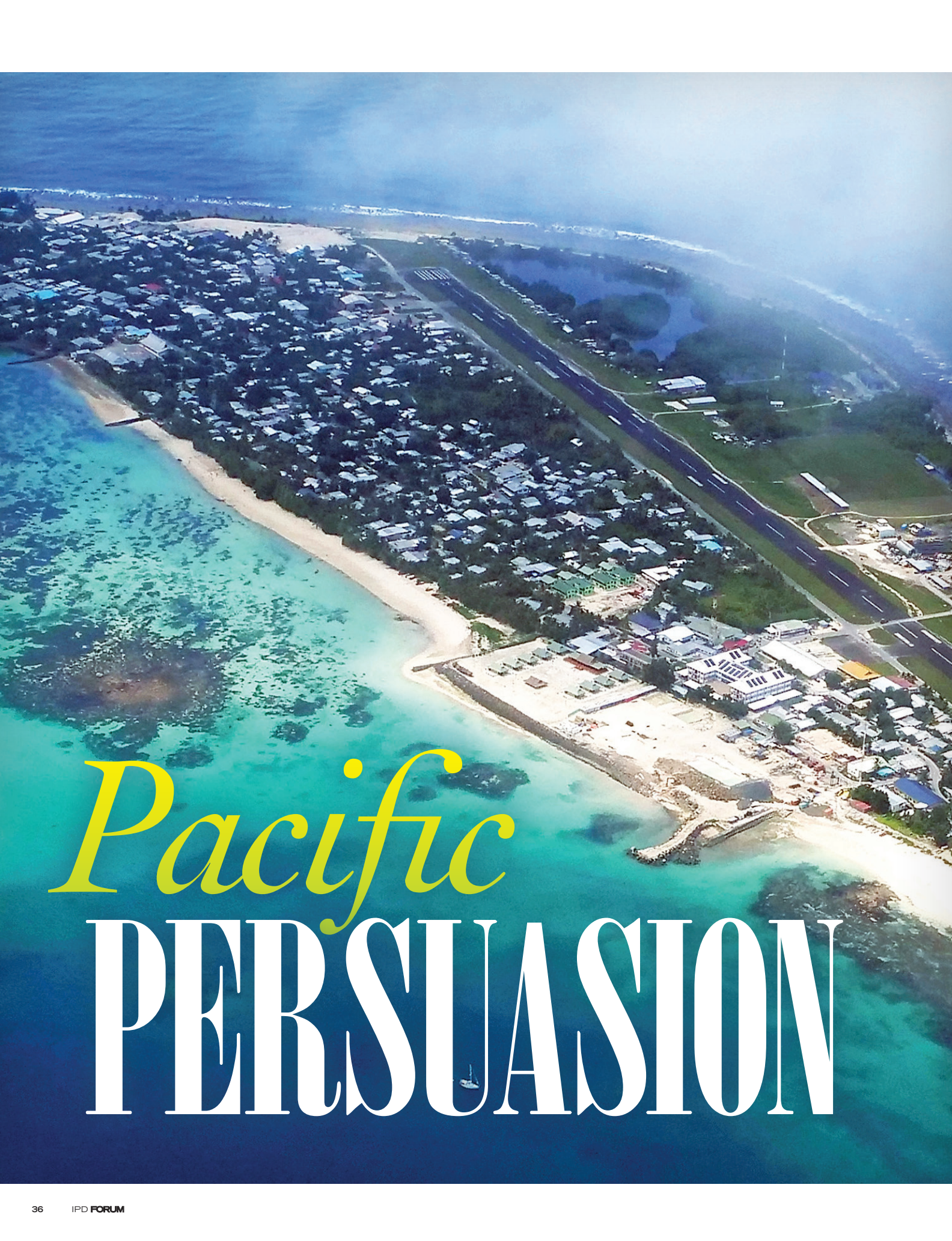
“Its military actions have become unprecedentedly serious and imminent threat to Japan’s national security,” the August white paper said. “There is no change in our basic recognition about the threat of North Korea’s nuclear weapons and missiles.”

North Korea tested multiple longer-range ballistic missiles in 2017, launching some over Japan. The North also possesses shorter-range Rodong missiles capable of hitting Japan, according to multiple reports.

The August white paper conceded that the June 2018 meeting between President Trump and Kim had “major significance,” but “we need to carefully ascertain what specific actions North Korea will take toward abolition of nuclear and (ballistic) missiles from now,” it said.

The weeks, months and years ahead are sure to be filled with unforeseen challenges and scrutiny from all sides. They will also be filled with progress, no matter how slow and deliberate, and the enduring hope that the Korean Peninsula will return to a state of unification and the North will denuclearize.

“The Korean people, both in the North and South, deserve to live together in peace, ruled by a democratic government which safeguards their welfare and safety,” Bandow wrote for *The National Interest*. “However, the DPRK [Democratic People’s Republic of Korea] is a reality that cannot be wished away. Nor can it be swept away even by a military as powerful as that of America without devastating cost. And maintaining the peace is the foundation upon which everything else depends.” □



Pacific

PERSUASION

Major and emerging powers forge partnerships with South Pacific nations to curb Chinese influence

Pacific maneuvers by the People's Republic of China (PRC) have sent shockwaves to major and emerging powers in and out of the region. The PRC has moved with haste in recent months to secure economic and defense ties with Australasian, Melanesian, Micronesian and Polynesian nations. The PRC communist government's intensifying interest in the Pacific has prompted other strategic partners in the region — including Australia, India, Indonesia, Japan and the United States — to collaborate more creatively and present themselves as more favorable economic and defense partners than the PRC.

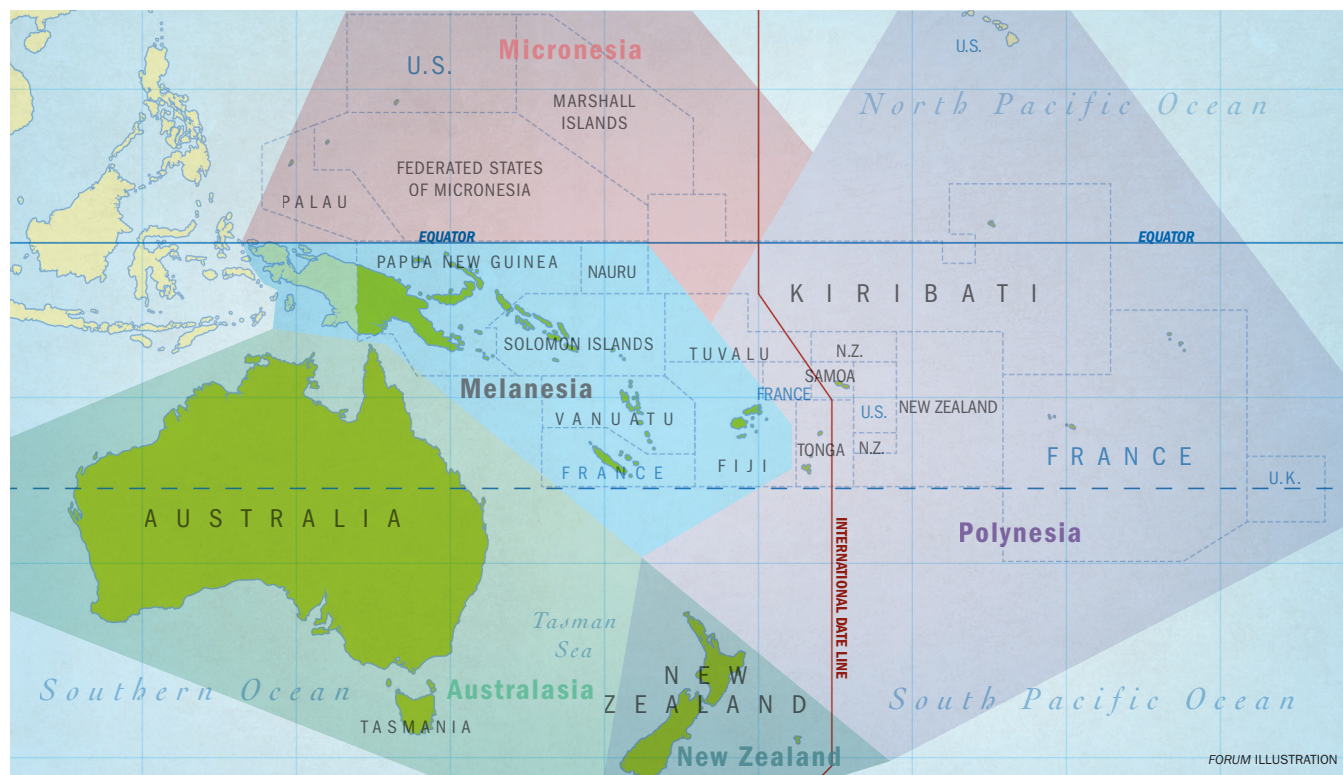
“We share the belief that good investments stem from transparency, open competition, sustainability, adhering to robust global standards, employing the local workforce and avoiding unsustainable debt burdens,” then-Australian Foreign Minister Julie Bishop said in July 2018, according to Agence France-Presse. Her remarks came during an announcement for a trilateral partnership among Australia, Japan and the U.S. to “mobilize investment in projects that drive economic growth, create opportunities and foster a free, open, inclusive and prosperous Indo-Pacific.”

China has solidified itself as the second biggest aid donor in the South Pacific, having committed to more than U.S. \$6 billion in projects across the region since 2011, according to *Financial Times* newspaper. Australia remains the largest donor, having committed U.S. \$6.72 billion between 2011 and 2018 and spending U.S. \$5.58 billion, *Financial Times* reported. New Zealand, the U.S. and Japan are the third, fourth and fifth largest donors, respectively, the newspaper said.



The Tuvalu government is building a convention center in its capital, Funafuti, to host the Pacific Islands Forum in 2019. GETTY IMAGES

PACIFIC ISLAND NATIONS AND OTHER TERRITORIES



U.S. Secretary of State Mike Pompeo, right, greets Japanese Foreign Minister Taro Kono, left, and then-Australian Foreign Minister Julie Bishop during the 51st ASEAN Foreign Ministers Meeting in Singapore in August 2018. REUTERS

MILITARY MANEUVERS

Competition for influence in this immense maritime territory — which includes Australia, New Zealand, the island nations of the South Pacific, and territories of the United States, France and the United Kingdom — often appears to be a contest between the PRC versus everybody else.

Leaders of Australia, Canada, New Zealand, the United Kingdom and United States confirmed in early 2018 their intent to increase economic contacts with Pacific nations to draw them away from the PRC. The leaders say there is still time to counter China's inroads in the region because none of the Pacific nations has

conceded to the PRC's promises.

Intelligence analysts in Australia say the South Pacific now represents the greatest strategic threat to Australia based on intelligence that suggests the PRC intends to establish a military base in the region, *The Australian* newspaper reported in September 2018.

News arose in April 2018 that the PRC had informally approached Vanuatu to establish a naval military presence on the tiny island. Both Vanuatu and the PRC denied such talks occurred or such plans existed. Australian intelligence suggests otherwise, and experts offered opinions about why it could become a likely scenario.

Across the South Pacific, the PRC has evacuated hundreds of Chinese nationals from areas within the Solomon Islands, Timor-Leste and Tonga, the online news magazine *The Diplomat* reported in April 2018. These evacuations occurred because of attacks on businesses owned by Chinese nationals and diaspora.

"It is not hard to envisage that incidents like this could easily grow in size and intensity as China's presence in the South Pacific grows," David Brewster, a senior research fellow with the National Security College, Australian National University, wrote in *The Diplomat* in April 2018. "These imperatives, and others, may give China reason to seek secure access to local

facilities in the event of a crisis. Just as Australia has kept a close eye on its citizens in Fiji during past crises in that country, China might even potentially feel impelled to provide on-ground security where local governments are unable to do so.”

While a PRC military base in Vanuatu remains shrouded in denials, Australia and the U.S. confirmed plans to upgrade military infrastructure at a Manus Island base in Papua New Guinea (PNG) and establish a joint naval base there, *The Australian* reported in September 2018.

Adm. Mike Rogers, former U.S. National Security Agency director and commander of U.S. Cyber Command, called the base a “win-win” for Australia and PNG.

“If you look at PNG and other places that have really interesting resources — it’s not by coincidence you are seeing more of the Chinese,” Rogers said, according to *The Australian*, adding that the PRC was “clearly trying to create relationships that generate advantage for them. I’m not trying to argue it is inherently evil, but on the other hand, it’s a conscious strategy. Nobody should think this is just being done on a whim or, ‘Oh, I wonder why they are interested in — pick the island — in Oceania today?’ There is a reason, guys, it’s not by chance.”

Australia’s defense spending across the South Pacific for 2018 totaled U.S. \$120 million and is increasing, *The Australian* reported.

“The Pacific is a very high-priority area of strategic national security interest,” said Australian Defense Minister Christopher Pyne.

INDIA'S GROWING INFLUENCE

India has emerged in recent years as the fastest-growing major economy in the world and is projected to grow faster than China over the next decade. While the bulk of India’s small but growing foreign aid goes to its immediate neighbors in southern Asia and the Indian Ocean, India’s aid diplomacy has extended to small states of the South Pacific, especially Fiji. Roughly 38 percent of the population of Fiji are Indo-Fijians, descendants of Indian contract workers brought to the islands by the British in the 19th century.

India has long adopted an Act East policy that encourages engagement with its neighbors to the east. Leaders there recently worked with a New Zealand consortium to develop key areas in economics, trade, diplomacy, security, governance and social development.

As a rising power and one that is increasingly engaged regionally and abroad, India is keen on engaging in the South Pacific, said Rani D. Mullen, visiting fellow at the Institute of South Asian Studies, National University of Singapore.

“This is not a new engagement, especially with the long-standing history of 100-plus years and the diaspora in the Pacific,” she said. “This new thinking has led it to



Adm. Philip S. Davidson, commander of U.S. Indo-Pacific Command (USINDOPACOM), participates in an honors ceremony at the Pukeahu National War Memorial Park in Wellington, New Zealand, in August 2018, during his first visit to the country as USINDOPACOM commander. PETTY OFFICER 1ST CLASS ROBIN W. PEAK/U.S. NAVY

engage more with Pacific island countries through soft power. The engagement is largely training, education and cultural engagement.”

Mullen’s message to South Pacific nations looking for investors is that diversity with other markets is a good thing; but beware of the strings attached.

“India is the new great game and in rivalry with China. It’s important for countries to look at the kind of investments that China proposes and the repayment rates and high interest rates. Those are important to keep in mind, Tonga for example,” Mullen said. When China started building harbors and ports close to India — in Burma, the Maldives, Pakistan and Sri Lanka, close to the border — “India was taken by surprise. India wants to establish good working relationships that might lead to better economic engagement. That has been part of the driver more recently for engagement with the South Pacific.”

Rajesh Rajagopalan, a professor at the Centre for International Studies, Jawaharlal Nehru University in New Delhi, called the shifting dynamics across the Indo-Pacific a “wake-up call” for India.

“We are facing challenges as a consequence of China’s rise,” Rajagopalan said. “There is potential for peaceful or tense, conflictual world foreign policy.”

JAPAN'S PACIFIC STRATEGY

Japanese Prime Minister Shinzo Abe has worked to advance Japan’s free and open Indo-Pacific strategy. He went a step further recently by unveiling a capacity-building program for Pacific island nations aimed at maritime order.

Abe hosted the 8th Pacific Islands Leaders Meeting (PALM) in May 2018, where he pledged a greater focus on maritime order based on the rule of law. Count this

Solomon Islands' forests chopped fast to feed China demand

REUTERS

The South Pacific nation of the Solomon Islands is chopping down its tropical forests at nearly 20 times a sustainable rate, according to research by an environmental group published in October 2018, driven by insatiable Chinese demand for its lumber.

Export volumes of the archipelago's single largest export commodity leapt more than 20 percent to just over 3 million cubic meters in 2017, central bank figures show, worth U.S. \$378 million.

Environmental and rights group Global Witness said this was more than 19 times higher than sustainable levels, and if continued could denude the country and soon exhaust the single biggest contributor to the Solomons' economic growth.

Deforestation also removes wild fruits and vegetables that are a local food source and destroys the habitats of animals.

Global Witness' analysis of import data also found that the overwhelming majority of the lumber was sent to

China, the world's top importer of timber, which it said underscored the urgency for Beijing to regulate imports and probe their origins.

"The scale of the logging is so unsustainable that natural forests will be exhausted very soon if nothing changes," Beibei Yin, who led the research team that compiled the report, said by phone from London where Global Witness is based.

"The Chinese companies which import most of the wood are so significant that if all of them together stop buying there is still a chance to revert back," she said.

Global Witness took 155,000 cubic meters as a sustainable log export volume from the Solomons, which is the lowest but most recently calculated of several government and expert analyses, with the highest being approximately 300,000.

It gave no date of its own for the possible exhaustion of forests but cited a preliminary estimate of 2036 which was made in 2011 by the Solomons' Forestry Ministry.

The Solomon Islands' prime minister's office directed Reuters to the secretary for the forestry minister, who did not immediately respond to an emailed request for comment.

China's commerce ministry did not immediately respond to a faxed request for comment.

The Solomon Islands has more than 2.2 million hectares of forest covering approximately 80 percent of its land area, which is spread over 990 islands.

Though the country's Forestry Ministry has previously said it had toughened regulations to combat illegal logging, Global Witness said a lack of enforcement capacity increased the risk of loggers cutting more than permitted.

Global Witness' satellite analysis of logging roads showed 669 kilometers lying above 400 meters elevation, where logging is nominally restricted.

Interpol estimates the global trade in illegal lumber to be worth more than U.S. \$50 billion annually.

Deforestation also removes wild fruits and vegetables that are a local food source and destroys the habitats of animals.



**Black-faced pitta
in Solomon Island**



“It is the rule of law that gives protection to the nations, big and small, for their inherent rights.”

~Shinzo Abe, prime minister of Japan

U.S. President Donald Trump, left, greets Japanese Prime Minister Shinzo Abe during a meeting at the White House in Washington, D.C., in February 2017. GETTY IMAGES

among Japan’s ongoing contributions to curb Chinese influence in the South Pacific.

During a PALM meeting in 2015, Japan announced U.S. \$460 million in assistance to South Pacific nations, *The Diplomat* reported.

In May 2018, the PALM was held with Prime Minister Abe and Prime Minister Tuilaepa of Samoa as co-chairs. Japan declared its intention to commit more deeply to the stability and prosperity of the region based on the “free and open Indo-Pacific strategy” and the Pacific island nations shared the importance of the basic principles of the strategy and welcomed the strengthening of Japan’s commitment in the Pacific region under the strategy. Abe pledged a greater focus on maritime order based on the rule of law.

That same month, construction began on a Japanese-funded Pacific Climate Change Center in Samoa.

The PALM convenes every three years, allowing Abe a chance to gather representatives from Pacific Islands Forum members to enhance relationships.

“Since ancient times, it is the Pacific Ocean that has given us blessings of the sea. And it is the rule of law that gives protection to the nations, big and small, for their inherent rights,” Abe said during the May 2018 PALM. “Japan will be unstinting in its assistance towards improving countries’ capacity to protect the sea, including each country’s legal enforcement capabilities.”

Abe told his Pacific island partners that Japan would develop quality infrastructure in both “hard and soft aspects” to assist in self-reliant prosperity and sustainability. Japan will also enhance its people-to-people exchanges to “cultivate leaders who will shoulder the future of the PALM nations,” Abe said.

The next PALM meeting will take place in 2021.

HEARTS AND MINDS

Partnerships in the South Pacific come in myriad combinations. The heavyweight trilateral of the Australia, Japan and the United States have pledged to continue working together and forging other strategic relationships, as a counterweight to the PRC.

“This trilateral partnership is in recognition that more support is needed to enhance peace and prosperity in the Indo-Pacific region,” then-Australian Foreign Minister Bishop said, *Stars and Stripes* newspaper reported in August 2018.

Paul Buchanan, an American security analyst based in Auckland, told *Stars and Stripes* he had already seen a boost in funding implemented due to the PRC’s growing imprint in the South Pacific.

That imprint, according to Buchanan, includes a new Chinese embassy in Tonga that will serve as a signals intelligence base close to underwater data cables and a new surveillance and hydrographic ship given to the Fiji Navy by the PRC. (Other reports said China had provided Fijian police with training and vehicles, the newspaper reported.)

A growing chorus of analysts say that the need for infrastructure spending in the Pacific is imperative. “This [trilateral partnership] is about competition for hearts and minds in the region and the world and to pretend otherwise is silly,” Brad Glosserman, visiting professor at Tokyo’s Tama University, told *Stars and Stripes*.

Like other analysts, he also refuted the notion that the PRC’s South Pacific projects have been successful. “A lot of these projects aren’t working,” Glosserman said. “The idea that this is an extraordinary success for the Chinese isn’t real.” □



F I S H E R I E S M A N A G E M E N T

OVERFISHING THREATENS PACIFIC ISLAND
NATIONS' WAY OF LIFE, PROSPERITY
AND ULTIMATELY SOVEREIGNTY

CAPT. ROBERT T. HENDRICKSON/U.S. COAST GUARD

Tuna is a dietary mainstay for hundreds of millions of people worldwide and also the key economic engine in many countries scattered across the tuna belt in the Western and Central Pacific Ocean.

Some 60 percent of tuna at market today globally — from bigeye sashimi to canned skipjack — comes from the tuna belt, which spans 5 degrees north and south of the equator.

Many Pacific island nations are especially dependent on these fisheries for their prosperity and sovereignty. In Kiribati, for example, fish accounts for 28.8 percent of all protein in the diet and 55.8 percent of animal protein consumed. The numbers are similar for other Pacific island nations in the region, according to the United Nations Food and Agriculture Agency.

Revenues from fishing account for 64 percent of the gross domestic product (GDP) of Kiribati, 46 percent of Tuvalu's GDP, 32 percent of the Marshall Islands' GDP and 24.4 percent of Micronesia's GDP, according to a World Bank report. Moreover, 33 percent of Tonga's population is employed in some part of the fisheries sector. That number is 42 percent for Samoa.

Illegal, unreported and unregulated fishing

Overfishing could be putting future food security and economic sovereignty in jeopardy for these nations. Fishers are harvesting and not reporting more than 30 percent of the annual quota for tuna in the region, according to separate studies by the World Bank, Pew Charitable Trusts, the Pacific Islands Forum Fisheries Agency (FFA) and the European Union, among others. Overharvesting sexually mature fish can cause a fish stock to collapse by depleting brood stock and causing a precipitous decline in spawn.

Given the stakes, Indo-Pacific countries must work together to protect this precious resource and stabilize the region. The Western and Central Pacific Fisheries Commission (WCPFC) and FFA are the key agencies charged with managing fish populations

in the region and controlling illegal, unreported and unregulated (IUU) fishing.

The highly migratory patterns of tuna stocks make managing fisheries more challenging. A tuna swimming in Kiribati's exclusive economic zone (EEZ) today could be swimming in the Marshall Islands' EEZ tomorrow or somewhere else on the high seas. This unfettered movement between jurisdictions creates a challenging enforcement landscape. Many species, including tuna, are being overfished in the region and globally.

IUU fishing contributes to tensions in the region and beyond. IUU fishing robs Pacific island nations collectively of more than U.S. \$600 million per year in revenue, a 2016 FFA report determined. That stolen sum is a substantial amount, given that a nation such as Kiribati has a GDP that runs roughly U.S. \$200 million per year. Only 20 percent of tuna



New Zealand Prime Minister Jacinda Ardern poses with Kiribati representative David Teaabo during the Asia Pacific Economic Cooperation Summit in Port Moresby, Papua New Guinea, in November 2018. REUTERS

caught in the region is by Pacific island fleets, according to Greenpeace New Zealand.

Broad ramifications

Fishing, however, is more than just about food security. It's a way of life for citizens in the region, and it's also the basis for economic sovereignty.

Healthy fish stocks are directly linked to food security, economic security and regional theater security, as countless incidents reveal. Food scarcity contributes to myriad stability issues. It is a leading cause for mass migration of populations, which can contribute to transnational criminal enterprises, such as those engaged in human trafficking, to establish a foothold in an area.

Somali fishermen turned to piracy off the Horn of Africa after foreign distant-water fishers illegally overfished the Somali EEZ and caused a fishery collapse. A conflict between Iceland and the United

Kingdom erupted over fishing rights in the late 1970s, and a similar skirmish happened between Canada and Spain in the late 1990s. Overfishing has also caused increased tensions in recent years in the South China Sea between various Southeast Asian nations and the People's Republic of China (PRC) that stake rival claims to the fisheries. The PRC has aggressively harassed Vietnamese and Philippine fishermen, for instance.

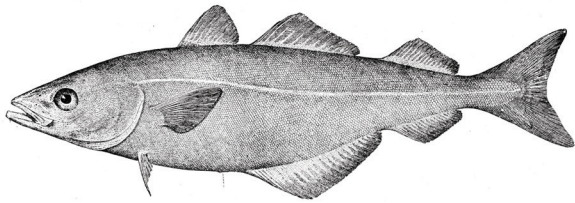
The collapse of fish stock could cause an economic crash in many of these Pacific island states. Their economic dependency on the health of fish stocks makes these strategically important states extremely vulnerable to checkbook and debt-book diplomatic tactics such as those employed by the PRC. It also increases their susceptibility to piracy, violent extremism, transnational criminal organizations and other destabilizing elements.

Future directions

Responsible fishing nations must come together to combat the unreported overfishing occurring in territorial waters of Pacific island nations. Cooperative regional management could go a long way toward making the tuna belt sustainable. Allies and partners can help build effective maritime governance and engender political will within the region. The international community has placed much effort on building capacity and capability to conduct surveillance and enforcement boardings. The latest high-tech surveillance systems coupled with the newest and sleekest enforcement vessels, however, have proven ineffective in the absence of a prosecutorial end-game. The conservation and management measures (CMM) of the WCPFC are weak with regard to catch logging and transshipment procedures.

A starting point for combating overfishing is for the responsible fishing nations of the WCPFC to come together and implement strict CMMs regulating catch logging. Further, the WCPFC must implement regulations that prohibit all transshipment on the high seas. Finally, coastal states must adopt and implement similar domestic laws for catch logging and transshipment within their EEZs and have the political will to aggressively prosecute those IUU fishers who violate their laws — essentially robbing them of national revenue.

Many responsible major powers are being proactive in addressing this emerging crisis of overfishing. New Zealand, for instance,



STOCK COLLAPSE CASE STUDY

Consider the case of the Central Bering Sea pollock in the “Donut Hole.” The area can be found in international waters slightly larger than the Mediterranean Sea, between Alaska and Russia. The Russian and U.S. exclusive economic zones encircle the Donut Hole, but it is legally international waters and therefore open to fishers from any country. It was rich in pollock, a fish used for everything from fertilizer to fish sandwiches. International fleets relentlessly fished the Donut Hole's pollock stock from 1983 until 1993. At their peak in 1989-90, pollock landings topped 1.4 million metric tons. In 1990-91, landings struggled to reach 300,000 metric tons. The following year, the stock crashed due to overfishing. As of 2016, the time of the most recent survey, the stock remains depleted.



A prospective buyer checks a frozen tuna at the Toyosu Market, which reopened in Tokyo in October 2018.

THE ASSOCIATED PRESS

deployed a Royal New Zealand Navy patrol ship to support a three-month IUU fishing pulse operation in Fijian waters, enabling over 150 maritime enforcement boardings. Eleven bilateral ship-rider agreements between the U.S. and regional island states enable similar operations. The U.S. also envisions future legal assistance ashore to help ship-rider countries improve their prosecutorial capacity.

Australia, France, New Zealand and the United States have worked together with Pacific island countries and territories for many years to build maritime domain awareness and security capacities and capabilities. Japan and Canada are also working in this trade space.

The South Pacific Tuna Treaty, an ongoing agreement between the United States and 16 Pacific island countries, entered into force in 1988 and has lasted more than 30 years with

extensions in 1993 and 2002. In December 2016, participating nations updated the treaty to modernize the way U.S. fishing vessels secure access to the productive tuna fishing waters of the treaty nations. The treaty, a model of international and fishery cooperation, has helped establish fisheries observer and data reporting requirements, as well as monitoring, control and surveillance standards for the region's fisheries.

More work is needed to build on these types of initiatives. Other responsible, distant water fishing nations need to take a more stringent stand against vessels illegally fishing and transshipping under their flags to ensure the long-term sustainability of the region's primary regional economic driver — tuna. The tuna outlook is closely tied to the overall future of the Indo-Pacific. As go the economies of Pacific island nations, so goes the theater security of the region. □

LEADER DEVELOPMENT

FOR INTEROPERABILITY

A New Zealand Army Perspective

MAJ. GEN. JOHN R. BOSWELL/CHIEF OF STAFF, NEW ZEALAND ARMY



Hutia te rito o te harakeke, Kei whea te komako e ko? Ki mai ki ahau; He aha te mea nui o te Ao? Maku e ki atu, he tangata, he tangata, he tangata

If the heart of the flax bush were removed, where would the bellbird sing? If I were asked, “What is the most important thing in the world?” I would be compelled to reply, “It is the people, the people, the people.”

The Maori proverb, which uses the harakeke, or flax plant, as a metaphor, means that without the sound of children in the world, (the next generation) mankind will not survive. (The plant represents a family (*whanau*); the outer leaves are the ancestors (*tapuna*); the inner leaves are the parents (*matua*), and the most inner leaf is the baby (*rito* or *pepe*). Only the outer leaves are cut to leave the inner leaves to protect the child.)

The Maori people settled in New Zealand about 1,000 years ago, while the Europeans settled less than 200 hundred years ago. I don't have any Maori ancestry, yet I serve in an Army that has an evolved culture that fully reflects that dual European and Maori heritage. Much of what we do as an Army — how we dress, our drills, ranks, traditions and symbols — are of British origin.

My character as a New Zealand Soldier, however, is also very much shaped by the Maori Warrior ethos, and as an organization, we have embraced many Maori practices and traditions.

In 1995, the New Zealand Army was officially

recognized as a tribal entity within New Zealand and from that date was also referred to as *Ngati Tumatauenga* — the Tribe of the War God.

My point in describing this is to illustrate, particularly to my U.S. colleagues, that while New Zealand is a Western democracy, a member of the Five Eyes community, and we have a small, professional defense force that employs doctrine, tactics, techniques and procedures similar to your

own, our DNA is not the same. We think of ourselves differently. What is important to me as an individual, a leader and as a professional Soldier may often not be as important to you, and my priorities will, on occasion and as a result, differ.

CULTIVATING UNDERSTANDING

So, as we look to developing regional leaders for a complex world with an emphasis on operating alongside and with our regional partners, it's important that those of us who support leadership development across the Indo-Pacific acknowledge that what works for us may not work the same way for our regional partners. The individual requirements and training focus, even the way that our partners learn requires careful understanding. Moreover, it's only by taking the time to understand that we can better tailor our assistance, to both the audience we're supporting and the outcomes, including interoperability outcomes, which we mutually seek.

Therefore, to effectively integrate with other militaries across such a diverse region, we need capable trainers and educators who can adapt our practices and procedures, without compromising the essence or core content of those practices and procedures, to the different needs of the nations in our region, and then work alongside these nations with relative ease. We need trainers who can empathize with cultures different from their own and who are comfortable in not only taking the time to engage, interact and form strong working relationships with peers across the Indo-Pacific, but who also can develop bespoke, yet relevant, training solutions. Consider how the New Zealand Army seeks to do this.

The New Zealand Army's School of Artillery tests new junior officers and gunners of 16 Field Regiment in weapon and mortar fire drills during Exercise Hellfire in Waiouru.

NEW ZEALAND DEFENCE FORCE

KUMUL LEADERSHIP FRAMEWORK

FORUM STAFF

The Papua New Guinea Defence Force (PNGDF) launched a framework to enhance coaching, training and mentoring of its leaders in 2017. It is the military's first such leadership development program.

PNGDF Commander Brig. Gen. Gilbert Toropo said the Kumul leadership framework was necessary "to grow the organization and to execute our mission to defend PNG, its people and interests to the highest standard," according to *The National*, an English-language Papua New Guinea newspaper.

Toropo launched the framework with Chief Secretary Ambassador Isaac Lupari and Defence Minister Solan Mirisim in a December 2017 ceremony, according to the Papua New Guinea *Post-Courier* newspaper.

Senior PNGDF officers signed the Laloki Declaration in 2014 to adopt a leadership framework, which was based on the military's values and "will form the backbone of leadership development in the PNGDF," Toropo said.

Lt. Col. Dickens Esso created the framework with help from the New Zealand Defence Force. An expert working group, composed of PNGDF Chief of Staff Col. Ray Numa and other top PNGDF leaders, endorsed the framework, the *Post-Courier* reported.

Col. Carl Wrakonei, a PNGDF area commander, told the *Post-Courier* in August 2018 that the PNGDF leadership development is the PNGDF commander's number one priority. The PNGDF conducted its first training sessions under the Kumul framework in August and October 2018.

Two New Zealand Defence Force members, Staff. Sgt. Nathan Turner and Staff. Sgt. Alex Fraser, helped facilitate the course, which targets leaders from lieutenants to brigadier generals.

Wrakonei said the first course will enable participants to obtain tools to "provide a good platform for the junior leaders to exercise and advocate leadership messaging at their levels," the *Post-Courier* reported.

Previously, we delivered formal leadership training in New Zealand at the start of an officer's career and then, apart from the occasional touchpoint on select courses — particularly for noncommissioned officers (NCOs) and warrant officers — relied on on-the-job experience to prepare our people to lead at the next level.

To better prepare our people to lead in the contemporary environment, we adopted a framework that more appropriately aligns leadership training with career progression and better integrates leadership development into our training courses. This shift aimed to produce an army of self-reliant, resilient leaders who have the right tools throughout their careers to inspire and direct the people under their command. The framework progresses through the following gates: lead self, lead teams, lead leaders, systems, capability, integrated capability and lead organization.

These steps account for everybody from recruit to the chief of army. They are linked to the New Zealand Army's career progression model and take the form of classroom theory, 360-degree reporting and experiential outdoor learning. Importantly, and in addition to stand-alone leadership courses, this framework provides the basis for integrating leadership training into all command and specialist courses. For example, we base the leadership objectives of the Infantry Section Commander's Course on the lead team's level, while we link our Combat Company Commanders Course with those of the Lead Systems level. As a brigadier general, I attended the Lead Organization Course in August 2018.

This system recognizes that leaders require development at all levels, regardless of rank, position or experience and provides us with a common reference point for leadership training across the Army. Moreover, it gives a starting point for our conversations with regional partners on the assistance we might provide for their own leadership development. Against the various learning outcomes and the outcomes sought by our partners, we then develop the training support packages that improve the leadership ability of individuals and enhance how we interact and operate with our partners.

WORKING WITH PAPUA NEW GUINEA

In 2017, Papua New Guinea established a directorate of leadership development. Over the past eight years, the New Zealand Defence Force (NZDF) has worked alongside Papua New Guinea to help develop the Kumul leadership framework through a series of exchanges and course development initiatives. The Kumul, Papua New Guinea's bird of paradise, symbolizes leadership, excellence and the ambitions of the nation's people. NZDF created the Kumul



New Zealand Soldiers stand guard during an Anzac Day ceremony at Pukeahu National War Memorial Park on April 25, 2018, in Wellington. Anzac Day commemorates the Australian and New Zealand Army Corps members who fought in the Battle of Gallipoli in World War I. GETTY IMAGES

leadership program in honor of its relationship with PNG and in recognition of PNG's culture.

While the Kumul leadership framework mirrors the NZDF leadership development framework, it is unique to Papua New Guinea in its leadership levels, ethical construct and values element. The Papua New Guinea Defence Force (PNGDF) has recently designed, developed and delivered a Lead Capability Course, which has validated the Kumul leadership framework and produced a tangible improvement in PNGDF leadership. The success in establishing the PNGDF directorate of leadership development and the subsequent delivery of good training reflects what a strong partnership can deliver.

Our mutual assistance program provides this type of leadership training to several nations in the Pacific and Southeast Asia. The program funds numerous training teams like the one we sent to PNG, the permanent posting of support staff to Pacific island states and the attendance of representatives from the armies of the Pacific and Southeast Asia on command, leadership and specialist courses in New Zealand. We also provide support to our partner nations to attend tertiary institutions in New Zealand. These are all interactions that promote interoperability.

IT'S THE PEOPLE

The proverb in Maori that I opened with talks to those things that are important in life and answers the question of “what is the most important thing

of all? *He tangata, he tangata, he tangata.*” It is the people, the people, the people.

Because of the support the New Zealand Army provides to our regional companions, we are supporting the development of our regional leaders to operate alongside ourselves, our partners and allies in an increasingly complex world — an outcome that clearly targets the “people part” of the far greater “interoperability equation.”

Of equal importance, though, is the network of professional relationships we have established with leaders from across the region. As our people develop and progress through their careers, they have peers from our partner nations who advance at the same time they do and are invaluable contacts in times of both peace and crisis. Often, the relationships built by our regional engagements enable us to cut through bureaucracy, integrate more efficiently with our Asian and Pacific partners, and to operate more effectively together in our region. The value proposition from these outcomes, particularly from an interoperability perspective, is clear. □

This article is an adaptation of Maj. Gen. John R. Boswell's speech during the “Developing Regional Leaders for a Complex World” panel at the Land Forces Pacific Conference in Honolulu, Hawaii, on May 24, 2018.



Keeping the **PEACE**

FORUM STAFF | PHOTOS BY AFP/GETTY IMAGES

*Sri Lanka emerges as a global peacekeeper,
Army Chief Lt. Gen. Mahesh Senanayake tells FORUM*

Sri Lankan President Maithripala Sirisena appointed Mahesh Senanayake as commander in chief of the Armed Forces in June 2017, at which time he was also elevated to the rank of lieutenant general.

Senanayake participated in almost every Liberation Tigers of Tamil Eelam (LTTE) operation in which Sri Lanka's security forces engaged, spending 30 years in combat. He was recognized for his gallantry and bravery in the face of the enemy. For his service, he was awarded the Rana Wickrama Padakkama for individual acts of bravery and heroism in battle performed on a serviceperson's own initiative; the Rana Soora Padakkame several times for individual acts of distinguished conduct in the face of the enemy during a deployment; and the Uththama Seva Padakkma for dedication to duty with at least 15 years of continuous service with perfect disciplinary and service record.

Senanayake graduated from Ananda College in Colombo and enlisted in the Sri Lanka Army in October 1981. After finishing his training, he joined the Corps of Engineers. He also holds a bachelor's degree in civil engineering from Jawaharlal Nehru University, India, and is a graduate of the U.S. Army Command and General Staff College.

Throughout his decorated military career, he has held many command, staff and instructional appointments. He served as regimental center commandant of the Special Forces Regiment, commander of the 211 Infantry Brigade-Vavuniya, commander of the Special Forces Brigade and the general officer commanding the 52 Division in Varani, Jaffna. In addition, he also performed staff appointment duties, including the Office of the Colonel General Staff at 52 Division and the Brigadier General Staff in the Security Force Headquarters at Jaffna during the most critical period of the war. He also served in a leadership role at the Army Command and Staff College at Sapugaskanda.

In 2016, he was appointed commander of Security Forces-Jaffna and made outstanding contributions toward the resettlement of internally

displaced people on the peninsula. The community and the government recognized his unparalleled service to the reconciliation process. In March 2017, he was appointed chief of staff of the Sri Lanka Army. He also serves as the colonel of the Regiment of Special Forces.



Sri Lanka Army Chief Lt. Gen. Mahesh Senanayake inspects an honor guard during a ceremony as he assumes command in Colombo in July 2017.

What do you consider the greatest success of the Sri Lanka Army?

After successfully ending a civil war of 30 years in 2009, we reduced terrorism in our land and have developed new theories, strategies of how to fight terrorism. We are in the ninth year since the cease-fire and have not had a single explosion of war at home.

Why do you think your approach to sustaining the peace has been so successful?

We employed a very comprehensive plan and have worked very hard to integrate the former insurgents into society. We use a combined "5R" concept, which stands for rehabilitation, reconstruction, reintegration, resettlement and reconciliation. So, the Armed Forces being the largest energy behind the strategy is fully engaged in this concept that brought the country to normalcy.

How would you describe Sri Lanka's role for the future in maintaining security in the Indo-Pacific region?

It's important for Sri Lanka to remain peaceful for regional security, and it's important for the region to be peaceful. Economic development and regional peace are mutually complementary. We have established key partnerships with many countries in the region. For example, India and Pakistan are two major partners. We, as a neutral partner, will be the best actor in the region to link the Pacific through Sri Lanka. It is important to maintain a dialogue with these nations and internally. In Sri Lanka, the Office of the Chief of Defense links the Army, Navy and Air Force Navy and Air Force across the tri-services from the planning state itself and coordinates joint exercises whenever we are involved.

Would you tell us more about Sri Lanka's role in international peacekeeping operations?

Sri Lanka has contributed troops to many U.N. peacekeeping missions over the years to nations such as the Democratic Republic of the Congo, Haiti, Lebanon, Mali, South Sudan, Timor-Leste and Western Sahara. In recent years, we have looked to increase our commitments to such missions. Currently, we are supporting missions in the Central African Republic, Lebanon and South Sudan. We supply a variety of force capabilities such as engineers, observers and staff officers. For example, in South Sudan we are overseeing a Level II hospital.

What changes are ahead for the Sri Lanka Army, given that the civil war has long ended?

We now have 200,000 Soldiers in the Army. We have announced plans for 2020 and 2025, but that does not mean we will be downsizing, although the numbers may shift. It will lead to right-sizing to maintain the integrity of the country that applies to each branch of the Army, artillery engineers. We are using the Army to help rebuild our country. We will also be increasing our contribution toward U.N. peacekeeping.

Will you please share more about the Army's role in rebuilding the nation post-conflict?

The Army is very much part of Sri Lanka's engagement with the public. To influence the public, we assist the public to ensure we do not go to war again. In the broader sense, we have divided the Army into three armies. The first is to maintain a combative force that is training for war. The second force is for nation building. We



can give back to the country through construction, agriculture and irrigation projects. We are repairing the system and rebuilding the country to give back in terms that each Soldier becomes an expert not in infantry but in industry. The third division is to administer the Army and the sports and lead the nation-building process. The Army has taken part in athletic games for 22 years. Through these three divisions, we expect the Sri Lanka workforce to be led by the Army because they have the discipline and training to make it happen. We hope to develop the capacity of the country in this way.

What do you see as the biggest security challenges Sri Lanka faces?

We are moving from a threat-based army to a capacity-based army. We will maintain our troop strength, training, and keep equipment ready to face any eventuality, internal or external aggression and natural calamities. We are also preparing for unconventional threats such as drug trafficking, human smuggling, cyber warfare; those are the new threats we are going to face. We are also prepared for spillover situations from other nations, being an island nation, an island for transit. We could be used as a launching pad for unconventional threats. There are mainly Muslim countries in the East, quite a number.

Sri Lanka is open. It's a tourist destination, so anyone could come in and use it for such activities.



That's one reason we are very much into cyber warfare. Under the minister of defense, cyber units are being formed across all three services for joint operation. There will not only be joint operation across the services, but all government agencies are cooperating to arrange those units.

It's true that we don't have a problem right now, but those are threats we're going to face.

What do you think was the take-home message of the sixth annual Land Forces of the Pacific (LANPAC) symposium and exposition held May 22-24, 2018, in Honolulu, Hawaii?

The meeting stressed the importance of combined operations and multilateral operations. Today's challenges and situations are so complex that no one country can have a solution for that. So, the solutions must be multilateral to take on regional, global issues.

We believe in joint warfare, but with the multilateral approach, there are challenges to that. War is an extension of politics in many regards. The political agendas of different countries can interfere. Without understanding the real peace that their population should enjoy, they result to their own ideology. They may not cooperate the way that we think, especially in terms of sharing intelligence. If intelligence is not shared in a real sense, that is the real challenge any armed

Left: Sri Lanka Soldiers participate in the U.N. peacekeeping mission in Haiti, helping to distribute electoral materials in 2006.

A member of a Sri Lanka Army rescue team carries a woman to safety through floodwaters in the suburb of Kaduwela outside the capital, Colombo, in May 2016.

forces are going to face. It's not only the joint training part that is challenging, but it's a human intelligence problem. It's an issue of educating populations to understand we are human beings, people who are divided by caste, religion and so forth. They are aware and educated on the importance of regional cooperation to security.

We understand the importance of the U.S. Indo-Pacific Command as Sri Lankans — we do understand as a country. We very much look forward to working with the U.S. Indo-Pacific Command.

Is there anything else, you'd like to say to FORUM readers?

We believe our neighbors are our friends. We want to ensure our neighbors are friends and are eager to make sure each nation is a friend and has faith that all our neighbors can cooperate. It's very important to take the time to make sure all armies in the region are friends and that they truly understand the importance of multilateral approach. □

MODERNIZING INDIA'S SUBMARINES



The Indian Navy's third Scorpene-class submarine Karanj is ready to launch into the Arabian Sea after a ceremony at the Mazagon Dock Shipyard in Mumbai on January 31, 2018. AFP/GETTY IMAGES

FLEET OF INDIGENOUS SCORPENE-CLASS CRAFT HEADLINE CELEBRATIONS

SAROSH BANA

It was a red-letter day for the Indian Navy as it celebrated the 50th anniversary of its submarine arm on December 8, 2017. Prime Minister Narendra Modi commemorated the event by commissioning India's first indigenously produced Scorpene-class submarine, Indian Navy Ship (INS) Kalvari.

Named after the tiger shark — the fearsome predator of the Indian Ocean — INS Kalvari is the first of six 61.7-meter, 1,565-ton diesel-electric hunter-killer submarines (SSK) being built by the Mumbai-based and government-owned Mazagon Dock Ltd. (MDL). The deal is occurring under a transfer of technology from French shipbuilder DCNS, now named Naval Group. Designated Project-75, the program started in December 2006, and Kalvari launched nine years later. Thereafter, the fit-out and trials took two more years.

Kalvari's commissioning harks back to December 8, 1967, when its original namesake was delivered to the Navy. It was the first of eight Soviet Foxtrot-class diesel-electric patrol submarines that established the Navy's submarine arm. Built at the Sudomekh yard in Leningrad (now St. Petersburg), all eight have since been decommissioned. The second Scorpene was christened Khanderi, also after the second of the Foxtrots. It launched in January 2017 and is undergoing sea trials, while the third, Karanj, launched January 31, 2018. The remaining three submarines are in various stages of outfitting and will join the fleet by 2020.

SHIP REINCARNATION

The Indian Navy traditionally reincarnates decommissioned ships and submarines through their names. Officials decommissioned the first Kalvari in May 1996 after almost 30 years of service.

Indian President Ram Nath Kovind, who is also supreme commander of the Armed Forces, presented the submarine arm with the President's Colour, the highest honor

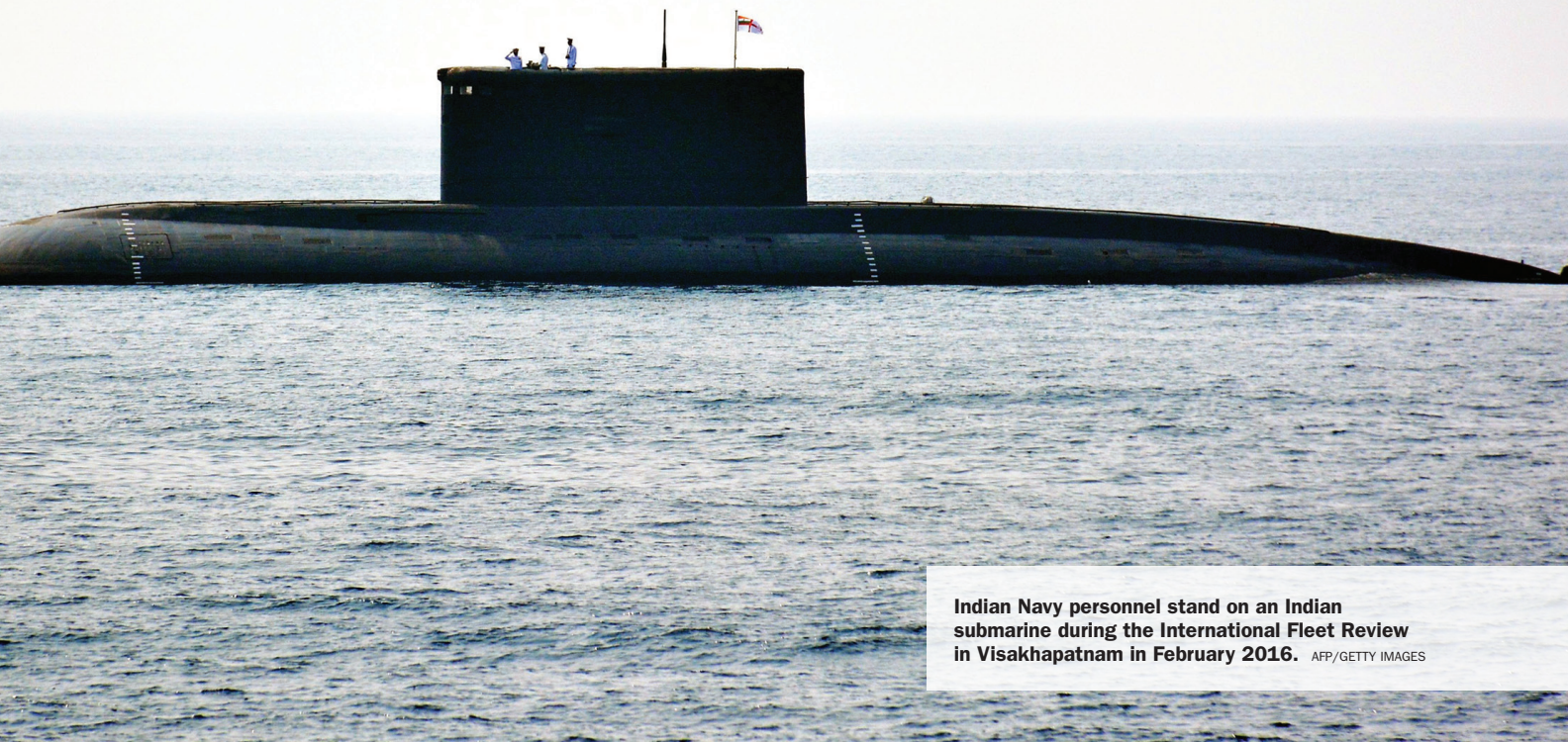
bestowed upon any military unit. On May 27, 1951, the Indian Navy, which celebrated 2017 as the "year of the submarine," was the first of the three services to receive the honor.

Retired Commodore Rakesh Anand, MDL's chairman and managing director, viewed Kalvari's induction into the Indian Navy as a "game changer in the field of underwater warfare due to its superiority in all operational aspects." Commending the completion of all weapon firings prior to the commissioning, he said the Scorpene's state-of-the-art technology included superior stealth features such as advanced acoustic silencing techniques, low radiated noise levels, a hydrodynamically optimized shape and lethality through precision-guided torpedoes and tube-launched anti-ship missiles.

Ministry of Defence and naval authorities have denied that the wide-ranging data leak on Project-75 by *The Australian* newspaper in August 2016 had undermined New Delhi's sensitive submarine program or compromised national security. Downplaying the effects of the publicity, authorities contend the leaked documents — 22,400 pages in all — largely comprised generic data and information dating back to 2011 that had since been modified. Australia awarded DCNS (Naval Group) an AUS \$50 billion (U.S. \$38 billion) contract in April 2016 to build 12 submarines, and the leak was considered a consequence of corporate espionage.

The submarine arm has been at the forefront of all offensive operations of the Indian Navy. It played a particularly stellar role in the 1971 India-Pakistan War, when four of its submarines deployed on both the eastern and western maritime theaters of operations in the Bay of Bengal and the Arabian Sea, restricting enemy operations. Today, the Indian Navy has experience operating six classes of conventional and nuclear submarines, the submarines intrinsic to its maritime strategy of using deterrence to maintain peace.

THE SUBMARINE ARM HAS BEEN AT THE FOREFRONT OF ALL OFFENSIVE OPERATIONS OF THE INDIAN NAVY. TODAY, THE INDIAN NAVY HAS EXPERIENCE OPERATING SIX CLASSES OF CONVENTIONAL AND NUCLEAR SUBMARINES, THE SUBMARINES INTRINSIC TO ITS MARITIME STRATEGY OF USING DETERRENCE TO MAINTAIN PEACE.



Indian Navy personnel stand on an Indian submarine during the International Fleet Review in Visakhapatnam in February 2016. AFP/GETTY IMAGES



OVERCOMING HURDLES

The 50 years of India's submarines have not all been smooth sailing. Four years ago, the comptroller and auditor general reported that indigenous warship construction was constantly derailed by time and cost overruns. The country's chief accountant singled out MDL for including costs for nonadmissible items. The report also faulted the lack of foresight and communication between the Ministry of Defence and the Indian Navy.

Project-75 is running five years behind schedule, and its original contract cost of U.S. \$2.63 billion has spiraled to U.S. \$3.8 billion. INS Kalvari was to have been commissioned in 2012. Apart from the time and cost overruns, there is another major challenge. The Scorpene was to be equipped with the air-independent propulsion (AIP) system under development since 2002 by the Defence Research and Development Organization, but AIP has not been added and the long delay now raises questions about its eventual production.

AIP enhances underwater endurance of nonnuclear submarines three- to fivefold. A submarine without AIP can remain underwater for only two to three weeks.

While conventional submarines now come with AIP, the lack of this vital capability poses an operational constraint for India. The Indian Navy is beset with a depleted fleet of 15 submarines, including INS Kalvari and INS Arihant, the first indigenously made ship — a nuclear-powered submersible ballistic missile submarine (SSBN) that was commissioned in August 2016. Some of the submarines are close to being retired, and up to 10 are operational at any time. Apart from Kalvari, Arihant and a nuclear-powered submarine leased from Russia for 10 years in a U.S. \$900 million deal, the rest of the fleet consists of eight 3,100-ton Sindhughosh-class (Russian-origin Kilo-class) submarines, down from 10, and four 1,850-ton Shishumar-class German-origin HDW Type 209 submarines. While a submarine's prescribed operational life is about 25 years, the eight Kilos are already 23 to 28 years old and the HDWs are 20 to 28 years old.

One of the newest Kilos, INS Sindhurakshak, commissioned in 1997, was wrecked by explosions at its moorings in Mumbai in the Indian Navy's worst peacetime disaster that killed three officers and 15 crewmen in August 2013.

A DCNS employee looks at the propeller of a Scorpene submarine at the naval defense company, now renamed Naval Group, in La Montagne, France, in April 2016.

REUTERS



The INS Kadmat, a multirocket, anti-submarine launcher, prepares to dock in Manila, Philippines, during a four-day goodwill tour that also included Vietnam and Singapore in October 2017.

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CHALLENGES REMAIN

As a regional maritime power seeking to consolidate its reach across the seas from the Horn of Africa to the Malacca Strait and the South China Sea, India wants to bolster its submarine force and expand its carrier battle groups. To ensure force levels, it targeted the induction of 24 new submarines by 2030 under a 30-year plan approved by the Cabinet Committee on Security in 1999. Half were to be constructed with foreign collaboration by 2012, with the remaining 12 built to indigenous design.

Time and cost overruns with the Scorpene project show the target remains distant. The slow pace of development could have strategic implications for India, which has a vast coastline of 7,615 kilometers abutting the Arabian Sea, Bay of Bengal and Indian Ocean. One of its island enclaves, Andaman and Nicobar, is closer to Burma, Thailand and Indonesia than to the Indian mainland. With more than 90 percent of its international trade by volume carried over the seas, the country has tasked the Indian Navy with securing its vital sea lines of communication.

The INS Arihant, developed and built at home at a cost of U.S. \$2.9 billion as the first of a series of three such nuclear-propelled boats, was conceived in 1998 but launched only in July 2009 and commissioned over

seven years later. Russian designers have assisted in the project, which is based on a modified Akula-1 submarine design. The 6,000-ton INS Arihant has been made through a public-private partnership, its 83-megawatt reactor having been designed by the Bhabha Atomic Research Centre, its hull crafted by Larsen & Toubro Ltd., and the assembly undertaken by the Ship-Building Centre of the Directorate General Naval Projects at Visakhapatnam.

INS Arihant is armed with 12 of the indigenous Sagarika K-15 ship/submarine-launched ballistic missiles that have a 700-kilometer range and can carry 1-ton nuclear warheads. The 110-meter-long Arihant's 100-strong crew has been trained by Russian specialists.

For experience in operating and training on a nuclear-powered attack submarine (SSN), the Indian Navy took delivery of an Akula II-class boat from Russia in April 2012 on a 10-year lease. Manned by a crew of 73, the 8,140-ton submarine has been rechristened INS Chakra II and deployed at Visakhapatnam, which is also the base of the flag officer submarines. While the boat has an endurance of 100 days and can attain 30 knots and dive to a depth of 600 meters, it cannot carry nuclear warheads as per the lease accord, though it is equipped with

eight torpedo tubes. The then-Soviet Union had similarly leased to the Indian Navy an Akula I-class SSN, renamed INS Chakra, from 1988 to 1991.

REGIONAL BUILDUP

India finds a dire need to keep pace with developments in its littoral, with the steady buildup in undersea combat capabilities by Pakistan and China, both neighbors with which it has been at war in the past. With one of the largest fleets of attack submarines comprising four ballistic missile, nuclear-powered attack submarines (SSBNs), six SSNs and 53 SSKs, Beijing is deploying a powerful sea-based nuclear deterrent through long-range nuclear-armed submarines. According to the Pentagon, a fifth SSBN may eventually be built, each of the five armed with 12 JL-2 missiles that can deliver 1-ton nuclear warheads at a range of 8,000 kilometers.

China is also selling submarines to Pakistan and Bangladesh. The eight being sold to Islamabad at a total cost estimated between U.S. \$4 billion and U.S. \$5 billion are the S20 diesel-electric submarines. The first four will be built by China Shipbuilding Industry Corp., which will also set up a training center in Karachi, and will be delivered by 2023, while the remainder will be assembled at the Karachi Shipbuilding and Engineering Works by 2028. The Pakistan Navy already operates three Agosta 90Bs (Khalid class) submarines purchased in the 1990s and two older Agosta 70s (Hashmat class) dating from the late 1970s.

Bangladesh is procuring two Type 035G Ming-class diesel-electric submarines from Beijing in a U.S. \$193 million deal. These will be the first submarines in the Bangladesh Navy and, as Bangladeshi Prime Minister Sheikh Hasina noted in March 2014, will transform the service into a “three-dimensional” force. “The issue of construction of a submarine base is under process,” she added, according to the *Dhaka Tribune*, an English-language newspaper.

Tardy decision-making also thwarted the buildup of India’s expertise in submarine construction. In the earlier program concerning the four Shishumar-class HDW submarines, the first two were built by HDW at Kiel and delivered to the Indian Navy in 1986, while the other two were built at MDL and commissioned in 1992 and 1994. MDL had invested U.S. \$18 million in creating the submarine construction infrastructure, which fell into disuse after 1994. Also lost over the years were the training and skills imparted to Indian personnel, many at the HDW facility in Germany, and to Indian naval

architects and overseers. The yard had to begin anew after it secured the contract to build the Scorpines in 2005.

To augment production capacities for integrated construction that reduces build periods, MDL’s U.S. \$130 million Mazdock Modernisation Project of 2014 created new facilities and additionally set up a U.S. \$35 million subsection assembly shop for the simultaneous construction of two lines of submarines.

PROJECT-75 PROSPECTS

Project-75 India is worth U.S. \$12 billion, and its cost may climb higher depending upon the extent of offsets and transfer of technology from the foreign collaborator.

The request for information issued by the Indian Navy has elicited responses from Naval Group, for a modified Scorpene; Germany’s ThyssenKrupp Marine Systems pushing for its Type 214; Sweden’s Saab Kockums ab, for its A26; and Russia’s Rubin Central Design Bureau for Marine Engineering for its Amur 1650. Spain’s Navantia, which was expected to offer its S-80 class, and Japan’s Mitsubishi Heavy Industries and Kawasaki Heavy Industries, which jointly produce the Soryu submarine, were initially considered contenders, but backed off.

Project-75 India requires the six SSKs to be constructed at a domestic public or private shipyard with the potential to build modern conventional submarines in collaboration with a foreign technology partner. These submarines are to be equipped with AIP, armed with land-attack cruise missiles, and be compatible with indigenous weapons and sensors. Technical parameters will be defined based on the responses of the four companies, which will need to submit their technical and commercial bids after a formal request for proposal is issued.

The selection process will take about two years, with the first submarine expected to be launched eight months after the deal is finalized. The technology transferred will augment indigenous design capabilities at the Naval Design Bureau as well as at the shipyard. The submarines likely will be a derivative of existing designs while incorporating changes and modifications made to suit the Indian Navy’s operational requirements.

Though India is striving to regain its undersea reach, it will require much more effort, political will and the requisite funding to bolster its submarine fleet to the essential levels. □

Strategic Regional Cooperation

India and Indonesia build a stronger connection for security

VINAY KAURA

Though India and Indonesia have long historical and cultural linkages, strategic partnership has been a recent development. The two share multiple concerns, one of which pertains to the People's Republic of China's (PRC's) rapid rise and its intentions in the maritime theater. Since 2014, the government of Indian Prime Minister Narendra Modi has been trying to boost India's ties with many Southeast Asian countries as part of its Act East Policy, which was manifest in his visit to Indonesia in late May 2018 ahead of his first-ever speech at the Shangri-La Dialogue in Singapore.

India, no longer content to merely look east, wants to be an active contributor to the regional balance of power by acting east. Although it is not India's role to dictate the nature and scope of Indo-Pacific cooperation, through discussion and experimentation, India can find areas where increased cooperation will serve mutual security interests. In the words of Luhut Pandjaitan, Indonesia's minister for maritime affairs, "India and Indonesia relations are important to the balance of power in Asia." Clearly, Indonesia is equally keen to ensure that the PRC is effectively prevented from moving ahead on its current antagonistic trajectory.

The Modi government's attempt to connect India to its traditional maritime neighborhood, particularly in the Indo-Pacific, is aimed at sustaining a rules-based liberal international order by ensuring free movement of people, goods and services through the Strait of Malacca, one of the busiest shipping routes between the Indian and Pacific oceans. The freedom of navigation, availability of port infrastructure and unhindered access to markets are mandatory for this purpose. Hence, the major focus of Modi's visit to Indonesia was to highlight that the two countries are close maritime neighbors. Modi and Indonesian President Joko "Jokowi" Widodo agreed to elevate the India-Indonesia relationship to a comprehensive strategic partnership. Their joint statement emphasized the "importance of achieving a free, open, transparent, rules-based, peaceful, prosperous and inclusive Indo-Pacific region," which would uphold "sovereignty and territorial integrity, international law, in particular UNCLOS [United Nations Convention on the Law of the Sea], freedom of navigation and overflight, sustainable development."

Jokowi, meanwhile, seeks to transform Indonesia into a maritime power and is passionate about maritime sovereignty for his country. Hence, repeated assertions about protecting freedom of navigation are unmistakably targeted at the PRC, which is engaged in hotly contested territorial disputes in the South and East China seas. Jakarta claims it is not a party to any territorial disputes with Beijing in the South China Sea; however, Indonesia has not hesitated in clashing with the PRC over fishing rights around the Natuna Islands. Jokowi's dramatic gesture of holding a cabinet meeting aboard a warship off the Natunas just days after a Sino-Indonesian naval skirmish in 2016 was seen as a show of resolve toward the PRC.



Indonesia is not as bitterly opposed to the PRC-led One Belt, One Road Policy as India, but Indonesia is also not as supportive as the PRC expects. After their meeting, Modi sought to link India's Act East policy and Security and Growth for All in the Region with Jokowi's ambitious maritime fulcrum policy.

In the past, India-Indonesia maritime cooperation has remained largely confined to coordinated bilateral patrols, anti-piracy patrols and search-and-rescue exercises. It is thus important for them to move to a more intensive engagement, as together they control the entry point from the Bay of Bengal to the Strait of Malacca. India's interest in joining the Malacca Straits Patrol (MSP) — a four-nation arrangement with Indonesia, Malaysia, Singapore and Thailand — should be seen in this context. However, Indian participation is easier said than done. A meeting among technical experts in May 2018 in Bali explored the issue but soon revealed that the Indian side did not have full comprehension of the operational nuances of MSP. Since no forward movement seemed possible, the Modi-Jokowi joint statement merely noted that the May 2018 meeting was "to explore ways in enhancing strategic technical cooperation on maritime security."

Indonesia is the de facto leader of ASEAN. As the security environment in the region is increasingly

exacerbated by U.S.-PRC rivalry, Jakarta wants ASEAN to be at the center of the conceptualization and evolution of the Indo-Pacific region. Jokowi has been outlining the Indonesian conception of the Indo-Pacific as "open, transparent and inclusive, promoting a habit of dialogue, promoting cooperation and friendship and upholding international law." Modi's Indo-Pacific vision sounds strikingly similar. He has indicated that India is keen to preserve a free and open regional security architecture in Asia with "ASEAN centrality," and even without American leadership.

New Delhi has thrown its weight behind working with the United States, Japan and Australia to counterbalance rising Chinese geoeconomic and geopolitical assertiveness. In its quest to reshape the Indo-Pacific balance of power, India continues to pursue a hedging approach by engaging directly with the PRC as well as seeking to contain its behavior.

Strategically, Indonesia is equally important to the United States and the PRC because it straddles vital Indo-Pacific chokepoints. Jakarta has secured Chinese

India wants to preserve a free and open regional security architecture in the Indo-Pacific with the members of the Association of Southeast Asian Nations at the center of the plan.

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Indian Prime Minister Narendra Modi, center, reviews an honor guard while accompanied by Indonesian President Joko Widodo at the presidential palace in Jakarta in May 2018. AFP/GETTY IMAGES





Given the irreversible geopolitical shifts, the Indo-Pacific has emerged as one of the major hotbeds of global power politics.

investment without showing any evidence of a tilt toward the PRC. Being one of the very few countries in the region that has the capability and credibility to make significant contributions toward countering Chinese assertiveness, Jakarta now reckons New Delhi as a credible strategic partner.

Modi signed a deal with Jokowi allowing India access to northern Sumatra's Sabang port, enhancing the Indian Navy's ability to maintain a forward presence in the Malacca Strait. The PRC is not oblivious to its implications. A day ahead of Modi's trip to Indonesia, China's state-run *Global Times* newspaper asserted that the PRC would not "turn a blind eye" if New Delhi sought "military access to the strategic island of Sabang," advising India not to "wrongfully entrap itself into a strategic competition with China and eventually burn its own fingers."

Given the irreversible geopolitical shifts, the Indo-Pacific has emerged as one of the major hotbeds of global power politics. India's emerging consensus with Indonesia, as reflected in the elevation of their relationship to the level of a comprehensive strategic partnership, can provide a basis for a closer engagement between the countries to further develop the Indo-Pacific concept. Delhi and Jakarta have agreed to take concrete steps to accelerate economic and security cooperation in the maritime domain. The renewed awareness that they are close neighbors sharing broadly common challenges regarding sustainable use of the oceans makes it imperative for them to contribute more to the maintenance of regional security in the Indo-Pacific. The challenge for Modi and Jokowi will be to institutionalize maritime cooperation so the Indo-Pacific becomes truly free, open and inclusive. □

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LION-SIZE *success*

Conservationists have welcomed the world's first lion cubs to be conceived and born by means of artificial insemination. They were born at the Ukutula Conservation Centre, 80 kilometers northwest of Pretoria in South Africa's North West province, according to researchers.

The two cubs, a male and female, conceived in their natural habitat and born on August 25, 2018, are healthy and normal, said Andre Ganswindt, the director of the University of Pretoria's mammal research institute.

His team's breakthrough came after 18 months of intensive trials. Researchers collected sperm from a healthy male lion, then monitored the hormone levels of a female lion until they were viable. She was then artificially inseminated using a nonsurgical technique.

He said the breakthrough could be repeated, with scientists hoping the technique can be used to save other endangered big cats.

Lions are extinct in 26 African countries, and numbers in the wild have plummeted 43 percent during the past two decades, with roughly only 20,000 left, according to the International Union for Conservation of Nature, which lists the African lion as vulnerable.

"If we are not doing something about it, they will face extinction," said Ganswindt.

He said that rather than move the lions for breeding, the new technique would let breeders simply transport the sperm to receptive females, as is done with the captive elephant population in North America and Europe.

Imke Lueders, a scientist involved in the study, said, "Having the first lion cubs ever born from artificial insemination in their natural range country, and not in a zoo overseas, is an important milestone for South Africa.

"Assisted reproduction techniques are another tool in our conservation box, of course not a sole solution, but another technology that we can use to protect endangered species," she said.

Agence France-Presse



UNITED KINGDOM

HUMAN RIGHTS TV CHANNEL LAUNCHED

The world's first television channel dedicated to human rights was launched in London in mid-January 2019 with a promise to deliver hidden stories missed by mainstream media.

The International Observatory of Human Rights (IOHR) said its web-based channel would bring human rights issues to audiences in over 20 countries across Europe, Latin America and the Middle East.

"There are so many people in the world who cannot speak up, and it seems to be getting worse and worse," IOHR director Valerie Peay told the Thomson Reuters Foundation at the official launch.

Topics will include refugees, press freedom and the incarceration of journalists, extremism, women's rights and the plight of the world's stateless people.

"We live in a world of 24-hour

news cycles and often stories get lost, and we see human rights being sidelined," Peay said.

Programs in the pipeline will look at China 30 years after the crackdown on the Tiananmen Square pro-democracy protests and the positive and negative impacts of technology on women.

Yalda Hakim, a presenter and journalist with the BBC, told the launch event that the channel aimed "to give a voice to the voiceless" and "to make human rights sexy" in a world where attention spans were shrinking and sound bites ruled.

Broadcasts can be viewed via the netgem.tv interactive platform and will shortly be available via a mobile app.

Programming is in English, but IOHR eventually hopes to broadcast in other languages, including Farsi, Turkish, Arabic and Russian. Reuters



A man protests against China near the United Nations building in Geneva, Switzerland, in November 2018.



Microbiologist Dr. Yuen Kwok-yung led a team who tested a chemical that stopped a host of flu strains from replicating.

THE ASSOCIATED PRESS

INSET: The chemical AM580 inhibited replication in cells infected with the Middle East respiratory syndrome virus.

NATURE COMMUNICATIONS

HONG KONG SCIENTISTS claim *anti-viral* breakthrough

Hong Kong scientists claim they have made a potential breakthrough discovery in the fight against infectious diseases — a chemical that could slow the spread of deadly viral illnesses.

A team from the University of Hong Kong described the newly discovered chemical as “highly potent in interrupting the life cycle of diverse viruses” in a study published in January 2019 in the journal *Nature Communications*.

The chemical could one day be used as a broad-spectrum anti-viral for a host of infectious diseases — and even for viruses that have yet to emerge — if it passes clinical trials, the scientists said in January 2019.

The spread in recent decades of sometimes deadly bird flu strains, such as the Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS), have underscored the need for new drugs that can work more quickly than vaccines.

Broad-spectrum anti-virals are seen as the holy grail because they can be used against multiple pathogens. In contrast, vaccines usually only protect against one strain, and by the time they are produced the virus may have mutated.

The Hong Kong team tested its chemical AM580 on mice in a two-year study and found it stopped the replication

of a host of flu strains, including H1N1, H5N1 and H7N9, as well as the viruses that cause SARS and MERS.

It also stopped the replication of the mosquito-borne Zika virus and enterovirus 71, which causes hand, foot and mouth disease.

“This is what we call a broad-spectrum anti-viral drug, which means it can kill a number of viruses,” said microbiologist Dr. Yuen Kwok-yung, who led the team. “This is quite important in the early control of an epidemic.”

The study is part of a growing body of research by virologists to find drugs that avoid targeting a virus directly — something which could lead to resistance. Instead they look for compounds that interrupt the way viruses use crucial fatty acids, known as lipids, within a host’s cells to replicate.

“This study is science in progress — an early step in an exciting new direction,” said Benjamin Neuman, an expert on viruses at Texas A&M University-Texarkana who has published his own studies on starving viruses of lipids.

“Viruses are totally dependent on supplies stolen from their hosts, and a number of recent studies have shown that treatments that interrupt the steady flow of lipids in an infected cell are highly effective at blocking a wide range of viruses,” he said. *Agence France-Presse*



Face Your Fears at the Reptile Cafe

For anyone terrified of an albino python, an orange corn snake or a scaly, bearded iguana, Chea Raty says getting up close and personal at Phnom Penh's first reptile-themed cafe is the only remedy.

Taking off from the cat cafes already popular in the Cambodian capital, Chea Raty launched his business to revamp the skin-crawling reputation of lizards and snakes and convince haters they are simply misunderstood.

As customers sip on their lattes and hang out with the reptiles, "they will love them like I do," the 32-year-old said while stroking the scaly neck wattle of an iguana.

The walls of his cafe are lined with lighted glass tanks containing snakes of various lengths and colors, while a bright macaw screeches in the corner. Some visitors look hesitantly at the cages. Others are bolder in their embrace of the creatures.

There's no entry fee, so visitors can order coffee and request a sit-down with a serpentine friend. An ice tea for a customer instantly becomes a cool object for a yellow-and-cream-colored ball python to twist its body around.

Customer Y Navim was wary at first of a corn snake, an orange serpent that kills its prey through constriction. However, it was soon resting on her palm as she sipped her coffee. "This cafe is quite unique," the 22-year-old said. "I've never seen some of these reptiles before. They are beautiful and scary."

Agence France-Presse



VESPA LOVERS TAKING IT TO EXTREMES

Every year, Indonesians from teens and granddads to mechanics and students gather in East Java to celebrate their love of the iconic Italian Vespa scooter. For some, it's an extreme kind of love, where the vehicles are customized to resemble metallic monster bikes straight out of a Hollywood dystopia.

Hundreds of enthusiasts travel to the festival in Kediri to show off their creations, which range from restored vintage Vespas to Mad Max-style tanks fitted with fake machine guns, a dozen extra tires or eerie stuffed toys as hood ornaments. To enter competitions at the festival, every customized vehicle must have a Vespa engine, and most contestants try to retain the brand's iconic curved front. Other embellishments are up to the owners and their budgets. While many can only afford scrap metal or reused material found at a junkyard, others splash out.

Peded, a 43-year-old grandfather who has been modifying Vespas since the 1990s, said he likes his scooter to tell a story.

"I love decorating Vespas to the extreme, but I don't like using trash," said Peded, whose Vespa sports massive buffalo horns from the Toraja tribal land on Sulawesi island.

The three-day festival, now in its third year, is one of several held across the country. Highlights include a contest to pick the best-looking entry and dirt-track races for the speedier bikes. Reuters



HAN KUANG



Taiwan Soldiers participate in the Han Kuang drill at the Ching Chuan Kang Air Base in Taichung, central Taiwan, on June 7, 2018. Staging its largest annual exercise, Taiwan simulated an invasion by the People's Republic of China. Taiwan President Tsai Ing-wen presided over the drills, as Beijing stepped up military and diplomatic pressure on the island amid growing tensions. Taiwan previously denounced a series of drills near the island by the People's Liberation Army Air Force as intimidation. "Our Armed Forces' combat effectiveness is the guarantee of our national security. It is the flourishing basis of society, and it is the backup force for our values of democracy and freedom," Tsai said in Taichung, according to Reuters.

Photo By: **SAM YEH** | AFP/Getty Images

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