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ABOUT THE COVER:

In this image, an Armed Forces of the Philippines Soldier passes a damaged building in Marawi, Philippines, on August 30, 2017, as fighting between government troops and pro-Islamic State militants entered its 100th day.

AGENCE FRANCE-PRESSE/GETTY IMAGES



Dear Readers,

elcome to Indo-Pacific Defense FORUM's second-quarter edition for 2018, which explores how strategic perspectives shape responses by militaries and security organizations to challenges in the region. This is my farewell edition, as I retire from the U.S. Navy on June 1. I would like to extend a warm welcome to my successor, Adm. Phil Davidson, who became the 25th U.S. Pacific Command Commander as this issue went to print.

This edition opens with a success story in the Philippines that should also serve as a wake-up call for all Indo-Pacific governments and militaries. Many leaders have long feared that fighters affiliated with the Islamic State of Iraq and Syria (ISIS) may attempt to set up an Islamic state in the region as ISIS is driven out of the Middle East. The Armed Forces of the Philippines (AFP) recognized such an evolving threat in the southern Philippines at least a year before it materialized a year ago when militants linked to ISIS seized Marawi City. The AFP fought for five months to regain control of the region, succeeding in late October 2017, after killing more than 900 militants and slowing the spread of violent extremism in the Indo-Pacific.

Even as the AFP remains vigilant, the suppressed insurgency in the Philippines illustrates the need for a whole-of-nation approach to security, which involves military and civilian cooperation, as well as transnational partnerships and multilateral endeavors.

In an accompanying article, retired AFP Gen. Emmanuel T. Bautista discusses the merits of the Philippine Internal Peace and Security Plan, known as Bayanihan, which is a shared concept of security that entails active participation from all stakeholders to pursue peace and security. As threats move beyond the control of any single nation, Gen. Bautista suggests that the precepts and lessons of Bayanihan could be applied more globally.

Beyond the Philippines, this issue provides other strategic perspectives percolating across the region. Although nations are cooperating in managing the Arctic, for example, increasing competition for resources and militarization of the region could pose security risks. Meanwhile, as Sri Lanka rises as a commerce and naval hub, potential security threats such as narcotics trafficking and related crimes are also on the rise. Another article highlights opportunities for special operations forces to foster stability and peace in Pacific island nations.

I look forward to continuing working with many of you in the region. I hope you find this edition insightful and thought-provoking, and I know Adm. Davidson will enjoy receiving your comments. Please contact the *FORUM* staff at **ipdf@ipdefenseforum.com** with your perspectives.

All the best,

HARRY B. HARRIS, JR.

Admiral, U.S. Navy

24th Commander, U.S. Pacific Command

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GEN. (RET.) EMMANUEL T. BAUTISTA

served as the 44th chief of staff of the Armed Forces of the Philippines. He was awarded four outstanding achievement medals, 29 military merit medals and several military commendation medals, and he received an outstanding alumni award from the Philippine Military Academy as well as from the University of the Philippines College of Business Administration.

In June 2014, he was awarded the University of the Philippines Distinguished Alumni Award for Peace and Social Cohesion. Soon after his retirement from the Armed Forces, Bautista was appointed as undersecretary at the Office of the President of the Philippines.



KATHRYN BOTTO is the executive director of the Youth Diplomacy and Language Institute, a nonprofit focused on providing foreign language education to elementary school students in the U.S. and South Korea. She is a former research associate in the Commander's Strategic Initiatives Group, United Nations Command/Combined Forces Command/United States Forces Korea. She recently completed a

Fulbright grant in South Korea, during which time she received a master's degree in International Security and Foreign Affairs from Yonsei University. Featured on Page 22



MAJ. EDWIN CHUA of the Singapore Armed Forces served from May 2016 to July 2017 in the Singapore Ministry of Defence, where he helped set up the Defence Cyber Organisation. His prior appointments include staff officer (force transformation) in the Army General Staff and company and platoon commander in an infantry battalion. Chua recently attended the Command and Staff College at Marine Corps

University in the United States. Featured on Page 28



CMDR. WILLIAM RIES leads the Operational Strategies branch of the Border Management Division, Australian Border Force (ABF). He joined the ABF in July 2015 shortly after its establishment. Previously, he served the Attorney-General's Department for 12 years in roles related to investigations, operational support, governance and international engagement. He had a 21-year career in the

Army prior to entering public service, serving in a variety of roles in Australia, the United States, Europe and Timor-Leste. He retired from the military as a lieutenant colonel in 2003. Featured on Page 40



DR. DEON V. CANYON is a professor at the Daniel K. Inouye Asia-Pacific Center for Security Studies in Honolulu, Hawaii. He contributed an article on special operations command opportunities that was written with his colleagues Dr. Paul Lieber, Joint Special Operations University at MacDill Air Force Base in Tampa, Florida; Michael Mollohan, Special Operations Command Pacific in Honolulu, Hawaii; and Dr.

Eric Shibuya, Marine Corps University Command and Staff College in Quantico, Virginia. Featured on Page 44

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. 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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FORUM

Exploring the issues that impact so many lives

PM ABE LAUNCHES INDIAN BULLET TRAIN DEAL

Japanese Prime Minister Shinzo Abe laid the foundation stone for India's first bullet train in Indian Prime Minister Narendra Modi's home state of Gujarat in mid-September 2017, tightening ties between the two nations, as Modi and Abe increasingly see eye to eye in countering growing Chinese assertiveness across Asia.

The move by Abe highlighted an early lead for Japan in a sector where the Chinese have also been trying to secure a foothold, without much success.

Modi has made the 500-kilometer-long high-speed rail link between the financial hub of Mumbai and the industrial city of Ahmedabad in western Gujarat a centerpiece of his efforts to showcase India's ability to build cutting-edge infrastructure.

"This technology will revolutionize and transform the transport sector," said Railways Minister Piyush Goyal, welcoming the prospects for growth brought by Japan's high-speed shinkansen technology.



In Tokyo, a Japanese Foreign Ministry official told reporters, "We would like to support 'Make in India' as much as possible," referring to Modi's signature policy to lure investors in manufacturing.

India will make "all-out efforts" to complete the line by August 2022, more than a year earlier than planned, the government said. Japan is providing 81 percent of the funding for the 1.08-trillion-rupee (U.S. \$16.9 billion) project, through a 50-year loan at 0.1 percent annual interest.

Japanese investment in India has surged in areas ranging from automotives to infrastructure in the remote northeast, making Tokyo its third-largest foreign direct investor. Reuters



POLICE ARREST SUSPECTED KINGPIN OF WILDLIFE TRAFFICKING

hai police have arrested a suspected kingpin of wildlife trafficking who allegedly fueled much of Asia's illegal trade for over a decade, officials said in January 2018. Boonchai Bach, a 40-year-old Thai of Vietnamese descent, was arrested in January 2018 in the northeastern border province of Nakhon Phanom in connection with the smuggling of 14 rhino horns worth over U.S. \$1 million from Africa into Thailand in December 2017. The case also implicated a Thai official and a Chinese and a Vietnamese courier, Thai police said.

Boonchai allegedly ran a large trafficking network on the Thai-Laos border that spread into Vietnam.

He and his family played a key role in a criminal syndicate that has smuggled poached items including ivory, rhino horn, pangolins, tigers, lions and other rare and endangered species, according to the anti-trafficking group Freeland Foundation.

Police said Boonchai denied the charges against him. Under the wildlife law, he could face up to four years in prison and a 40,000 baht (U.S. \$1,300) fine, but authorities said they're also considering money-laundering and customs violation charges that carry up

to 10 years in prison.

"One of the largest known wildlife traffickers in a really big syndicate has been arrested," said Matthew Pritchett, Freeland's director of communications. "In a nutshell, I can't think of anything in the past five years that has been this significant."

Thailand is a transit hub for trafficked wildlife mostly destined for China and was considered to have the largest unregulated ivory market in the world before it introduced the Elephant Ivory Act of 2014 and 2015 to regulate the domestic ivory market and criminalize the sale of African elephant ivory. Rhinoceros horns, pangolin scales, turtles and other exotic wildlife are still repeatedly smuggled through Thailand.

Steve Galster, founder of Freeland, said Boonchai's arrest breaks open Thailand's "largest wildlife crime case ever."

"This network is connected to a group of money men who may be living outside the country. We are working to get arrest warrants out on those people as well," said Gen. Chalermkiat Sriworakhan, deputy police commissioner, pictured left, during a news conference announcing Boonchai's arrest. The Associated Press

TARGETING HIGH-END SOLAR MARKET

hina, blighted by pollution and long known for churning out cheap manufactured goods, is looking to dominate the highend of a major growth market: solar power.

Under a new program, China is pushing the industry to mass market high-performance solar cells that so far are used mainly in high-tech products such as satellites.

Making these cells more affordable could further boost a sector that has already disrupted global electricity generation. Under its 2017 Top Runner Program, China's National Energy Administration plans to add 8 to 10 gigawatts (GW) of solar capacity to its existing 80 GW.

"This shift ... could have far-reaching implications for the global solar industry, especially vaulting China into the top ranks of countries pursuing solar R&D [research and development]," Stanford University said in its 2017 solar industry report.

World solar power generation capacity has ballooned to about 300 GW from just 1 GW in 2000, according to International Renewable Energy Agency data, and is set to double again by 2020.

That growth has largely relied on multicrystalline silicon photovoltaic cells, sometimes called polycrystalline, in which solar units consist of multiple silicon crystallines.



These have been cheaper to produce than the more efficient monocrystalline cells, which are made from single crystalline units.

Prices, however, are now converging. Energy Trend, a consultancy, says the average price of a Chinese high-efficiency, multicrystalline cell is now U.S. \$0.225 per watt, compared to just U.S. \$0.319 for high-efficiency, monocrystalline cells.

The use of monocrystalline technology is likely to increase as the cost differential narrows, meaning a higher efficiency can be had at a similar price.

Germany's Fraunhofer Institute for Solar Energy, a leader in solar development, said in July 2017 the record laboratory efficiency for monocrystalline was 26.7 percent per cell, versus 21.9 percent for multicrystalline.

Solar cell development doesn't end with monocrystalline cells, and China's competitors aren't sitting idle.

Fraunhofer has developed so-called multijunction cells with an efficiency of 46 percent, and U.S. aerospace giant Boeing's Spectrolab is developing cells with similar efficiency. Reuters



Officials Destroy Record Haul of COCAINE

Sri Lanka publicly destroyed U.S. \$108 million worth of cocaine in January 2018. Authorities seized the load in the Port of Colombo, which is increasingly becoming a transit hub favored by drug smugglers in Asia.

The authorities destroyed 928 kilograms of the drug, confiscated as part of the largest single seizure of cocaine in Sri Lanka. It was found in August 2016 in a container of timber on a Colombian ship bound for India and represented part of more than 1,700 kilograms of cocaine seized in the past three years. Another 840 kilograms was found in sugar shipments from Brazil.

The drug haul was destroyed under a special facility in a cement factory close to the country's main airport.

"We are very serious about the zero tolerance policy on this. ... We have a long way to go," said Minister of Law and Order Sagala Ratnayaka, who attended the event.

"Sri Lanka is being used as a transit hub. This haul would have been for transit purposes, and some parts of it come into Sri Lanka. There is a distribution process, and we are tracking the network and the peddlers."

Senior police officials said some gangs are seeking to mask their shipments to Australian and European markets by bringing them into Sri Lanka, then sending them on in Sri Lankan containers. Reuters



Japan to Build Radar Stations for Philippines Counterpiracy Operations

REUTERS
PHOTOS BY AFP/GETTY IMAGES

Japan will build four coast guard radar stations on islands in the Sulu Celebes Seas separating the Philippines and Indonesia to help Manila counter an increase in piracy by Islamic insurgents, two sources said in November 2017.

The agreement will fund the facilities and provide training to local coast guard personnel.

"The seas in that area are an important waterway for merchant ships traveling to Japanese ports," one of the people with knowledge of the plan said. The sources asked not to be identified because they were not authorized to talk to the media.

Of 30 acts of piracy reported in the first half of 2017, six involved the use of guns, of which three were crew abductions from ships underway in the Sulu Celebes Seas, according to the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP). The agency also logged four attempted abductions in the waters.

Japan will fund construction of the radar stations through its Overseas Development Aid (ODA) budget, the sources said.

"Japan is aware of the need to counter piracy in the region and is keen to help, but we can't discuss individual projects," said an official at Japan's Ministry of Foreign Affairs, which oversees ODA spending.

The radar stations are part of a wider aid package that includes helicopter parts for the Philippines military, financing for infrastructure projects such as rail lines and help to rebuild conflict-torn southern Marawi city after five months of military operations against Islamic State rebels.

By providing such aid, Tokyo aims to deepen economic and security ties with Manila as it looks to contain China's growing power. Japan sees the Philippines — which lies on the eastern side of the South China Sea — as a key ally in helping to prevent Beijing's influence from spreading into the western Pacific.

LEFT: Philippine and Japanese Coast Guard personnel conduct a drill as they board a Philippine Coast Guard boat and handcuff mock suspects, below, during their annual anti-piracy exercise in the waters off Manila Bay in July 2016.



WAKE-UP CALL

IN THE

SOUTHEAST ASIAN COUNTRIES LINK ARMS TO FIGHT ISIS TERROR IN THE PHILIPPINES

FORUM STAFF



he Armed Forces of the Philippines (AFP) had identified signs of an evolving terror threat in the southern Philippines as early as June 2016. They fully uncovered the threat a year later in Marawi City after engaging in an intense five-month fight to regain control that ended with a government victory in October 2017.

The evidence of organized terror groups — caches of weapons, the presence of foreign fighters and the macabre sight of beheaded civilians — revealed a danger many Indo-Pacific leaders have long dreaded. Fighters loyal to the Islamic State of Iraq and Syria (ISIS) may try to establish an Islamic state — or at least build robust affiliates — in Southeast Asia as they lose ground in the Middle East.

"Marawi is a wake-up call for every nation in the Indo-Pacific," U.S. Navy Adm. Harry B. Harris, Jr., then commander of U.S. Pacific Command (USPACOM), said at an Australian Strategic Policy Institute event in

designated emir in the Philippines. Hapilon's fighters fired on Philippine police and Soldiers and received reinforcements from another organization loyal to ISIS — the Maute Group. In addition to killing civilians, Maute militants captured several buildings, including Marawi City Hall and Mindanao State University.

The AFP's successful battle to retake the city was eye-opening for many reasons, including:

• Stunning death toll: By the time military forces liberated Marawi in October 2017, the death toll exceeded 1,100, according to Reuters.

Col. Romero Brawner Jr., deputy commander of a task force battling the extremists, said 920 militants were killed while 165 government forces died. Forty-five civilians were slain by the militants. By the end of the battle, the AFP said it had killed Hapilon and Omarkhayam Maute, the two main Maute brother leaders who helped stage the siege. U.S. officials confirmed Hapilon's death through

DNA analysis.

- Organized enemy: Video captured by the Philippine military shows leaders of two organizations the Maute and Abu Sayyaf groups planning an attack on Marawi, *The Straits Times* newspaper reported. When the fighting started, 400 to 500 gunmen rampaged through the city, with some waving black ISIS flags. Militants who died fighting alongside the Abu Sayyaf and Maute groups included citizens of Indonesia, Malaysia and Saudi Arabia, the Philippine military said.
- Urban warfare: The terrorists displayed urban warfare tactics like those used in Iraq and Syria, including the employment of improvised explosive devices, drones, rocket-propelled grenades

(RPGs), sniper fire and fuel bombs. In a June 2017 battle, Philippine Marines were hit with fuel bombs when they tried to clear a building, *The Straits Times* reported. When they ran outside to escape the inferno, they were hit with sniper fire, RPGs and mortars. By the fight's end, 13 Marines were killed.



Children displaced by the fighting in Marawi play near police shields and gear in the southern city of Saguiaran, Lanao del Sur. APP/GETTY IMAGES

June 2017. "These terrorists are using combat tactics that we've seen in the Middle East to kill in the city of Marawi, in Mindanao, the first time ISIS-inspired forces have banded together to fight on this kind of scale."

The fighting erupted in the Philippines in May 2017 when government forces tried to capture Isnilon Hapilon, leader of the Abu Sayyaf Group and ISIS'



A sign reading "I love Marawi" stands in front of damaged houses, buildings and a mosque inside war-torn MarawiCity. REUTERS

LINKS TO SYRIA

Efforts to organize ISIS-inspired fighters in Southeast Asia can be traced to operatives in Syria, concluded a report from the Combating Terrorism Center (CTC), a research and education institution at the U.S. Military Academy at West Point. The study, "Beyond the Caliphate: Islamic State Activity Outside the Group's Defined Wilayat," analyzed terror plots and attacks in Southeast Asia from June 2014 through April 2017 and found that 60 percent of the combined 20 attacks and 35 plots were linked to Islamic State operatives. "For these linked attacks and plots, evidence indicates that Islamic State operatives in Syria directed, funded or were in contact with local cells and individuals in the region who were sympathetic to the Islamic State," the study, authored by CTC research associate Marielle Ness, reported.

About half of the region's terror attacks took place in the Philippines, but extremists in neighboring Southeast Asian countries were also plotting attacks. Terrorists hatched many plots in Malaysia (43 percent) and Indonesia (37 percent), while conceiving only 14 percent in the Philippines.

Many factors combine to make the Philippines a destination for violent extremists, Don Rassler, the CTC's director of strategic initiatives, told FORUM.

"Since at least June 2016, the Islamic State has been encouraging people to travel to the Philippines if they cannot make it to Syria or conduct attacks in their home countries," Rassler said. "More recent material released by the group has continued to push the Philippines as a preferred destination for recruits and inspired individuals to travel to and become operationally active."

Rassler also noted the presence of local militant groups such as Abu Sayyaf and Maute, which have proven themselves operationally capable and resilient, helps explain why more attacks are occurring in the Philippines.

As for attempting to establish an Islamic state in the region, the study concludes that ISIS is trying to grow its forces in Southeast Asia. The report does not forecast, however, what form its presence will take. "The Islamic State appears to be embedding itself and expanding its influence in Southeast Asia by leveraging local groups and networks of inspired individuals to plot, plan and conduct attacks in a number of local countries," the study said.

Although ISIS named a regional emir in the Philippines, it hasn't declared a wilaya (administrative state or province). "Besides being able to inspire small networks or to splinter factions from these larger, more established groups to conduct a series of one-off attacks, the Islamic State's strategic and long-term viability in the region is likely tied to how it navigates and manages relations with

the region's jihadi old guard, and particularly those groups that have seized terrain and carved out safehaven areas," the study concluded.

FERTILE GROUND

While much of the region's terror activity has been concentrated in the Philippines, Malaysia and Indonesia, some potential for the spread of violent extremism is developing in Burma, the CTC study found.

Although the data did not identify Burma as an important area for ISIS attacks, the study found anecdotal evidence to suggest the country may be ripe for infiltration. "The persecuted Rohingya Muslim minority has inspired Southeast Asian Islamic State networks to plan terrorist activity in Myanmar [Burma] and in their respective countries against symbols of the Myanmar government," the CTC study said.

Hundreds of thousands of Rohingya Muslims have fled the majority-Buddhist Burma amid violent clashes with the military. Burma doesn't recognize all Rohingya



Incoming Armed Forces of the Philippines Chief of Staff Carlito Galvez, left, shakes hands with outgoing Chief of Staff Rey Leonardo Guerrero in front of Philippine President Rodrigo Duterte, center, during the change of command ceremony at Camp Aguinaldo in Manila. AGENCE FRANCE-PRESSE/GETTY IMAGES

Muslims as citizens, making them one of the largest stateless groups in the world, according to a report in *The New York Times* newspaper. The Rohingya practice Sunni Islam and live in the poor Burmese state of Rakhine. Before they started to flee from the violent clashes with the police and military, there were an estimated 1 million Rohingya in Burma, the *Times* reported.

The possibility of ISIS activity in the area is supported by one failed plot in Indonesia, which was directed by an ISIS operative named Naim and was targeting the Burmese Embassy. "These dynamics suggest that the Islamic State, like other jihadi groups, view the Rohingya issue as an opportunity area," the CTC study concluded.

Rassler views the Rohingya crisis as significant for

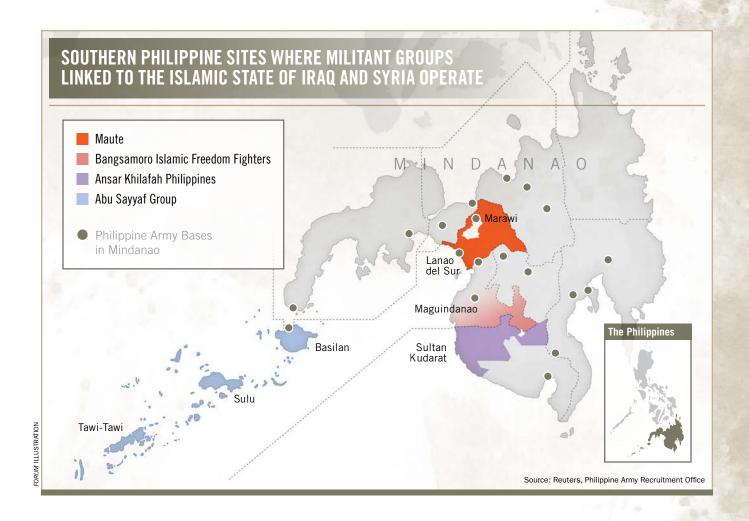
terrorist recruitment. "It is highly likely that the Islamic State will leverage the Rohingya crisis in Myanmar [Burma] as a rallying tool," he said. "Al-Qaida is already doing so."

STOPPING TERROR'S SPREAD

After witnessing the tragedy unfold in Marawi, military and political leaders in the Indo-Pacific quickly linked arms to share resources and intelligence to stop the spread of terror. The partnerships, in many cases, are multifaceted and have the goal of eradicating violent extremism before it organizes.

The developments include:

- In September 2017, Australia announced that it would send troops to the Philippines to train Soldiers and share intelligence. Australian Defense Minister Marise Payne said the ISIS threat requires the cooperation of the entire region. "We are very committed to supporting the Philippines in its efforts to defend itself against terrorist threats," Payne said, according to Reuters. "This is a threat to the region [that] we all need to work together to defeat." Previously, in June 2017, Australia committed two AP-3C Orion aircraft to conduct surveillance over Marawi to spot terrorists. The United States sent about 300 to 500 troops to the Philippines in June 2017 to provide training in the areas of intelligence, surveillance and reconnaissance, Reuters reported. A U.S. P-3 Orion surveillance plane also provided intelligence, surveillance and reconnaissance support to the AFP's operations.
- Officials from Australia, Brunei, Indonesia, Malaysia, New Zealand and the Philippines met in Indonesia for a one-day summit in July 2017 and signed a joint pledge to combat violent extremism. The nations agreed to establish a foreign fighter strategic forum to foster intelligence sharing. The information sharing is intended to include existing databases of foreign fighters and possibly the creation of a new database on cross-border movements of terrorists. The nations also pledged to establish terrorism laws that define as criminal acts things such as the planning of terrorist attacks and supporting foreign fighters.
- The Trilateral Maritime Patrol Indomalphi, launched by the governments of the Philippines, Malaysia and Indonesia in June 2017, aims to maintain stability in the region in the face of nontraditional threats such as piracy, terrorism and other transnational crimes in regional waters. The Southeast Asian neighbors also agreed to exchange liaison officers, form joint headquarters and share intelligence, *The Philippine Star* newspaper reported.
- Malaysia hosted the third Counter-Terrorism Financing (CTF) Summit with Australia and



Indonesia in November 2017. The CTF Summit 2017 brought together financial intelligence experts and senior representatives from policy, regulatory, law enforcement and national security agencies. Industry participants included the financial services sector, financial technology (fintech), and regulatory technology (regtech) professionals and academics.

This regional cooperation and the intense military campaign by the AFP resulted in the routing of the militants by late October 2017. As the military celebrated an ISIS-free Marawi, donations of construction equipment, money and expertise poured into the Philippines from Indo-Pacific nations for reconstruction. The Philippine government announced the formation of Task Force Bangon Marawi, which is composed of multiple government agencies, to lead the recovery and reconstruction.

Housing czar Eduardo del Rosario was tapped to lead the task force, and Defense Secretary Delfin Lorenzana and Department of Public Works and Highways Secretary Mark Villar were named vice chairmen.

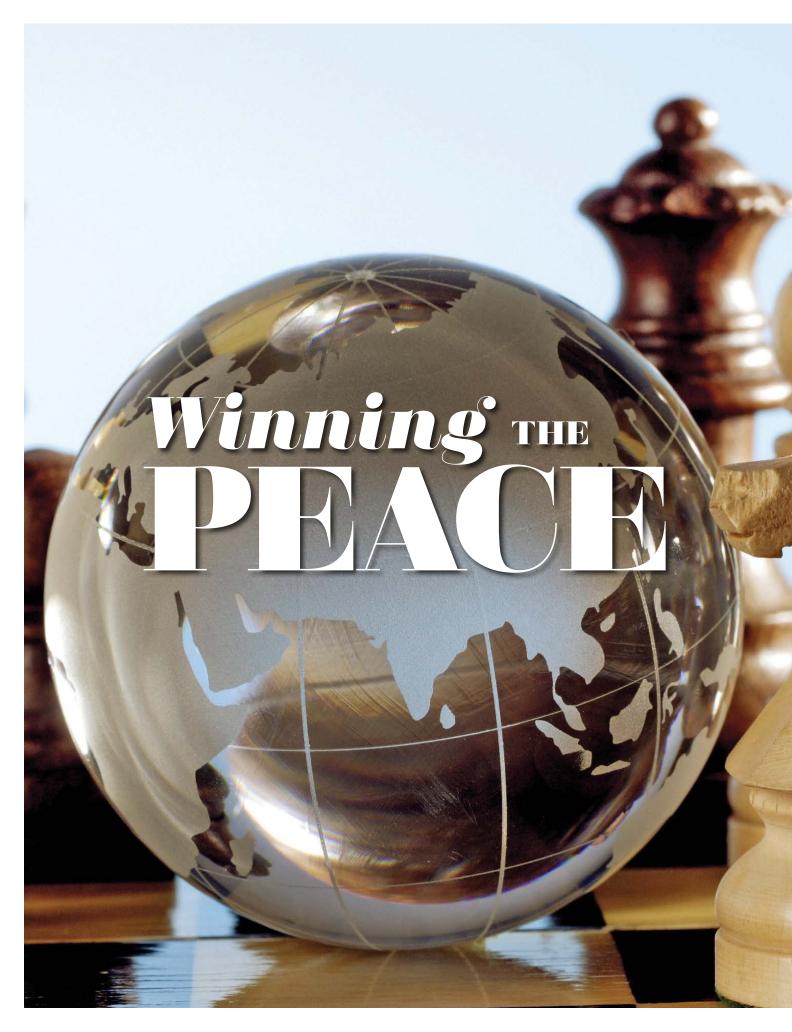
The need for this so-called whole-of-government approach that involves military and civilian cooperation, as well as transnational partnerships, is abundantly

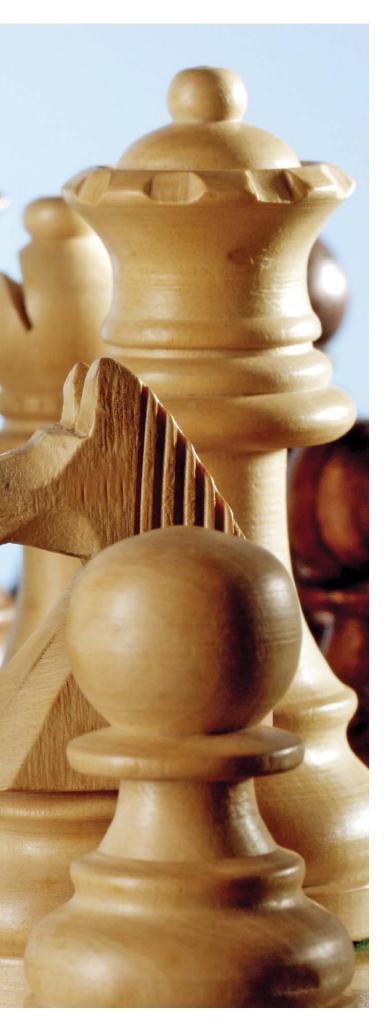
clear to military and political leaders. Singapore Defence Minister Dr. Ng Eng Hen called Southeast Asia a magnet for foreign fighters wanting to control territory. "Tens, if not hundreds, if not thousands of foreign fighters will have the skills to make improvised explosives, to have the skills for hijacking, to have the skills for kidnapping," he said, according to a June 2017 report by bloomberg.com.

One of the reasons for this prediction is that terrorist organizations have long been entrenched in Southeast Asia, and they may soon be joined by battle-hardened fighters. "When we talk about endemic threats, we usually refer to threats like dengue or tuberculosis, which means that it's here to stay, that despite years of effort you can't eradicate it," Ng said. "The problem will now come to ASEAN," he added, referring to the 10 states that make up the Association of Southeast Asian Nations.

USPACOM's Harris said the challenge requires urgent attention.

"It's clear to me that [ISIS] is also rebalancing to the Indo-Pacific," Harris said during a meeting of the San Diego Military Advisory Council, *The San Diego Union-Tribune* newspaper reported. Making the spread of ISIS analogous to cancer, Harris added: "Through multinational cooperation, we can eradicate this [ISIS] disease before it metastasizes."





Bayanihan, the Philippine Internal Peace and Security Plan, fosters collaboration among civil, government and military communities to combat insurgents

GEN. (RET.) EMMANUEL T. BAUTISTA

he Philippines' long experience in addressing insurgencies has led to many realizations. Foremost, the problem of insurgency is multifaceted and complex, requiring a comprehensive approach.

Success in responding to this challenge can only be achieved if the whole nation commits to a solution. This is exactly the focus of the Philippine Internal Peace and Security Plan — a shared concept of security among stakeholders and their involvement in achieving peace and security. The plan is known as Bayanihan, which translates to the spirit of communal unity, work and cooperation to achieve a particular goal.

Several salient features distinguish Bayanihan from past strategies. First, it is an open document that is shared, co-owned and co-authored by the broadest spectrum of stakeholders. National and local government agencies, nongovernment entities and the entire citizenry were involved from the planning to the implementation and evaluation phases. Second, the plan emphasizes that the primary focus in the conduct of its military operations is winning the peace, which is more important than just defeating the enemy.

To this end, Bayanihan departs from its old frameworks and explores noncombat parameters in addressing threats to the country's peace and security. Third, Bayanihan adheres to the government's overall peace framework. As much as it is not the plan of the Armed Forces of the Philippines (AFP) alone, Bayanihan does not exist in a vacuum. It is done in harmony with national policies for peace, security and development.

The Philippines addresses three principal threat groups. First is the Communist Party of the Philippines/ New People's Army (NPA)/National Democratic Front (CNN), which seeks to overthrow the democratic government and replace it with a communist form of government. Second is the separatist Moro Islamic Liberation Front (MILF), which aims to secede from the republic and form an independent Islamic State. Third is the Abu Sayyaf Group (ASG), a terrorist group notorious for its kidnap-for-ransom activities.

The strategic end state

Under Bayanihan, the AFP redrew its mission "to conduct support operations to win the peace in order to help the Filipino people establish an environment



Philippine Marines patrol a cleared street in range of enemy sniper fire as they walk toward the main battle area in Marawi, southern Philippines, in July 2017. GETTY IMAGES

conducive for sustainable development and a just and lasting peace." The term "support operations" is used to emphasize the role that the AFP assumes under Bayanihan. The mission brings to the fore the importance of having the civil government take the lead in addressing insurgency. This is translated to an end state where capabilities of internal armed threats are reduced to a level that they can no longer threaten the stability of the state and civil authorities can ensure the safety and well-being of the Filipino people.

The end state is achieved through the attainment of the following objectives:

- Contribute to the success of the peace process.
- Maintain a professional armed force serving under firm democratic civilian control.
- Defeat the ASG and its allied armed threat groups.
- Contribute to the resolution of conflict with the NPA, MILF and other armed threat groups.
- Contribute to the establishment of conditions for civil authorities to take responsibility for the safety and well-being of their constituents.
- Support developmental, environmental protection, disaster risk reduction management and law enforcement activities.

Given the varied means and motivations of the armed threat groups, a nuanced approach is necessary. For the ASG, because of the policy of no negotiation with terrorists, the desired end state is its unequivocal defeat. Regarding the CNN, the AFP's initiatives focus on rendering the armed component irrelevant, with the insurgents abandoning armed struggle and ultimately engaging in peace negotiations with the government. For the MILF secessionist group, the projected national end state is a negotiated political settlement within the bounds of the Philippine Constitution.





The Bayanihan concept

Bayanihan's new paradigm in the conduct of operations is "winning the peace more than defeating the enemy." Beyond the immediate goal of diminishing the armed capability of threat groups, the AFP gives weight to the long-term and equally important effects of military operations on the people's way of life and their well-being. To genuinely win the peace, Bayanihan is underpinned by two strategic approaches: the whole-of-nation approach and the people-centered approach.

The whole-of-nation approach calls on the active participation and involvement of all stakeholders in pursuit of peace and security. This is centered on the recognition that a military solution alone is inadequate in resolving internal peace and security issues. Bayanihan sheds light on a concept of security that is shared not just among security forces and government agencies but also with nongovernment entities and other sectors of society. The plan presumes that even ordinary citizens are essential contributors to the attainment of peace and security. In this context, the role of the AFP is to actively engage its counterparts and partners in consultation and dialogue, forge partnerships, and build a broad peace and security constituency.

The people-centered security/human security approach situates the people's welfare at the center of military operations. Within the broader frame of human security, it gives primacy to human rights and explores ways for promoting security and safety based on the needs and realities at the grassroots level. To win the peace, the protection of civilians is an end goal. The concept of human security has several components: economic, food, health, environmental, personal, community and political requiring the entire government bureaucracy, the private sector and the civil society to collectively implement.



Gen. Eduardo Ano, Philippine Armed Forces chief, right, leads a fist-bump gesture with top military and defense officials during his visit to a military camp in May 2017. THE ASSOCIATED PRESS

All military operations are guided by two overarching strategic imperatives. First is the adherence to the ideals of human rights, international humanitarian law and the rule of law. Second, it is important that all stakeholders are active contributors in the pursuit of internal peace and security.

These strategic imperatives underpin the courses of action that the AFP undertakes. First, the AFP contributes to the permanent and peaceful closure of all armed conflicts. This entails the AFP's adherence to the primacy of the peace process. Military capabilities are only employed if merited by the security situation in an area. Equally important, the AFP adheres to the government's agreements on the cessation of hostilities or suspension of military activities.

established for a negotiated political settlement to be achieved. This is to encourage the MILF to continue to adhere to the path of peace until a negotiated settlement is reached. Credible deterrence is achieved by demonstrating AFP's readiness and willingness to use legitimate force to decisively deal with any attempt from the MILF to return to armed hostilities.

The unequivocal defeat of the ASG can be realized by isolating it so that military force may be applied with precision. Isolation is achieved by exposing the atrocities of the terrorist groups to instigate widespread condemnation from local and international stakeholders. Measures are undertaken to isolate terrorist groups from foreign support and influence. It is likewise essential that they are isolated from other internal armed threat groups

to prevent radicalization. Terrorists must also be denied mass base support to deprive them of sanctuaries and popular support.

Third is support to community-based peace and development efforts. This is focused on securing and bringing peace and development to conflict-affected areas. Consistent with the whole-of-nation approach, the AFP's support to governance initiatives is pursued from the national level down

to the grassroots level with emphasis on maintaining policy cohesion and consistency. This undertaking gives credence to comprehensively addressing insurgency with military and nonmilitary initiatives in tandem with relevant stakeholders. The underlying intent is to conscientiously identify and address the core issues that motivate radicalization.

Fourth, the AFP recognizes that to successfully carry out the plan, it must undergo a sincere effort to reform the institution. Thus, the AFP undertakes initiatives along the lines of security sector reform geared toward capability development, professionalization and involvement of stakeholders in AFP initiatives. It must be emphasized that by undertaking the necessary reforms, the AFP stands to increase institutional efficiency and can take the high ground in its fight against threats to internal peace and security.

All military operations are guided by two overarching strategic imperatives. First is the adherence to the ideals of human rights, international humanitarian law and the rule of law. Second, it is important that all stakeholders are active contributors in the pursuit of internal peace and security.

Second, while the AFP gives primacy to the peace process, the conduct of military operations is also heightened. This time, however, legitimate military operations focus on the armed component of the threat groups with zero tolerance for collateral damage. Given the different characteristics of these threat groups and the desired end state for each, distinct methodologies are applied.

For the CNN to abandon the armed struggle and return to the negotiating table, sustained pressure needs to be applied. This could be in the form of physical and social pressure. Physical pressure is exerted through the conduct of intelligence-driven combat operations, complemented by law enforcement operations and prosecution. On the other hand, social pressure is applied through activities with multiple stakeholders to mainstream the idea that armed struggle is an unacceptable act to achieve political ends. While pressure is applied, insurgents are given a way out through the establishment of appropriate mechanisms for them to lay down their arms and return to mainstream society.

For the MILF, a credible deterrent posture must be

What we have realized

In its six-year implementation, Bayanihan has achieved tangible and intangible results. First, a negotiated political settlement with the MILF has been achieved. What remains to be done is to legislate what has been



Philippine Air Force (PAF)
personnel, who were deployed
to Marawi, march during a
ceremony welcoming them
home at the PAF headquarters
in Pasay City, near Manila in
November 2017. REUTERS

agreed upon. Bayanihan has also led to the declaration of 68 out of 76 CNN-affected provinces as peaceful and ready for further development. This

means that the situation has normalized and that civil authorities can now take responsibility for the safety and well-being of the people in their localities. As for the ASG, it is continuously being isolated to set the stage for its eventual destruction.

Among the intangible results: There is now a growing peace constituency in the country; there is change in how the people perceive the military due to its professionalism and a much improved human rights record; and there is popular support for the military and its campaign.

The Bayanihan experience has led to some key learnings. First, preparing security forces is key for successfully addressing insurgency. The Armed Forces must be prepared to assume new roles under a new paradigm. There is a need to achieve the moral high ground through institutional reforms if the military is to succeed in addressing insurgency.

Second, there is a need for strong involvement and coordination among stakeholders. Without synergy

of efforts, Bayanihan would remain merely as a plan. Only when a shared concept of security is formed can responsibilities be shared among all stakeholders. This enables the mobilization of a cohesive national effort to address the root causes of insurgency. Good governance and civilian leadership are key to achieving this.

For Bayanihan to have a meaningful impact, its implementation needs to be sustained. This highlights the importance of continuity in policy and strategy over a long period. The execution of the plan should transcend changes in both civilian and military leadership.

Recent crises around the world demonstrate that threats have evolved to take on a global character beyond the control of any single state. Links between local threat groups and international terrorists have changed the dynamics of national insurgencies. If security concerns are to be addressed comprehensively, greater collaboration among governments, international and regional organizations, and civil societies needs to take place. Nations must come together as a world community with a shared understanding and a common purpose. As various security threats evolve to be a global problem, the demand for a paradigm capable of addressing globalized threats also becomes critical. Hence, the concept for "global Bayanihan" becomes relevant. \square

ADAPTIVE

COMMANDS



U.S. Army Gen. Matthew B. Ridgway, left, and U.S. Navy Vice Adm. C. Turner Joy, senior member of the armistice negotiating team, lead the line of peace emissaries to their waiting planes for the flight to Kaesong, North Korea, on July 10, 1951.

MAINTAINING PEACE AND SECURITY IN A CHANGING WORLD

KATHRYN BOTTO
PHOTOS BY THE ASSOCIATED PRESS

The U.S. military has contributed to the maintenance of peace and security in the Republic of Korea (ROK) for more than 67 years through three military commands: the United Nations Command, the United States Forces Korea and the Combined Forces Command. Each of these commands, at some point in their history, encountered significant developments in the strategic environment that necessitated adaptation of their mission or scope, a challenge to which each command rose in turn. The unwavering commitment of the U.S. military in Korea during this long period is a testament to the flexibility of these institutions, which have shown their ability to respond to the complex and changing threats in Northeast Asia. The conditions behind each command's establishment help elucidate how the Republic of Korea came to be the only stable, democratic nation with its wartime forces under the operational control of a U.S. commander, to serve as the home of the only U.S. binational combined force and to be the location of the United Nations Command led by the U.S.

U.N. Command

The U.S. military presence in Korea began in earnest at the end of World War II in what was intended to be a minor and temporary measure to stabilize South Korea and counter potential Soviet expansion. Although originally proposed as a five-year trusteeship, it manifested as the U.S. Army Military Government in Korea. That military government ended in August 1948 with the election of ROK President Syngman Rhee and transitioned to a role as a military advisory group. After Rhee's election, the U.S. began withdrawing its troops from the ROK. North Korea, meanwhile, started planning

an invasion of the South, which it carried out on June 25, 1950.

After the outbreak of the Korean War, U.S. interests in Asia included countering Chinese, North Korean and Soviet expansion in the region. U.S. President Harry S. Truman was clear, both in private and public pronouncements, that his primary concern regarding Korea was the question of Soviet involvement in the conflict. In the early days of the war, the administration believed the North Korean invasion of South Korea might be part of a regional communist offensive by the People's Republic of China (PRC) and the Union of Soviet Socialist Republics (USSR). Their first action was to send the U.S. 7th Fleet to protect the Republic of China (now Taiwan) to ensure it would not be invaded as well, according to U.S. Department of the Army records. A number of concurrent developments elevated Truman's concerns regarding an increasingly broad and emboldened regional communist threat, including the Chinese Communist Party's accession in the Chinese Civil War and the USSR's first nuclear test in 1949. These factors contributed to Truman's decision to extend aid to South Korea under the auspices of the U.N. to impede communist expansion abroad and shore up anti-communist credentials at home.

To accomplish this, the U.S. sought the endorsement of the U.N. Security Council (UNSC). The establishment of the U.N. Command (UNC) through UNSC Resolution 84 on July 7, 1950, granted the U.S. permission to act. The resolution stipulated that the U.S. designate the commander of a unified command, under the U.N. flag, to "assist the Republic of Korea in defending itself against armed attack and thus to restore international peace and security in the area." Western nations perceived UNC actions as thwarting communist expansion potentially affecting the region and the world, and they were legitimized by broad international support. The unanimous endorsement of the resolution at the Security Council became possible due to USSR Premier Joseph Stalin's decision not to send a representative to the meeting where the UNC mandate to participate in the Korean War was endorsed. Had the USSR blocked the resolution, it is unclear whether involvement in Korea would have had enough support in the U.S. Congress to proceed unilaterally. Instead, the UNSC decision set a precedent for U.S. military action abroad without a congressional declaration of war, which remains the standard today.

After a little more than a year of fighting, the U.S. (via UNC), PRC and North Korea supported the commencement of armistice talks to end the conflict as soon as possible. However, Rhee regarded the signing of an armistice agreement as negating any prospect for Korean unification under Seoul, and consequently, a threat to South Korean security. In his letters to U.S. President Dwight D. Eisenhower, he stated that signing



an agreement that allowed Chinese communist forces to remain in the North represented "an acceptance of a death sentence without protest."

After two years of negotiations and the Mutual Defense Treaty offer, Rhee still objected to the armistice and refused to sign. In the end, the armistice had five signatories: two American leaders from UNC, two from North Korea and one from the PRC.

Due to the failure to resolve long-term issues during armistice negotiations, the Korean Armistice Agreement relegated the settlement of "the Korean question" and the withdrawal of foreign forces from Korea to a political conference in Geneva. The uncompromising nature of Rhee and divergent goals in the North and South left few expectations the conference would succeed. Rhee lamented the conditions of the conference; he asked the U.S. ambassador how long he would need to wait before his allies realized the conference was merely a stalling tactic, that there would be no peaceful withdrawal of Chinese communist forces from Korea and no unification through a free U.N.supervised election. The conference failed to produce an agreement to solve the Korea question. Instead, it resulted in the 38th parallel becoming a de facto border and the maintenance of an enduring armistice in lieu of a peace treaty. Because the armistice agreement was signed by the UNC commander and designated UNC as the administrator of the southern half of the Demilitarized Zone, UNC's presence on the peninsula as the protector of peace and security in the area endured as well.





U.S. Forces in Korea

While the establishment of UNC was about regional strategic goals, U.S. Forces Korea's establishment and sustained presence on the peninsula was initially a response to mistrust between the U.S. and ROK. As armistice negotiations were perpetuating UNC's ongoing role on the Korean Peninsula, the machinations of Rhee and his goals for unification were impeding expeditious resolution of the Korean conflict. As the Korean War came to a close, the U.S. had to focus on supporting stability in South Korea while encouraging ROK restraint on North Korean issues, and thus offered the Mutual Defense Treaty as an assurance to the ROK. Although this move was a reaction to Rhee, the value of maintaining a strong anti-communist alliance in the Pacific warranted continued U.S. involvement in the ROK as well.

From the outset, U.S. interests concerning Korea and the treaty were regional, just as they had been with UNC. Indeed, the treaty's language focused on strengthening the "fabric of peace in the Pacific area." The ROK is mentioned largely in its role as party to the treaty, while the "Pacific area" is consistently referred to as the object of the treaty's defense. U.S. government thinking behind the treaty centered on the potential for multilateral cooperation between bilateral treaty allies in Asia that Eisenhower and some senators referred to as a "NATO [North Atlantic Treaty Organization] of the Pacific," according to U.S. Senate Committee on Foreign Relations testimony documents.

Despite other bilateral treaties in the Pacific and the regional focus of the treaty, U.S. Army Gen. Matthew Ridgway and Secretary of State John Foster Dulles perceived the differences between Asian nations to be too great to form a NATO-like coalition.

Rhee's vehement opposition to the armistice agreement was

LEFT: South Korean and U.S. Soldiers stand guard during a ceremony marking the 63rd anniversary of the signing of the Korean Armistice Agreement at the truce village of Panmunjom, South Korea, in July 2016.

South Korean veterans of the Korean War salute during a July 2017 ceremony in Seoul marking the 64th anniversary of the Korean Armistice Agreement.

one of the primary reasons that Eisenhower conceded to the idea of a Mutual Defense Treaty. Rhee repeatedly threatened to take unilateral action against the North during negotiations. In 1953, he released about 25,000 Chinese and North Korean prisoners of war (POWs) who wished to remain in the democratic South, much to the surprise of China, North Korea and the United States. Attaining Rhee's support had become so difficult that the U.S. had a contingency plan called Operation Plan Everready, as a possible means of overcoming Rhee's objection to portions of the proposed armistice agreement. Some versions of the plan included provisions for subduing and replacing Rhee. The offer of a Mutual Defense Treaty was intended to dissuade Rhee from taking unilateral action against the North and to get him to agree to the armistice rather than resume the conflict. It did go a long way to assuage Rhee's concerns, and he allowed negotiations to conclude. However, he still refused to sign the armistice agreement.

Combined Forces Command

Combined Forces Command (CFC) was the first command established as a direct response to North Korean capabilities rather than regional

BELOW: U.S. Army Gen. Vincent Brooks, commander of the Combined Forces **Command and United States** Forces Korea, center; Kim Byeong-Joo, then incoming deputy commander of **Combined Forces Command** Km, second from left; and Leem Ho-Young, outgoing commander, right, inspect troops during a change-ofcommand ceremony at the U.S. Army Garrison Yongsan on August 11, 2017, in Seoul, South Korea.

FAR RIGHT: North Korean Maj. Gen. Lee Sang Cho, communist signer of the Korean Armistice Agreement, gets into a Jeep with other negotiators after a meeting at Panmunjom, South Korea, on April 7, 1953. The signing of the agreement three days later removed the last roadblock to the trade of thousands of communist wounded for 120 American prisoners and 480 United Nations captives.

concerns. However, like the other commands, its scope and mission evolved to accommodate events. In fact, CFC was created in 1978 to facilitate the withdrawal of U.S. forces from the ROK. a major initiative for U.S. President Jimmy Carter that was later reversed by U.S. President Ronald Reagan in 1981. Reagan's reversal came on the heels of revelations during the Carter administration that North Korean capabilities had developed much more than originally thought. Before the reversal, operational control (OPCON) of ROK forces was transferred from UNC to CFC and the terms of reference for the commander in chief, UNC, were changed in 1983 to reflect

the existence of CFC as a "separate legal and military entity from UNC."

CFC was first floated as an idea in the early 1970s, when the changing regional dynamics prompted consideration of the dissolution of UNC in the interest of detente with the PRC and a peace treaty with North Korea. Both the ROK and the U.S. supported the termination of UNC but for different reasons. For the U.S., dissolving UNC would help its efforts to normalize relations with the PRC. An internal NSC memorandum documented that the U.S. intended "to work primarily in parallel with the PRC both to backstop and to restrain our respective Korean allies as necessary" in negotiations. Additionally, U.S. President Richard Nixon's doctrine's goal of giving allies domestic control of their own defenses justified dissolving UNC, which still maintained OPCON of ROK forces at this point, some experts contend. CFC would have facilitated transfer of OPCON to the ROK under this initiative.

The ROK perceived U.S.-China rapprochement and the Nixon Doctrine as motivating factors for the dissolution of UNC in a different way. Park Chunghee feared the ROK might become isolated as the U.S. improved relations with the PRC and that the U.S. might pursue diplomatic relations with North



Korea as well, according to a history published by the Wilson Center. Park sought inter-Korean dialogue to secure security guarantees for the peninsula in the event of U.S. troop withdrawal. Thus, talk of UNC termination became a helpful piece of the negotiating package between the two Koreas. As it turns out, the U.S. did consider expanding relations with North Korea during this time, although it preferred to wait until after UNC termination, because doing so before might cause North Korea to be "encouraged toward intransigence" and make negotiations more difficult, according to a NSC memorandum.

These negotiations were not successful in terminating UNC, largely because of the inability of the two Koreas to agree on terms, not due to Sino-U.S. conflict. Both the U.S. and PRC expressed the desire to continue involvement maintaining the armistice. However, North and South Korea each submitted conflicting resolutions to the U.N. General Assembly on the UNC issue in 1975. It marked the first time a North Korean proposal on the Korean question was debated in the General Assembly, because North Korea had only recently begun to be involved in the U.N. after the dissolution of the U.N. Commission for Unification and Reconciliation of Korea, U.N. General Assembly records reveal. However, the North Korean resolution called



for complete withdrawal of U.S. forces from the peninsula, while the ROK proposal called for dissolution of UNC but maintaining U.S. forces in the South, experts documented. In the end, the two resolutions could not be reconciled, UNC was not dissolved, and inter-Korean relations stagnated.

During the UNC termination negotiations, the U.S. considered various methods of maintaining OPCON of ROK forces. U.S. Secretary of State Henry Kissinger stated that the most "practical and, for the South Koreans, the most reassuring replacement for UNC" would be OPCON by a new U.S.-ROK combined command headed by the U.S. senior officer. The deadlock at the U.N. General Assembly over UNC's fate in 1975 ended aspirations for the establishment of a combined command until it became the facilitating institution for Carter's withdrawal policy.

Carter's commitment to withdrawing forces from South Korea originated as a campaign promise motivated by reluctance to support long-term overseas stationing of ground forces, then President Park Chung-hee's human rights record, as well as fear of a so-called tripwire, or automatic military involvement in hostilities. However, intelligence community estimates at the time cited mounting evidence that North Korea's military strength was much greater than previously thought. The Carter administration did not heed the advice of the intelligence community and pushed ahead with the decision until the corroboration of intelligence estimates became so great that Carter was forced to modify his position. Carter announced that the withdrawal policy would be reconsidered in 1981, but he lost the re-election and the policy was promptly scrapped by Reagan. However, CFC remained in place.

Shared agility

Each of the three commands during their tenure have encountered developments in the security environment that have necessitated an adaptation of their mission. For UNC, this was the failure of the Geneva Conference, which led to UNC being a permanent fixture maintaining the armistice on the peninsula. Rhee's demonstrated willingness to provoke the North, such as through the release of POWs, prompted a reconsideration of the U.S. approach to the region that included the establishment of U.S. Forces Korea. For CFC, the revelation of North Korea's improved capabilities forced the U.S. to re-examine its commitment to the ROK. Rather than being overtaken by events, the three commands have proven their resilience and ability to evolve and address rising security challenges in Northeast Asia. □





CYBER DEFENDERS

SINGAPORE BUILDS A WORLD-CLASS FORCE OF NETWORK GUARDIANS

MAJ. EDWIN CHUA/SINGAPORE DEFENCE CYBER ORGANISATION

he third-generation
Singapore Armed Forces
(SAF) possesses leadingedge capabilities that are
networked together as an
integrated fighting system.
However, the networks

that are the tendons of Singapore's force can become an Achilles' heel if the country cannot defend its networks and interests in cyberspace. To protect these interests, the Ministry of Defence, Singapore, has established the Defence Cyber Organisation.

THIRD-GENERATION SAF

When Singapore achieved independence in 1965, we needed to quickly build up the SAF to provide for our basic defense. The priority of the first-generation SAF was to build up the Army, Navy and Air Force. Subsequently, the second-generation SAF in the 1980s and 1990s focused on modernizing the military's capabilities to decisively defeat any would-be aggressor. The SAF's third-generation transformation started in the early 2000s and leveraged new military technology and the concepts of network-centric operations — precision strike, unmanned capabilities, and most of all, computers and communications systems, to establish an advanced networked force.

Today, the SAF has developed leading-

edge hardware, networked as an integrated fighting system. Our Soldiers make use of networks to sense faster, maneuver forces effectively and apply firepower precisely across the battlefield. One example is Exercise Forging Sabre, an integrated livefire strike exercise conducted every two years at the Barry M. Goldwater Training Area in Arizona in the United States. The latest exercise in 2015 saw the involvement of unmanned aerial vehicles (UAVs), special forces on the ground, an integrated air-land command post and F-15 and F-16 fighter jets. These forces networked in real time to deliver precision strikes onto multiple mobile targets nearly simultaneously.

NETWORKS: CAPABILITY OR VULNERABILITY?

Datalink and warfighting networks are key enablers of the SAF's transformational capabilities. However, our reliance on these networks can also present a critical vulnerability. We can draw comparisons to the civilian world, where the internet, which connects the world and allows people to improve how they live, work and play, can also create opportunities for exploitation by malicious elements. The proliferation of the internet and internet-connected devices has created vulnerabilities that hackers can exploit to attack government agencies,



private organizations and individuals. One example is the WannaCry ransomware attack. During a single weekend in May 2017, WannaCry affected more than 220,000 computer systems in 150 countries and severely disrupted the United Kingdom's National Health Service. This disruption affected hospitals around the country and inhibited the provision of critical medical care to needy patients.

The scale and scope of the WannaCry attack also illustrate an important point about the global reach of the cyber threat. Unlike conventional military capabilities, which are limited by geography and physics, cyber threats are not bound by physical restrictions — they can originate from anywhere in the world and can have global reach. No military can afford to fall prey to cyber threats and have their capabilities and platforms held ransom over the internet.

It is because of the emergence of this new global threat that Singapore's Ministry of Defence (MINDEF) adopted a multilevel approach to cyber defense, including physical separation between the internet and our internal and operational networks. However, a passive cyber defense posture is not sufficient to protect MINDEF and the SAF from all cyber threats. We also need to proactively develop and implement solutions to protect our networks from

cyber intrusions, monitor our cyber defenses and networks 24/7 and coordinate responses to cyber attacks.

DEFENDING THE DIGITAL DOMAIN

To protect our networks, MINDEF

people during the next decade.
REUTERS

A Cisco employee staffs the company booth during Singapore International Cyber Week 2016. The annual event brings private companies and government officials together to

LEFT: Singapore Defence Minister Dr. Ng Eng Hen heralded the start of the country's Defence Cyber Organisation in March 2017. It is

expected to grow to employ 2,600

forge cyber security partnerships.

AFP/GETTY IMAGES

created the Cyber Defence Operations Hub in 2013. Since then, the risk of cyber threats continued to grow rapidly. We are also seeing more cyber threats that attack not just the government network directly, but also search for weak spots in the defense industry and military-related organizations. This could lead to the loss of sensitive defense information or affect military operations.

Singaporean Minister for Defence Dr. Ng Eng Hen announced in March 2017 the establishment of the Defence Cyber Organisation (DCO) to secure against cyber attacks for the entire defense cluster, including the SAF, defense industry partners and other related organizations. The DCO will consist of four formations across MINDEF/SAF, namely: the Cyber Security Division, the Policy and Plans Directorate, the Cyber Security Inspectorate and the Cyber

Defence Group. Its mission is to lead efforts to secure defense networks and systems and overcome any cyber attacks decisively to maintain continuity of operations.

The Cyber Security Division is the operational arm of the DCO, providing day-to-day oversight of the cyber security of each of the individual defense sectors and responding to attacks. The Policy and Plans Directorate is the architect for the overall cyber defense development plan and will lead efforts to foster greater international engagement and collaboration for cyber defense. The Cyber Security Inspectorate will strengthen cyber defenses through vulnerability assessment exercises as well as ensuring that each entity adheres to established cyber security policies. The 24/7 cyber defense of the SAF's operational networks will be undertaken by the Cyber Defence Group, which will enhance the robustness and resilience of the SAF's military networks and systems against cyber threats, thereby strengthening warfighting capabilities.

The DCO will also contribute to national cyber security. One feature of the digital domain is that conventional labels such as "homeland security" and "external defense" may no longer apply. After all, the internet is borderless, and attacks can originate from anywhere with the point of origin masked. Furthermore, attacks against civilian critical infrastructure such as power grids and transportation networks can have implications for civilian and defense sectors. In recognition of the cross-cutting effects of cyber attacks, as a pilot project, Singapore will deploy some of its cyber defenders from MINDEF to support the national Cyber Security Agency in defending civilian critical information infrastructure.

The DCO will also lead the engagement of like-minded partners to strengthen collective cyber defense. In the cyber domain, no single country or organization can defeat transnational cyber threats on its own. Therefore, we will enhance our knowledge and capabilities through staff visits, operational sharing and training and exercises with international partners.

As part of Singapore's effort to support international cyber norms, we will also facilitate open discussion on common cyber security issues and challenges and foster cyber security confidence and capacity-building developments. These discussions will support the development of international cyber norms and rules, which are an important area in which governments can cooperate to make cyberspace more stable and secure.

TRAINING OUR CYBER DEFENDERS

The work of the DCO will need to be supported by an expanded cyber workforce. It will consist of military professionals and national service members and is envisioned to grow to 2,600 personnel during the next 10 years. To meet the increased requirement for cyber

defenders, we have created new cyber defense vocations for national service members. These vocations will allow us to tap into a wider pool of cyber talent available within Singapore to defend networks and systems.

Cyber defenders will need a high level of cyber skills and talent to defend against threats from anywhere in the world. Thus, we need world-class cyber defenders. Students who have demonstrated cyber talent, either through academic courses or through participation in cyber competitions, will be identified and invited to take selection tests. Those who are found suitable will have an opportunity to serve in cyber defense.

Cyber defenders can be expected to perform as Security Operations Centre (SOC) operators, incident responders and forensic investigators. SAF will deploy SOC operators to monitor critical networks and systems around the clock to detect anomalies and flag potential attacks. SAF will train incident responders to act rapidly to contain any incident and minimize its impact on SAF networks. In the aftermath of an incident, forensic investigators will analyze the data and discover patterns of activities that could allow us to better defend our networks against future attacks.

To strengthen our cyber defender training systems, MINDEF is leveraging commercial partners and Singapore's education system. We have signed a cyber defense training memorandum of understanding (MOU) with Singapore Technologies Electronics (Info-Security) and Nanyang Polytechnic. The MOU will foster a tripartite partnership for cyber defense training in six areas: provision of specialized courses, which are internationally accredited and in line with industry benchmarks; co-development of customized cyber defense curriculum; industrial attachments; collaborative research and development; development of a professional network; and facilitation of information sharing.

CYBER DEFENSE AS A KEY ENABLER

The SAF today has a superior edge in its warfighting capabilities based on effective use of networks and networked warfighting concepts. This reliance on networks is expected to grow as we move toward the next generation of fighting platforms and systems. Without cyber defense, the networks that connect our fighting forces will become a critical vulnerability for any potential aggressor to exploit. Unlike conventional threats, which are limited to some extent by geography, the cyber domain is not restricted geographically, and threats can come from anywhere. The DCO will need to rapidly build up its strength and capabilities. To do so, it will tap into the national pool of cyber talent through conscription. Ultimately, cyber defense will be a key enabler for a technologically advanced, capable and networked SAF. □



POLAR POLITICS AND PURSUITS

Nations are cooperating in the Arctic, but increasing militarization could put peace at risk

FORUM STAFF

limate change is ushering in a new resource race in the Arctic. Nations are maneuvering for control of the region, which holds rich deposits of oil, gas and minerals that are becoming newly accessible as the polar ice cap melts at an increasingly rapid rate. The melting ice, which is disappearing at about twice the pace of other spots on the planet, could also open shorter shipping routes between Western Europe and East Asia and expand commercial fishing and tourism

A Russian soldier stands near a military vehicle at the Nagurskoye base on the remote Arctic islands of Franz Josef Land.

REUTERS

opportunities. Some believe the Arctic Ocean will be icefree during summer months as early as 2020 and year-round by mid-to-late century, unlocking potentially more than 20 percent of the world's petroleum reserves for extraction. With spoils so alluring, many nations have increased research, exploration, development and other investment in the region as well as militarization, all of which present new quandaries and could threaten regional and global peace and security, some experts say.

"The increased commercial activity brings new challenges, including oil spill prevention, search and rescue, and potentially smuggling and immigration," Dr. Michael Byers, an Arctic expert and international relations professor at the University of British Columbia in Canada, told *FORUM*.

The eight Arctic nations — Canada, Denmark (Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden and the United States — all have territory within the Arctic Circle. Five of these also have coastlines on the Arctic Ocean to defend. But non-Arctic nations are seeking to assert



"The increased commercial activity brings new challenges, including oil spill prevention, search and rescue, and potentially smuggling and immigration."

~ DR. MICHAEL BYERS, ARCTIC EXPERT AND INTERNATIONAL RELATIONS PROFESSOR, UNIVERSITY OF BRITISH COLUMBIA, CANADA

Cranes
loom over
the Russian
Arctic port of
Murmansk on
the Barents
Sea. REUTERS

influence in the region too.

Russia and Denmark have formally asserted sovereignty over expanded sections of the Arctic seabed beyond their exclusive economic zones that extend 200 nautical miles from their shores. And Canada is set to submit a

claim for an extended portion of its continental shelf in 2018. The overlapping claims, some of which date to before 1925 and include the North Pole, are yet to be resolved under the provisions of the United Nations Convention on the Law of the Sea (UNCLOS), which governs how disputes over maritime boundaries and territories are resolved and grants countries exclusive rights to harvest minerals and materials from underneath the seafloor of their continental shelves.

Control of the region could also potentially afford strategic military advantages. The U.S. has not made extended claims to the Arctic seabed, but it is contemplating how to conduct naval surface warfare in the changing Arctic.

Arctic ice ranges up to 5-meters thick in places, making movement difficult. The ice is disappearing more quickly there than anywhere else on the planet, in part, because when the ice melts, the resulting water absorbs heat, speeding warming. Just slightly more than 20 percent of the Arctic's ice consists of multiyear ice that stays solid year-round, representing a drop of more than 50 percent from 20 years ago, according to the U.S. National Snow and Ice Data Center.

One of the key trade routes opening up, known as the Northern Sea Route, passes through Russian territory, running along its north coast from the Kara Sea to the Bering Strait. Ships can more readily connect for more days of the year between Russian Arctic ports and Norway. Transporting goods from Japan to the

Netherlands via this route shaves almost 3,900 nautical miles off the journey via the Suez Canal, according to the Northern Sea Route Information Office in Murmansk, Russia. The other leading route, the Northwest Passage, which runs from Canada to Finland, is about 1,000 nautical miles shorter than the conventional route through the Panama Canal.

China has raised its profile in the Arctic in the past decade, given its interest in new commercial routes and increased activities there. China, Japan and South Korea have polar research programs with icebreaker facilities. For example, a Chinese research vessel called the Snow Dragon routinely explores along the U.S. continental shelf. China plans to upgrade its icebreaker fleet and develop technologies for exploiting Arctic natural resources such as deep-water drilling. A Chinese firm has purchased a U.S. \$2.35 billion iron ore mining project in Greenland, which is an autonomous territory of Denmark, yet the consortium is awaiting better ore prices to develop it, Reuters reported. The mine has the capacity to produce 15 million tons of ore a year to ship to China.

ARCTIC COMMONS

The eight Arctic states created the Arctic Council in 1996 to promote cooperation, coordination and interaction on common Arctic issues such as sustainable development and environmental protection. The council also represents the 4 million plus inhabitants who live north of 66 degrees latitude, about half of whom are Russian and 500,000 indigenous people.

The Arctic Council has granted observer status to 13 non-Arctic states: China, France, Germany, India, Italy, Japan, South Korea, the Netherlands, Poland, Singapore, Spain, Switzerland and the United Kingdom. Another 26 intergovernmental, interparliamentary and nongovernmental organizations, including the newly



EMERGING ARCTIC SEA ROUTES, RESOURCES AND MILITARY SITES

The melting Arctic sea ice offers economic opportunities for nations to access resources and shorter shipping routes. States must determine how to manage access and boundaries to these unlocked riches. Led by Russia, militarization of the Arctic is also increasing because control of the region offers strategic military advantages. The Arctic Council is the main mechanism to foster cooperation in the region, but this intergovernmental forum was not set up to handle security issues.

Arctic Exclusive Economic Zones and Claimable Areas

- · More than 4 million people live north of the Arctic Circle.
- Almost 50 percent live in Russia. The remainder live in one of seven countries: Canada, Finland, Greenland, Iceland, Norway, Sweden or the U.S.
- About 500,000 people live among one of dozens of indigenous nations whose ancestry and bonds extend beyond contemporary borders.



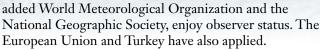


Arctic Council (Founded in 1996) 13 NON-ARCTIC OBSERVERS 8 MEMBER STATES China - Kiruna Ministerial meeting, 2013 France - Barrow Ministerial meeting, 2000 1. Canada Germany - Iqaluit Ministerial meeting, 1998 Denmark India - Kiruna Ministerial meeting, 2013 Finland 3. 5. Italy - Kiruna Ministerial meeting, 2013 4. Iceland 6. Japan - Kiruna Ministerial meeting, 2013 Norway 7. Netherlands - Iqaluit Ministerial meeting, 1998 6. Russia 8. Poland - Iqaluit Ministerial meeting, 1998 7. Sweden 9. Singapore - Kiruna Ministerial meeting, 2013 8. U.S. ARCTIC COUNCIL 10. South Korea - Kiruna Ministerial meeting, 2013 11. Spain - Salekhard Ministerial meeting, 2006 6 PERMANENT 12. Switzerland - Fairbanks Ministerial meeting, 2017 **ORGANIZATION PARTICIPANTS** 13. United Kingdom - Iqaluit Ministerial meeting, 1998 1. Aleut International Association Arctic Athabaskan Council OTHER OBSERVERS 3. Gwich'in Council International 4. Inuit Circumpolar Council 13 intergovernmental and interparliamentary organizations 5. Russian Association of Indigenous Peoples of the North 13 nongovernmental organizations 6. Saami Council





Continued from page 34



On passing the chairmanship from the U.S. to Finland in May 2017, U.S. Secretary of State Rex Tillerson said: "The Arctic Council, which recently celebrated its 20th anniversary, has proven to be an indispensable forum in which we can pursue cooperation. I want to affirm that the United States will continue to be an active member in this council. The opportunity to chair the council has only strengthened our commitment to continuing its work in the future."

Maintaining stability in the region remains critical for protecting economic prospects, experts say. "Military and economic concerns are deeply intertwined in the Arctic," wrote Stephanie Pezard and several Rand Corp. colleagues in a March 2017 report, "Maintaining Cooperation with Russia." "And ... these concerns can, at times," the report said, "lead to apparently disjointed Russian policies in the region."

MORE MILITARIZATION

Although there seems to be solid cooperation on Arctic Council matters and plenty of commercial opportunities for Arctic nations within uncontested areas of sovereignty where most oil and gas reserves lie, that hasn't stopped countries from militarizing the region. Russia is leading the military buildup, and most Arctic nations have bases there except Finland and Iceland.

Russia has the most military resources in the region with six military bases, 16 deep-water ports and 13 airbases and is continuing to reopen and build more bases there. In April 2017, Russia unveiled a 36,000-square-kilometer military complex in the Franz Josef Land archipelago called the Arctic Trefoil. It's designed to protect Russian airspace and other Arctic assets. During its Victory Day Parade in May 2017, Russia showcased two new Arctic missile systems, the Tor-M2DT and Pantsir-SA.

While the U.S. interest in the Arctic is more peripheral, "the Russian Arctic is central to the Russian national identity," Ernie Regehr, senior fellow in Arctic security at The Simons Foundation in Vancouver, Canada, told *FORUM*. "It has current and potentially much greater importance for the Russian economy, and the northeastern sea route is a major focus of Russian development of the region. The extraordinary Russian icebreaker fleet, its



extensive system of search-and-rescue facilities, as well as its formidable military combat capability in the north, all speak to the importance Russia attaches to northern economic and resource development and to its commitment to protecting and advancing its interests there."

The increasing militarization of the region is causing concern. Russia is far from re-establishing its Cold War levels of military presence in the Arctic and is not likely to deploy Arctic-based assets in other potential contingencies such as disputes in the Baltic states, according to the Rand report. "Yet increased military presence — not just from Russia but also other Arctic countries — increases risk of collisions and accidental escalation," Rand's Pezard concluded.

"The Arctic Council, which focuses on environmental protection and sustainable development, has continued to operate normally despite increased tensions between NATO and Russia. Cooperation on search and rescue is also continuing," said Byers, who is author of *International Law and the Arctic*, published in 2013 by Cambridge University Press. Due in large part to increasing competition and declining relations tied to ongoing Russian aggression, "communication between the Russian military and other Arctic militaries has broken down, which creates unfortunate risks of misunderstanding and accidental conflict."

With the ice melting and Russia and China increasing investments and presence in the Arctic, the U.S. needs to update its Arctic strategy, especially because a mechanism to address security issues is lacking, experts say. Unfortunately, formal mechanisms to address this militarization trend do not exist. The founding charter of the Arctic Council forbids the body from discussing security matters, leaving them in the hands of individual nations to address military developments through bilateral channels. NATO and Russia do not discuss developments in the Arctic. Without a mechanism, military movements in the Arctic could be misinterpreted or cause a military incident, Heather Conley, senior vice president at the Center for Strategic and International Studies (CSIS), told *FORUM*.

ENSURING COOPERATION

To be sure, all Arctic nations agree that international cooperation is key for nations to realize the economic potential and ensure prosperity and security of the



far North, yet much work remains to achieve such common goals. Finland, as chair of the Arctic Council, aims to focus on the core pillars of the organization, which include enhancing biodiversity, assessing climate change, fostering sustainable development, and protecting the marine environment. Yet some analysts are pushing for stronger mechanisms to resolve security-related issues. "Without predictability, transparency and trust, there will be no international cooperation in the Arctic," Conley concluded in a 2015 CSIS report titled "The New Ice Curtain: Russia's Strategic Reach to the Arctic."

The Simons Foundation's Regehr agrees. "It is critically important to develop an institution or mechanisms for regular, ongoing consultation on mutual security interests, concerns and enhancements. Whether that can happen within the scope of the Arctic Council is an open question. One huge advantage of bringing security concerns and considerations into the Arctic Council is that indigenous communities would then have a continuing place at the table for security deliberation."

Ironically, during establishment of the Arctic Council, the U.S. wanted it to avoid military discussions out of concern it would promote militarization of the region. But two decades later, the Arctic is becoming militarized and the international community lacks a forum to discuss security issues. Many experts, including Conley, would like to see the Arctic Council develop a nonbinding political statement to serve as a code of military conduct in the Arctic. For example, such a declaration would mandate that countries notify each other 21 days in advance of military exercises involving 20,000 troops or more and invite observers.

Moreover, Russia's cooperation in the Arctic should not be taken for granted, according to the Rand report. "If economic ambitions grow increasingly out of reach — for instance, because of low hydrocarbon prices, capital flight and/or the loss of foreign investment and expertise — Russia could have less of an incentive to cooperate and might engage instead in inflammatory actions and rhetoric."

A disruption of vital resources and routes in the Arctic could trigger military disputes, some experts warn. Additionally, the Arctic Council has opened pathways for foreign influence, especially through investment and expertise. The convergence of

territorial disputes, newly emerged commercial shipping lanes and natural resource exploitation could increase tensions in the region, if recent interactions in the South China Sea indicate what's to come. An ice-class tanker, outfitted to transport liquefied natural gas, docks at the Arctic port of Sabetta, Russia.

REUTERS

Although neither China nor any other country has built and armed artificial islands in the Arctic, territorial disputes could intensify. "As I look at what is playing out in the Arctic, it looks eerily familiar to what we're seeing in the East and South China Sea," Adm. Paul Zukunft, commandant of the U.S. Coast Guard, said at a CSIS-sponsored event in Washington, D.C., in August 2017, according to Defense One, an online security publication.

To avoid any duplication of the gradually escalating tensions in the South China Sea, Zukunft urged the U.S. to ratify the 1982 UNCLOS Treaty, Defense One reported. Under the treaty, the Philippines, for instance, filed suit against China for violating its sovereignty. Aside from the U.S., only North Korea, Libya and Turkey have failed to ratify UNCLOS.

The U.S. should also increase its Arctic footprint, he and other analysts assert. "Obviously, we've seen what's happened in the East/South China Sea — even though the U.N. tribunal found in favor of the Philippines, it has not altered the behavior of China," Zukunft said, Defense One reported. "We can write great policy, but if you do not have presence to exert sovereignty, you are really nothing more than a paper lion," he told Reuters.

NATO's Strategic Foresight Analysis report also cautions that mounting resource competition could contribute to instability in the region in future decades.

For now, however, most of the Arctic's territorial disputes are among NATO allies. And overall militarization of the Arctic has not approached the levels of the Cold War, when ballistic missiles were perched aboard submarines and in silos ready to cross the polar cap. Moreover, the best defense in the Arctic remains the great distances and extreme weather present there, the University of British Columbia's Byers says. And little has changed on this front in the past decade. As Gen. Walter Natynczyk, Canada's thenchief of the defense staff, said in 2009: "If someone were to invade the Canadian Arctic, my first task would be to rescue them."

AUSTRALIA'S BORDER FORCE



CREATING STRONGER BOUNDARIES AND ENHANCING SOVEREIGNTY

CMDR. WILLIAM RIES/OPERATIONAL STRATEGIES BRANCH, BORDER MANAGEMENT DIVISION, AUSTRALIAN BORDER FORCE

he island nation of Australia has one of the largest and most challenging border environments in the world. The border includes 36,000 kilometers of coastline, nine major international airports, more than 60 international seaports and an offshore exclusive economic zone covering 10 million square kilometers of ocean. Protecting the Australian border is a demanding task. The range, complexity and severity of threats to the border have evolved in recent years and include people smuggling, illicit drugs, multinational serious and organized crime syndicates, visa and immigration fraud, the exploitation of foreign workers, human trafficking, terrorism, foreign fighters as well as significant increases in trade and traveler movements across Australia's border.

Australia's approach to border protection changed in 2015. The government integrated the existing Department of Immigration and Border Protection and the former Australian Customs and Border Protection Service into a new agency called the Department of Immigration and Border Protection. The Australian Border Force (ABF) — the operational arm of the new department — began work on July 1, 2015. As Australia's leading law enforcement border agency, the ABF is responsible for all border and front-line operations across Australia's airports and seaports, and land and maritime domains.

The integration of the two agencies brought together two long and complementary lineages with a proud history of protecting and managing Australia's border, according to ABF's William Ries, commander of operational strategies.

Creating a new department and establishing the ABF provided an opportunity to better tackle the challenges facing Australia's border — including much greater volumes of trade and travel, and increasingly sophisticated domestic and transnational organized crime networks.

Establishment of the ABF has provided significant gains and efficiencies, yet the evolution of Australia's border security arrangements continues. In July 2017, the Australian government announced the most significant reforms to the nation's domestic security arrangements in 40 years — the establishment of a Home Affairs portfolio.

The new Home Affairs portfolio will be similar to the Home Office of the United Kingdom: a central department providing strategic planning, coordination and other support to a "federation" of independent security and law

enforcement agencies. These agencies include the ABF, the Australian Criminal Intelligence Commission, Australian Federal Police, the Australian Security Intelligence Organisation, and Australian Transaction Reports and Analysis Centre.

The rationale behind the creation of the Home Affairs portfolio is clear. Australia's security environment is rapidly changing and far more complex than it was a decade ago. The changes are about ensuring our security arrangements are fit for challenges facing us today and into the future.

While this is a new construct for Australia, it is not a reflection that operational connectivity isn't working well among agencies; rather it is about moving forward. We can't afford to sit still and rest on our successes. We must continue to evolve.

SOLOMON ISLANDS CHRISTMAS VANUATU COCOS (KEELING) AUSTRALIA INDIAN OCEAN NEW CALEDONIA NORFOLK LORD HOWE MARITIME ZONES TERRITORIAL SEA BASELINE TASMAN **COASTAL WATERS** TERRITORIAL SEA NEW **CONTIGUOUS ZONE** ZEALAND SOUTHERN OCEAN **EXCLUSIVE ECONOMIC ZONE** HEARD **AUSTRALIAN ANTARCTIC** FORUM ILLUSTRATION



Australian Border Force officers display liquid methamphetamines disguised in various packaging at the Australian Federal Police headquarters in Sydney in February 2016. REUTERS

CORE MISSION

The ABF's mission is protecting Australia's border. Managing the movement of people and goods across it remains central to our role as Australia's customs service. The ABF has complementary imperatives including facilitation and enforcement. The ABF helps promote and advance Australia's economic prosperity and social cohesion by facilitating trade, travel and migration by providing a less intrusive, more seamless and faster process for the bulk of travelers and traders — the legitimate, law-abiding majority. To complement this activity, the ABF supports our national security by undertaking enforcement and compliance activities to target and intercept illegal and criminal behavior to protect the Australian community.

Facilitation and enforcement are complementary roles. You can't have one without the other. If we solely focus on facilitation without the enforcement function, then we leave our borders vulnerable. However, if we simply focus on enforcement activities without the facilitation function, then the movement of people and commodities across the border shuts down, which would be detrimental to both our economy and community. The facilitation and enforcement functions work hand in hand.

Through our enforcement duties

we know who and what is entering or exiting Australia. We know the credentials of goods and people moving across the border, and we can effectively manage them in an orderly and secure fashion. Strong borders promote more open global economic linkages, social cohesion and trust.

WORKING AHEAD OF THE BORDER

The Australian border, a strategic national asset fundamental to national security and economic prosperity, is no longer considered a purely physical barrier that separates nation states. Rather, it is considered a complex continuum that enables and controls the flow of people and the movement of goods through dynamic supply chains. This continuum stretches onshore and offshore, and includes overseas, maritime, physical and domestic dimensions. Treating the border as a continuum allows an integrated, layered approach to providing border management in depth - working ahead of and behind the border, as well as at the border, to manage threats and take advantage of opportunities.

The ABF applies an intelligenceled model and unites with domestic agencies and international partners across the border continuum to deliver effective border control over who and what has the right to enter or exit and under what conditions.

The ABF's relationships with our domestic and international counterparts and partners are so critical that we could not do our job without them. We will continue to work side by side with our international partners to maintain a global border protection community that is resilient to the trials ahead.

OPERATIONAL FOOTPRINT

The ABF is a 5,500-strong operational workforce. ABF officers are operationally focused, uniformed, professional and disciplined, responsible for protecting the border across Australia's airports, seaports, remote locations, mail and cargo centers, and Australia's maritime domain. Officers are based across Australia and internationally in 52 locations.

The ABF plays an integral role in preventing dangerous, illicit drugs and contraband from entering Australia by using a range of powers and capabilities. These include air and maritime surveillance, highly sophisticated detection technologies such as X-ray, substance and trace detection, internal body scanners, detector dogs and more. ABF officers exercise powers under the Maritime Powers Act 2013, the Customs Act 1901, the Migration Act 1958 and the Australian Border Force Act 2015.

The ABF's operational footprint is immense. Each week on average during 2016-2017 ABF officers cleared 774,855 air passengers, 55,621 arrivals by sea, 705 ships and 99,090 import and export entries. ABF officers surveilled 3 million square nautical miles. Forty-three detector dog teams were deployed. ABF officers collected AUS \$260 million (U.S. \$207 million) in revenue. ABF officers detected and seized 845 drug imports. Over 1,600 20-foot equivalent units, 38,629 air cargo and 1.1 million mail items were inspected. ABF officers managed 157 people taken into immigration detection, 134 people released or removed from detention and 147 assisted or monitored returns from the

community. ABF officers located 305 unlawful noncitizens and 44 illegal workers as well as issued 151,726 permanent and temporary visas on a weekly basis.

If I were to characterize the border environment in one word, it would be in 'volumes.' The volumes of people and goods crossing our border continues to grow exponentially.

The ABF is working hard to meet the border challenges through intelligence, innovation and technology. The ABF is transforming and modernizing its systems, policies and programs to manage the issues of an evolving and complex border environment. Technology and automation offer a range of new tools to secure the borders and provide faster and more streamlined processing of legitimate law-abiding travelers and traders. Over the past two years, Departure SmartGates, an electronic border control system, has been introduced into international airports around Australia to allow passengers to self-process as they leave the country. In 2016, more than 14.6 million passengers used SmartGates to leave the country - an average of more than 40,000 people each day.

State-of-the-art biometric systems are also being introduced to ensure the ongoing integrity of our visa and migration programs, enhance existing automation measures, and further increase the speed and efficiency of border processing. ABF is investing in mobile and digital technologies to enhance compliance and detection arrangements.

In relation to trade, ABF is implementing measures to manage the increasing volume of goods while managing the threats through programs such as the Australian Trusted Trader (ATT), the equivalent of the authorized economic operator schemes in operation elsewhere in the region. Launched in 2016, ATT has streamlined trade for accredited traders and increased efficiency without compromising supply chain security. Australia has 74 fully accredited ongoing "trusted traders"

AUSTRALIAN BORDER FORCE

weekly operations on average

2016-2017

CLEARED

744,855 air passengers
55,621 arrivals by sea
705 ship arrivals and departures
99,090 import and export entries

DEPLOYED

43 detector dog teams across Australia

DETECTED & SEIZED

845 drug imports

MANAGED

157 people taken into onshore immigration detection 134 people removed from detention

147 assisted or monitored returns from the community

SURVEILLED

3 million square nautical miles

COLLECTED

AUS \$260 million in revenue

INSPECTED

Over 1,600 20-foot equivalent units 38,629 air cargo items 1.1 million mail items

LOCATED

305 unlawful noncitizens 44 illegal workers

Source: Australian Border Force

under the program and intends to increase that number significantly in the coming years.

Australia is moving toward a seamless border where the majority of legitimate migrants, travelers and traders can move easily and effortlessly across the border without interference or unnecessary delay, where we can readily detect transgression and noncompliance, and focus our attention and intervention efforts on those noncompliant few.

BORDER FORCE ACHIEVEMENTS

In cooperation with domestic and international partners, the ABF has, during the past two years, detected more than 12 tons of major illicit drugs and precursors, 270 million individual cigarettes, more than 220 tons of illicit tobacco and more than 3,460 firearms and firearm parts and accessories at the border. In the same period, the ABF has processed more than 84 million air and sea travelers and crew, received and risk assessed more than 77 million air cargo consignments, 6 million sea cargo consignments and inspected more than 115 million international mail items.

The ABF has achieved a lot in the past two years. We've established a new border law enforcement agency, integrated two separate cultures into one body and that work continues. We are looking at internal capability and capacity changes as well as preparing for the move to the Home Affairs portfolio. While this important work is going on, our officers have been delivering on the government priorities at the border. This has been an enormous task, one of which our officers should be immensely proud of.

In preparing for the move to the Home Affairs portfolio, the ABF will continue to build on our capabilities to better fulfill our mission: to protect Australia's border and manage the movement of people and goods across it.

Our dedication to this mission will not change under the Home Affairs portfolio. The ABF will remain Australia's customs service and frontline border protection agency operating in an enhanced security environment. \square





MULTILATERAL OPERATIONS

SOCPAC operates in the Indo-Pacific theater and engages through training, exchange and deployment. SOCPAC delivers some of its training through PASSWG, which runs workshops to facilitate understanding on hard and soft security issues and regional threats. These multilateral symposiums operate informally on a regional scale to promote collaboration and partnerships among all security organizations and professionals. Participants benefit from security dialogue, search for opportunities for collaborative training and promote national and regional security imperatives.

The previous U.S. administration's planned rebalance to Asia and the Pacific was partly responsible for shifting attention to the Pacific and on the PASSWG Pacific island nations symposium, hosted July 11-15, 2016, by the New Zealand Defence Force Special Operations Command in Wellington. The dialogue focused on addressing the lack of shared understanding across the region with the primary aim being to shape a cooperative way ahead for special operations forces (SOF) and the security sector of Pacific island nations. Organizers also sought to discover what security professionals should focus on at the multinational level in the Pacific and identify key stakeholders. The meeting served as an introduction for regional actors to the capabilities and limitations of SOF as well as an entree

for SOF operators into the security issues of the Pacific island countries. Participants hailed from Australia, Canada, Fiji, France, New Zealand, Papua New Guinea, Timor-Leste, the United Kingdom, the United States and Vanuatu.

DIVERSE APPROACHES

At the workshop, three working groups — blended by profession and participant origin — analyzed information and attempted to gauge their relation to regional threats while pinpointing opportunities for SOF contribution. The group facilitated by Dr. Paul Lieber from the Joint Special Operations University proposed practical approaches; the group facilitated by Dr. Eric Shibuya from the Marine Corps University Command and Staff College focused on operational aspects of SOF integration group; and the group facilitated by Dr. Deon V. Canyon from the Daniel K. Inouye Asia-Pacific Center for Security Studies recommended strategic imperatives. Representatives from Massey University participated in all groups.

The practical recommendations included:

- Treat illegal, unregulated and unreported fishing (IUU) as a fisheries crime.
- Financially and legally break the supply chain of owners of ships involved in marine crime.
- Establish fully functional, independent command



A New Zealand Air Force MRH-90 helicopter lands at Langham Beach, Australia, during Talisman Saber, a joint military exercise with Australia, the United States and other countries. REUTERS

- centers for humanitarian aid and disaster relief before disasters hit.
- Include all small countries in anti-trafficking efforts.
- Promote education to enhance community resilience.
- Manage and measure data to promote sharing.
- Address radicalization, including messaging.
- Recognize the need for persistent engagement to build trust among all actors.

Two practical shifts in the maritime domain received significant attention. The first was that IUU fishing should be called what it is — fisheries crime. This definition puts the issue under the jurisdiction of law enforcement agencies and reduces the burden on stretched fisheries departments. This recognition empowers these agencies to address these crimes in tandem to sister violations often linked to IUU fishing. The second was based on successful actions by New Zealand authorities, who described a move away from pursuing individual ships to pursuing owner finances and the countries where they sought to sell produce and seek harbor. This paradigm shift addresses shortcomings inherent in pursuing moving targets across an enormous geographical area. New Zealand agencies have found this alternative, holistic approach to be more effective in tackling the source of the problem and reducing the number of ships involved in fisheries crime. The process involved ratifying suspect ship documentation, conducting high-seas surveillance, tracing owner companies, making diplomatic progress with countries unknowingly harboring the owners, raising awareness of the importance of fisheries crime, and accessing data from national crime authorities and Interpol.

With this information, pressure can be brought to bear on national governments to prosecute offenders, close ports to implicated ships and deny access to markets with the aim of financially and legally breaking the supply chain. However, most Pacific island states do not have the technical and human resources to sustain this holistic approach. It was recommended that a regional organization, supported by well-resourced partners, should instigate and maintain this international endeavor. This approach, as it grows in success, will make SOF increasingly less relevant to fisheries crime responses, participants said.

Many operational outcomes were based on how SOF functions and engages in the region. From an operational perspective, political will was deemed to be of great importance and so was promoting greater inclusivity through personal connections and achieving nationally appropriate, design-build approaches throughout the islands. Recognizing the impossibility of solving all security issues in the region and accordingly identifying the degree of "tolerable" failure was a key challenge. It was thought that this might be resolved by conducting community and organizational

resilience assessments, which are key components in analyzing and improving any failed process. There was a recommendation that security sector liaison officers learn how to operate like librarians in relation to how they acquire and triage information, categorize it for future reference and determine its relevance on local, national and regional levels. Similarly, these officers need to restructure existing data and methods of assessment to provide meaningful outcomes applicable to wider problem sets and longer terms. Ideally, such professionals working in the Pacific should have a flexible mindset, be cognizant of resource and human limitations and have a tenacious commitment. This mental flexibility is the hallmark of SOF operators, and greater interaction between SOF and the general security sector actors in the region will go a long way not just in sharing information but in developing trust and good practices between these communities.

The strategic group recommended an approach similar to the U.S. Homeland Security model and called for the establishment of Oceania Security (OS). It would serve as a one-stop shop for regional coordination and would oversee all regional multinational security activities and responses. No regional organization fully represents all Pacific island countries. The Pacific Island Forum (PIF) is the most active regional entity, participants observed. The annual meeting of the Forum Regional Security Committee is the key venue for identifying priority threats and negotiating a regional security agenda. This forum was already successfully identifying priority requirements for the region and efficiently reviewing constituent concerns. A regional security plan that aligned with the PIF framework for Pacific regionalism (PIF 2014) would perhaps have far more relevance and usefulness.

Workshop participants identified three priorities and integrated them into the supportive structure. First, participants proposed creating an OS information network to manage and share the information required to inform all assessments and decisions. Participants saw information acquisition, sharing and management as a key factor in making any system effective. Second, participants proposed an OS transnational crimeresponse unit to coordinate regional responses to transnational oceanic crime. Pacific island nations already possess considerable capacity for addressing transnational crime and effective regional organizations already exist for this purpose, so this entity would primarily act as a coordinator. Last, participants proposed an OS Crisis and Disaster Management unit to coordinate and oversee humanitarian assistance and disaster relief.

Although several national emergency and disaster management offices throughout the Pacific have grown in capacity and capability over the past decade, many possess only limited capacity for preparing for and responding to conflict and disasters in regional organizations. Furthermore, few if any have the capacity to support and coordinate a large international aid response without significant assistance. A regional coordination body would address this shortcoming in a manner that did not require duplication of effort and skills on every Pacific island country. Moreover, it could provide a more proactive and timely response to known and identified threats.

DIVERSE PARTNERS

For any security initiative against a complex threat to be successful, there needs to be careful consideration of the partners involved and the realization that peace and security are not possible without compromise or concession, many experts say. National stakeholders range from military, police, coast guard and paramilitary forces to immigration, border, customs and quarantine to intelligence and other area-specific ministries such as fisheries. International stakeholders also include police and militaries, but aid donors and actors and their local subsidiaries play a large role along with various United Nations units such as the U.N. Development Programme (UNDP), UNICEF and U.N. Office for the Coordination of Humanitarian Affairs (OCHA). They possess long-standing credibility with host nations due to perceived impartiality and prior aid efforts. Fewer regional stakeholders are associated with security matters because they prefer to let countries sort out their own issues. The above list testifies to the fact that many stakeholders are required for any successful endeavor.

Some SOF-like capacity exists in the Papua New Guinea Defence Force long-range reconnaissance unit, and other defense and paramilitary forces in the region have received limited training. These skills have mostly been brought to bear in SWAT-like situations and to quell rioting, but some might argue that Pacific security forces would benefit from broader SOF capacity to tackle transnational organized crime beyond

partner nation capacity building and capability sharing. Further training would make them more effective hard power responders and give them soft power capacities. Rather than focusing on the hard power capabilities of SOF units, developing the soft power capacities that make special operations forces more effective is the real aim of greater engagement in the region. Soft power capacities are more enduring and adaptable to the region's array of diverse actors.

Some security forces in the region have been accused of human rights violations and abuse of power. Sensitization to international standards on security sector behavior, education on the U.S. process to evaluate potential recipients of security assistance for abuses, and the development of the adaptable approach to problem solving inherent in SOF may be effective in addressing these issues.

Since most of these forces exist in hierarchical environments and work in the community, appropriate stakeholders must be included to guide the nature of training. There must also exist a mechanism to ensure outcomes are sustained.

PACIFIC INVOLVEMENT

Transnational organized crime has been identified as a "top strategic risk" to U.S. interests because there are significant "security consequences associated with weak or failing states," as then-U.S. President Barack Obama described in his 2015 national security strategy. A potential SOF role is supporting the development of capacity in security sector governance since weak governance and grievances allow extremism and conflict to flourish.

PIF developed the Pacific Transnational Crime Assessment in collaboration with seven regional partners in law enforcement (PIF 2016). The group considered many themes, but four areas of common interest emerged. They included transnational organized crime, maritime security, political instability and climate change.





U.S. and Australian Special Operations Forces train together in Darwin, Australia. SPC. AARON AGEE/U.S. ARMY

The transnational crime priorities were the most extensive: money laundering, cyber crime, increase in cruise liners, foreign fighter recruitment, small arms and light weapons, organized crime groups, drug trafficking, human trafficking and people smuggling, and environmental crime.

The primary maritime threat concerned fisheries crime, but a future area of concern with tremendous resources at stake and potential for environmental damage is deep-sea mining. Political instability attracted significant interest because weak governance allows traffickers to operate. Island states also considered the significant outcomes of climate change because it has the potential to create opportunities for organized crime and social disruption. In times of environmental crisis, these actors can also potentially fill power vacuums.

Other issues in the region that have the potential to cause instability that may require SOF attention include: uncovering war crimes and sites of interest in West Papua; the current disagreement over mine shares on Bougainville Island, Papua New Guinea; the end of the Regional Assistance Mission to Solomon Islands; independence referendums in Bougainville and New Caledonia; the loss of Compact of Free Association funding from the United States in Micronesia and their potential shift toward China; further exposure of corruption, money laundering and tax havens throughout the region; disparities, marginalization and poverty; burgeoning soft debt to China; reactions to unwanted foreign influence; defense of marine fishing environments; climate-related radicalization; and radicalization promoted by the Islamic State of Iraq and Syria.

SOF has a role in the Pacific: introducing best practices for improving situational awareness, rapid assessment in conflict and disaster areas, intelligence gathering to support relief or containment responses, training in emergency planning, establishment of interim communications, readiness with forwardplaced units, and tracking of people and resources. SOF has achieved significant successes in carrying out nontraditional nature tasks and within a low profile, which has resulted in them becoming a common tool in the hands of politicians and governments when international crises due to conflict and disasters strike. The transition of this traditionally hard force to unconventional and nontraditional security methods has been driven by increased awareness and understanding of how their effectiveness as a force multiplier is magnified by a human and trust-based approach. It also recognizes that soft power gains require persistent engagement to produce useful dividends. As the region must adapt to greater SOF involvement, SOF operators must also adapt to working with new partners and in new areas of interest.

BRIGHT FUTURE

SOF must continue to train with a view to meeting future strategic challenges. In the Pacific, they should consider forward-deployed units that are engaged with their host country counterparts — indefinitely. Transnational organized crime is not only a threat to the countries of the Pacific, but an outcome of weak, underresourced, emerging democratic governments that need assistance, many military experts observe. It is also a warning sign of future transgressions to include potential hostilities and threats to the region. Being prepared to conduct SOF core activities along with foreign internal defense, security force assistance, counterinsurgency, counterterrorism and unconventional warfare remains a priority.

SOCPAC now faces the challenge of turning PASSWG workshop results into meaningful outcomes, or the effort was wasted. Participants and their sponsors are watching to see how SOCPAC will pursue these strategic, operational and practical approaches and whether they will be integrated into a unified, cohesive effort that includes stakeholders, incorporates best practices and relies on evidence-based guidance to move forward.

The imperative exists for using SOF in nontraditional areas, such as resilience, adaptation and resource protection roles in response to the changing environment, but their involvement needs careful thought. "They can both support military and law enforcement operations and training while also participating in nonkinetic activities such as civil affairs — building partnerships, medical and veterinary aid, and setting standards of conduct for host nation militaries to emulate," as William Mendel, a retired U.S. Army colonel and senior fellow with the Joint Special Operations University, describes in the 2016 book published by the university's press, "SOF Role in Combating Transnational Organized Crime."

Readiness to conduct hard and soft activities remains a priority and should be tailored to give special attention to security sector development and the regional coordination of responding to transnational organized crime and disasters. That's especially true in a region such as the Pacific islands, which have wide disparities in threat identification and response capabilities.

Change is not only seen in the SOF response to crises. There is consensus that a turning point has been reached regarding humanitarian assistance and disaster relief efforts. Militaries have recognized the value of responding to crises and have internalized the idea that this must now be a core duty. If mishandled, these crises can destabilize a country overnight. While aid organizations initially found this distasteful and contrary to their principles, there have been loud calls for reform, and all stakeholders



U.S. Air Force 353rd Special Operations Group members look out the back of an MC-130J Commando II during a flight with No. 40 Squadron of the Royal New Zealand Air Force.

CAPIT. JESSICA TATE/U.S. AIR FORCE

are responding to this evolving environment and are beginning to work better together (Humanitarian Policy Group 2016). This naturally growing relationship is resulting in strong military institutions that are trusted enough to be asked to help build more resilient communities. More important, they work together with partners to achieve regional ends. Addressing the workshop, Lt. Gen. Timothy Keating, the New Zealand chief of Defence Forces, stated that a growing number of aid agencies are requesting increased military engagement and assistance. This trust-based, civilmilitary interaction is a process already in motion and is evidence of a changing paradigm that may well point to the end of traditional humanitarian principles as we all move toward a more valuesbased, human security-focused operating environment. Similarly, alternatives to resolving conflict are increasingly moving toward being based in foundation building instead of force building.

In addition to providing the opportunity for

state representatives from Pacific island nations to engage in information exchange and networking, PASSWG provided a vehicle for continued collaboration via the All Partners Access Network (APAN). This is a U.S.-sponsored portal platform that is available to all alumni and partners in the security sector. It provides a central hub for participants — even in limited technology environments — to transcend relationships beyond workshop settings. Security challenges in the Pacific region continue to expand and require joint responses that are born of mutually beneficial multilateral efforts. Through its participants, PASSWG continues to play an important role in helping all participating nations to recognize their responsibility to be prepared and develop the capacity to respond to an array of regional threats. As long as the outcomes of these important workshops translate into tangible SOCPAC objectives, the future looks bright for SOF engagement throughout the Pacific. □



ince its 30-year civil war ended in 2009, Sri Lanka has moved toward becoming a major center of international commerce. The Ports Authority of Sri Lanka has been expanding the size and capacity of its largest port, the Port of Colombo.

The port transfers more than 5 million 20-foot equivalent units (TEUs) of containerized cargo annually, including more than 70 percent of transshipment containers of Indian origin, the Asian Development Bank reported. The port has ranked 28th out of the world's 50 busiest ports since 2015,

according to the World Shipping Council. To date, the Sri Lanka Ports Authority has three new 2.4 million TEU-capacity terminals underway at Colombo, the first of which is already in operation.

Not only is Sri Lanka a rising star in the world of international logistics and commerce, but its strategic location has made it a hub for naval and coast guard ships from around the world. According to the Sri Lanka Navy, 57 naval and coast guard ships made port calls in 2016, including ships from India, the U.S., and Canada. Visits have ranged in purpose from goodwill and humanitarian aid to training and refueling.

Sri Lanka's disastrous monsoon flooding in May 2017 also opened a new venue for positive multinational engagement when military ships from India, the U.S., and China came to provide disaster and medical aid. Prior to the flooding, interaction with the People's Liberation Army (PLA) Navy was strained when a PLA submarine

port call was protested by India in 2014. Most recently, the Chinese Naval hospital ship Peace Ark made its first port visit to Sri Lanka in August 2017.

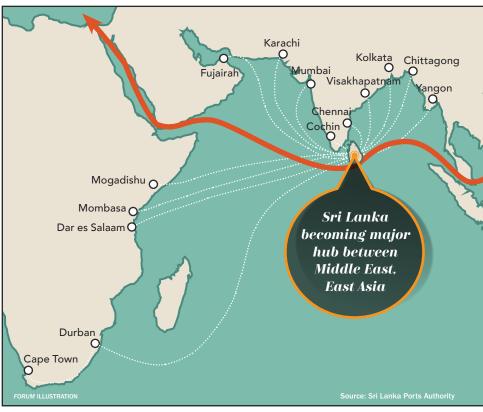
INCREASING ILLEGAL ACTIVITY

Friendly international military port calls and oceanic transport, unfortunately, are not the only maritime

events on the rise. The trafficking and consumption of drugs, particularly heroin, are increasing. Sri Lanka's proximity to the Golden Crescent (Iran, Afghanistan, Pakistan) and the Golden Triangle (Burma, Laos, Thailand) has made Sri Lanka a fast-growing transit point for drugs for east and west routes.

For example, heroin moves from India and Pakistan to Sri Lanka by container vessel and commercial fishing craft. One popular route has three segments: Pakistan to Mumbai (facilitated by transnational criminal organizations), then to Indian coastal towns such as Tuticorin or Rameshwaram and then to Sri

Sri Lanka's Position on Major Shipping Routes



Lanka by sea. The second route is more direct through Pakistan into southern India. Transnational criminal organizations use money generated from this illicit transport to fund international terrorism. During the first half of 2017, Indian authorities interdicted 115 kilograms of heroin across the Tamil Nadu coastline, which runs along the southeastern coast of India. In



Workers dredge sand to expand the size of the port of Colombo, Sri Lanka, in March 2017. REUTERS

Instructors from the Joint Interagency Task Force West's Integrated Maritime Skills Team demonstrate handcuffing techniques during training with Sri Lanka Navy Special Boat Squadron members at Mirissa Coast Guard Base in May 2017. PETTY OFFICER 2ND CLASS RYAN GRADY/U.S. NAVY

May 2017, Sri Lankan police seized 200 kilograms of heroin, the largest seizure since 2013 when 260 kilograms were confiscated.

With the influx of international commercial transport and drugs, maritime security in Sri Lanka has taken center stage. Sri Lanka is participating in regional maritime initiatives to enhance regional cooperation and address such maritime challenges. During the past two years, Sri Lanka has worked with the U.S. Pacific Command (USPACOM) and the U.S. Department of State to increase its maritime security capabilities. In August 2017, the U. S. Department of State's Export Control and Related Border Security Program provided training to 33 customs officials on identifying high-risk shipments and improving cargo targeting capabilities. The training will help customs officials to better identify which shipments need physical inspection. In late 2017, the U.S. decided to transfer a U.S. Coast Guard cutter to Sri Lanka to enable its Navy to more effectively police its coastline and exclusive economic zone.

TRAINING WITH JIATF WEST

In July 2016, USPACOM's counterdrug task force, Joint Interagency Task Force West (JIATF West), partnered with the U.S. Drug Enforcement Administration (DEA) to begin providing law enforcement training for counternarcotic and maritime skills. Thus far, three training events have taken place. For the first, JIATF West sent the Integrated Maritime Skills (IMS) Team, whose instructors represent an elite group of U.S. Navy and Coast Guard members who specialize in maritime law enforcement and small boat maintenance and handling.

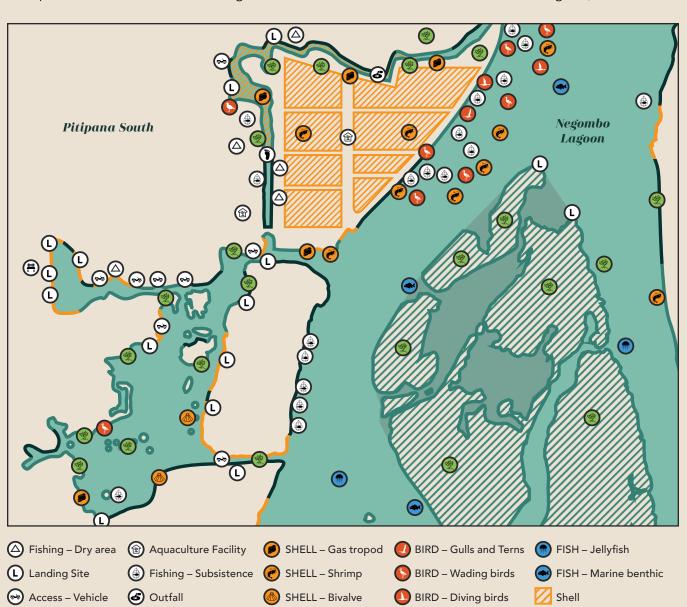
It was the first time JIATF West conducted trilateral counterdrug training with the Sri Lanka Coast Guard and Navy and the Bangladesh Coast Guard at Mirissa Coast Guard Base on the south coast of Sri Lanka. The training was designed to help members develop compliant boarding skills and law enforcement best practices including handcuffing and baton techniques.

U.S., SRI LANKA PARTNER TO BE READY FOR DISASTERS

ri Lanka now has an environmental mapping resource for coastal regions between the Port of Colombo and Negombo Lagoon. The U.S. Pacific Command (USPACOM), the U.S. Army Corps of Engineers (USACE), the Sri Lanka Navy (SLN) and the Marine Environment Protection Authority (MEPA) collaborated to develop the first such tool in Sri Lanka.

The team of experts, who completed the project on August 23, 2017, included representatives from Sri Lanka's National Aquatic Resources Research and Development Agency, Coast Conservation and Coastal Resource Management Department, Central Environmental Authority and other local government entities.

The environmental resource bases, which are also referred to as Environmental Sensitivity Index (ESI) maps, provide a concise summary of coastal resources that are at risk if an oil spill occurs. Examples of at-risk resources include biological resources, such as birds and fish; sensitive shorelines, such as marshes and mangroves; and human-use



HAB - Mangrove

Habitat

BIRD – Shore birds

Access – Foot

🖺 Park



Representatives of the Sri Lanka Navy, Marine Environmental Protection Agency and other government agencies collect environmental mapping data near the Port of Colombo. PSS PREMADASA/SRI LANKA NAVY

resources, such as subsistence gathering or fish processing. ESI maps can help responders meet one of the main response objectives: reducing the environmental consequences of a spill and the cleanup efforts, according to the U.S. National Oceanic and Atmospheric Administration. Additionally, planners can use ESI maps — before a spill happens — to identify vulnerable locations, establish protection priorities and identify cleanup strategies.

The coastal mapping endeavor, the first ESI project for Sri Lanka, was well-received by its participants.

"The ESI project is a great step for Sri Lanka," said Lt. Cmdr. KA Nuwarapaksha, SLN marine conservation staff officer. "The Sri Lanka Navy was privileged to be the focal point, and we are grateful for the support provided by USPACOM, USACE and local stakeholders."

YEARLONG EFFORT

The ESI project commenced in June 2016 and took about a year to complete.

The project was orchestrated in three phases, with an initial scoping effort followed by field work and technical delivery. The result is a comprehensive atlas and geographic information system (GIS) database designed to prioritize oil spill response, recognize vulnerability and assist with critical decision-making. Project deliverables also include standard templates that can be used to develop additional ESI resources that can be applied to other locations in Sri Lanka, such as at Galle or Trincomalee.

"Undoubtedly, I believe this ESI will enhance the oil spill response capabilities of responsible entities in Sri Lanka," Nuwarapaksha said.

LLRB de Silva, a GIS specialist with MEPA, recalled participating in a challenging oil spill cleanup and now looks to Sri Lanka's future response capabilities with optimism. A ship named MV Thermopylae Sierra sank in 2012, and an oil spill occurred between Panadura and Negombo, according to de Silva.

"At that time, there were no ESI products available, and the response was difficult," de Silva said. "Now, with detailed ESI maps available between Colombo and Negombo, it is a great achievement for Sri Lanka. I am hopeful that this preparation will advance our capabilities in the future, and we are able to apply the practical experience from this project to other regions of the country," de Silva said.

During November 2016 field work, five groups of subject matter experts tackled the study area to complete the job. Each group consisted of a coastal engineer, biologist, hydrographic surveyor, global navigation satellite system operator and a logistical specialist. The team collected data and photographs of shoreline characteristics, human-use patterns, coastal erosion, socio-economic data and biological resource presence. All participants, with the exception of USACE, were Sri Lankan government professionals who could be available to replicate future efforts.

(Continued from 54)

The second event, a Narcotics Investigation Course sponsored by DEA New Delhi, took place in February 2017 with members of Sri Lanka's Police Narcotics Bureau. The third training event, also sponsored by DEA New Delhi, was a small boat repair and maintenance course taught by JIATF West's IMS Team. The 10-day course took place in April 2017 with 39 members of the Sri Lanka Navy Special Boat Squadron and Fast Attack Flotilla.

KEY COMMERCE CENTER

The maritime security provided by Sri Lanka is critical in maintaining the flow of commerce in the Indian Ocean Region. The Sri Lanka Navy and Coast Guard have many years of experience fighting maritime terrorism because they had to contend with the Sea Tigers, the naval wing of the Liberation Tigers of Tamil Ealam (LTTE), which was largely funded by drug trafficking, during Sri Lanka's 30-year civil war. Though the threat of the LTTE was removed in 2009. Sri Lanka now must contend with piracy, drug trafficking and other threats such as illegal, unreported and unregulated fishing. With more smuggling taking place on fishing and sailing vessels, the use of smaller attack fast boats to maintain maritime security will likely become more prevalent. JIATF West hopes to continue building a relationship with the Sri Lanka Navy and Coast Guard by providing training with its IMS Team. JIATF West is prepared to help the Sri Lanka Navy in fiscal year 2018 to modernize two shooting ranges in support of its Special Boat Squadron and Naval Recruitment Center.

As Sri Lanka works toward achieving its vision of becoming a dynamic global hub, the international capacity-building efforts of Sri Lanka's Navy and Coast Guard will help ensure their success.



The Sri Lanka Navy guides a U.S.-Sri Lanka survey team of experts through Negombo Lagoon. PSS PREMADASA/SRI LANKA NAVY

In total, teams analyzed and classified 221 kilometers of shoreline and recorded more than 4,000 features. The result is a robust database to support first responders and planners in making more effective and efficient decisions. For example, first responders can now visualize ranked sensitivity and prepare response measures accordingly. Additionally, first responders can easily use GIS to analyze potential "what if" scenarios and practice communication and response measures.

USACE Pacific Ocean Division is responsible for carrying out the Corps' mission in the Indo-Pacific region in support of USPACOM. This project was done through the Division's Honolulu District and U.S. Army Institute for Water Resources.

The effort provides a unique snapshot in time of the project area, including thousands of field photographs, according to GIS specialist Benton Ching of the Honolulu District.

"Comparing aerial photography of the 1960s through the present, it is amazing how much change has taken place, especially in Negombo Lagoon," Ching said. "It will be interesting to see how modern planning, biological management and land development affect the shoreline, land use and biological resources in the future."

The Colombo-Negombo area was chosen as the project study area due to its diverse range in ecosystems and population, as well as current ship traffic patterns to and from the Port of Colombo and its related onshore/offshore petroleum facilities.

"For future ESI efforts in Sri Lanka, it is recommended the southern coastline have a similar ESI product prepared," said Commodore Kalana Jinadasa, who is the director naval operations for SLN.

Sri Lanka's southern coastline is one of the busiest shipping lanes in the world, with many oil tankers passing between the Middle East, Africa and Asia.

IPDE VOICE



Vietnam-China RELATIONS

DOES VIETNAM HAVE A FORMULA FOR CHINA?

STORY BY **HUONG LE THU/PHOTOS** BY THE ASSOCIATED PRESS

Sino-Vietnamese relations have gone through multiple cycles of deterioration and normalization. The geographical proximity of China and Vietnam and the long historical record of Chinese invasions and occupation, as well as the states' current ideological-political affinity, similar development path, economic dependence and ongoing maritime disputes all complicate this inherently asymmetrical relationship.



Yet among Southeast Asian countries, when it comes to facing up to China's assertiveness in the region, Vietnam appears to be the most strategic country — perhaps next to Singapore — among Southeast Asian states. Vietnam possesses three key assets that give it leverage: its experience in dealing with China's aggression; its strategic position at the frontier of China's southern boundaries; and diplomatic clout that could make China's expansion efforts politically and strategically costly.

First, Vietnam's experience with Chinese aggression has been instructive. Historically, Vietnam was an integral part of Imperial China's plans for southern expansion. Although China dominated Vietnam for 1,000 years until 938 A.D., China failed in the ensuing millennium to incorporate Vietnam into its territory. Vietnam has, through centuries of wars, sustained its national identity and cultivated a strong need to resist China's dominance. Defeats from the much smaller country led Vietnam to become China's "southern boundary stone of the notion of itself." Vietnam has also been punished severely when Hanoi's politics did not align with Beijing's will, both in terms of security and economics. Take recent history, for example: After a long and bloody war with the United States and the conflict with the Chinese-backed Khmer Rouge in Cambodia, Vietnam fell into isolation. Only after the improvement of ties with China, and then also with the United States, did Vietnam come out of its diplomatic isolation and poverty.

The foundation of the current bilateral relationship is based on the normalization of ties with Beijing in 1991, which had been damaged by the short but intense border war in 1979. The improvement of ties did not come without compromise on

Vietnamese President Tran Dai Quang, second from right, speaks at the Great Hall of the People in Beijing, China, in May 2017.

Hanoi's side. Since then, the principle of "Three No's" in Vietnam's defense policy — no military alliances, no foreign military bases in Vietnam, and no reliance on one country to fight another — has been adopted to bolster Beijing's confidence that Vietnam will not form alliances against it.

Vietnam's room for maneuver has been curbed by this principle, leaving Hanoi hoping that Beijing will keep its promise to be a good neighbor and a good friend. Under the motto of "cooperating while struggling," Hanoi has engaged in a strenuous exercise of accommodating the giant next door while defending its sovereignty. Both governments have laid the foundation for bilateral channels of communication, which range from party-to-party talks and regular defense meetings to the establishment of a hotline to directly connect leaders on the matter of the South China Sea.

Second, Vietnam's location on China's southern border, especially in the context of the South China Sea disputes, enhances Vietnam's strategic position. Although the proximity to its much larger neighbor leaves Vietnam vulnerable to China's assertiveness, its geographical position also has its advantages. Vietnam has 3,260 kilometers of coastline on the South China Sea — a critical waterway. Since Hu Jintao, former general secretary of the Communist Party of China, articulated a case for making China a maritime power in 2012, China's urge to dominate in the South China Sea has become more apparent. Vietnam's geographic position is therefore key to Beijing's aspirations and many major and middle power efforts to block them. As a result, Vietnam's maritime dispute with China receives more attention than it would otherwise.



Vietnamese President Tran Dai Quang reviews a Chinese honor guard during a welcome ceremony at the Great Hall of the People in Beijing in May 2017.

For example, when the China National Offshore Oil Co. deployed the Haiyang Shiyou 981 oil rig to Vietnam's claimed exclusive economic zone in May 2014, the move threatened to escalate into a

conflict. China's strategic ambitions have been challenged, but at the same time they have been fueled by the growing presence of external powers in the South China Sea. With the signs of drastic changes in the Philippines under Rodrigo Duterte's presidency, Vietnam's stance on the South China Sea becomes even more central to regional disputes.

This leads to the third asset: Vietnam's growing clout in diplomatic and defense partnerships. A balance of power is a small country's best friend. Perhaps there is no better reminder of the costs that a small country can be forced to bear because of great power competition than Vietnam — a word that was once synonymous with war in the Western world, and not the name of a country.

Vietnam now seeks to leverage great power rivalry to maintain peace and protect its sovereignty, rather than getting involved in confrontations with the giants. Since the Haiyang Shiyou 981 incident, Hanoi's relations with Washington, Tokyo and Delhi have expanded to include military-to-military cooperation with a special focus on maritime security. Vietnam's remarkable rapprochement with the United States and intensive improvement of ties with other great powers are thought to be the keys to mitigating China's threat. Then-U.S. President Barack Obama's visit to Hanoi in May 2016 and the annulment of the decadeslong arms embargo was truly momentous and

set the stage for an optimistic new phase in the relationship. As I have argued elsewhere, the current state of the U.S.-Vietnam relationship is the best in the history of the two countries.

That said, U.S. President Donald Trump's election generated uncertainty as to whether the newfound momentum in Hanoi-Washington ties can be sustained. One of Trump's first decisions after assuming office was withdrawal from the Trans-Pacific Partnership, a multilateral trade deal from which Vietnam expected to benefit. Despite the initial disappointment, Hanoi proactively sought engagement with Trump's Washington. In May 2017, Vietnamese Prime Minister Nguyen Xuan Phuc visited the White House, the first by a Southeast Asian leader, and only the third by an Asian leader after Japanese Prime Minister Shinzo Abe and Chinese President Xi Jinping. The visit resulted in trade deals, but more important, mutual reassurance of each side's intention to cooperate.

Southeast Asia has always been prone to great power politics, and in recent years, the alignment of governments in the region has occasionally fluctuated. Given how different the current geopolitical considerations and national interests are among the Southeast Asian countries, Vietnam's example cannot serve as a formula for dealing with China. Any formula would have a relatively short shelf life, as political constellations in Southeast Asia evolve relatively dynamically, reflecting the volatile shifts in power. Vietnam can, however, serve as a reference point, given its track record in resisting China's dominance. While there is no one formula for dealing with China, at a minimum there are three things that Vietnam and other Southeast Asian countries need to do.

First, recognize that not all Chinese economic engagement is a golden ticket and could become a debt trap. Many of China's investment strategies bring short-term and tangible gains, but in the longer run build up leverage for Beijing and in many cases undermine local interests. The majority of Southeast Asian countries are

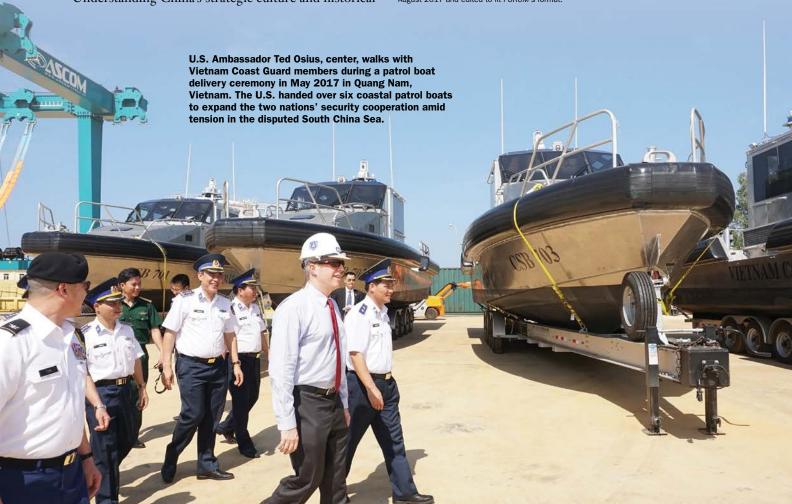
preoccupied with domestic politics and therefore tend to be inward-looking. For some Southeast Asian countries, the attractiveness of China as an economic opportunity seems to be stronger than its perceived threat. Finding a balance between opportunity and threat is a challenge common to all Southeast Asian states. Vietnam stands at the frontier of the group that feels the "China threat." In fact, it is the China threat that has pushed Vietnam to take more forwardthinking decisions in defense, diplomacy and trade policies. The current structural changes in geopolitics remind Hanoi of a historically coercive and expansive China. It is important that other Southeast Asian nations realize that economic inducements come with larger, longer-term costs. Asymmetric relationships require that smaller countries remain strategically savvy. Continental Southeast Asia lies just over China's border and consequently is exposed to the effects of the infrastructure investments that link the region to China. The Mekong subregion, for example, while the recipient of improvements from Chinese infrastructure investments, has also experienced the severe repercussions of China's hydroelectric dams along the Mekong River, which have affected water distribution and agricultural output.

Second, Vietnam and other Southeast Asian countries need to constantly reinvent strategies to keep up with Beijing's growing capabilities on all frontiers. Understanding China's strategic culture and historical

background has been beneficial to Vietnamese leaders, but they cannot afford to be complacent. Modern warfare is comprehensive, making resistance to China's coercion much more complex and difficult than it once was. Economic, ecological, diplomatic, psychological and information warfare loom even larger than the threat of traditional war on the battlefield. China has invested in leadership in all forms of power, be it military, economic, energy or technology. China is maximizing its leverage in all forms of coercion — punishment or inducement — turning them into political tools.

Finally, to be effective, neither Vietnam nor any other country can work alone in dealing with the China threat. It is important that Southeast Asian countries work together and in conjunction with the international community and in accordance with the rule of law. Ensuring a strong bond with its Southeast Asian counterparts and reinforcing Association of Southeast Asian Nations (ASEAN) members' commitment to the regional agenda is a necessity. Hanoi needs to redouble its advocacy of ASEAN unity and coordinate its efforts with Singapore, which is also eager to safeguard ASEAN's relevance, to keep its neighbors aware of the links between national and regional security interests.

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Sacred BEAUTY

Thai park's fragile lotus re-emerges after 10-year hiatus

PHOTO AND STORY BY AGENCE FRANCE-PRESSE

For the first time in a decade, a Thai lake has given up its dazzling secret — the pink blooms of tens of thousands of lotuses.

The sea of color in Khao Sam Roi
Yot national park, three hours south of
Bangkok, is a show-stopping feat of nature
that has locals hoping for a tourist bonanza. It also
sparked warnings, however, over the fragility of the
environment, with park rangers pleading with people
not to visit until the lake was healthy enough to deal
with an influx of tourists.

The flowers, considered sacred in Thai culture, are good news for locals who have been ferrying camera-toting visitors through the lotuses, which lie in knots on the lake's vast waters.

"The national park is in the process of restoring the lotuses. When it comes to the right time, the park will open them up to the public," said head ranger Rungroj Aswakultarin.

Rungroj's caution is understandable. For the past decade, the park—a stunning jumble of lakes, tributaries and towering limestone karsts— saw no widespread

lotus bloom. No one has been able to pinpoint exactly why. Officials blame a mixture of drought and pollution from fertilizers and nearby seafood farms.

In recent years, rangers have tried to clean up the park and in 2017 were rewarded with a sea of pink flowers.

Thailand struggles to balance its lucrative tourism industry with preserving the environment. Few countries have experienced the kind of stratospheric growth in tourism. In the past decade, the number of foreign arrivals has more than doubled from 13.8 million in 2006 to a record 32.5 million in 2016, growth partly powered by Chinese arrivals.

Those expecting to find the kind of pristine, untouched beaches in tourist brochures are often disappointed among hordes of visitors. In May 2017, some 61 national parks, including 25 marine parks, closed to visitors for the monsoon season, an annual move to try to help the parks recover. Some environmentalists have argued, however, that the most vulnerable ecosystems need to close for longer or face much stronger restrictions on visitor numbers.

Opposite: Lotus flowers bloom in the Khao Sam Roi Yot national park in southern Thailand for the first time in a decade. The show-stopping feat of nature had tourists pouring into the area.

Former U.N. Leader Tapped for Olympics Ethics Chair

Former United Nations Secretary-General Ban Ki-moon has been elected chair of the International Olympic Committee's (IOC) ethics commission.

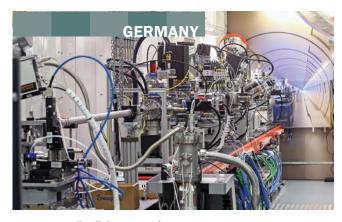
The South Korean, who served as leader in the U.N. from 2007 through 2016, will take over for Youssoupha Ndiaye.



In his September 2017 acceptance speech, Ban called his new task "a serious responsibility."

Among his immediate tasks will be to examine a vote-buying scandal involving the 2016 Olympics in Rio de Janeiro. A Brazilian IOC member, Carlos Nuzman, is under investigation for his alleged role in a U.S. \$2 million vote-buying scheme to bring the games to Brazil. IOC president Thomas Bach said in September 2017 the committee was awaiting word from Brazilian authorities before determining the next steps. One IOC member, Dick Pound, said the committee needs to act more decisively, and the ethics commission should be conducting its own investigation.

THE ASSOCIATED PRESS



World's Biggest X-ray Goes Online

Scientists in Germany say the world's largest X-ray laser is now in operation and will help them capture images of structures and processes at an atomic level.

The DESY research center near Hamburg said the laser that went online in mid-September 2017 flashes 27,000 pulses per second, resulting in luminance a billion times higher than the best conventional X-ray sources. Scientists hope the European X-ray free-electron laser (XFEL) project will open new areas of research. DESY says XFEL will enable researchers "to decipher the molecular composition of viruses and cells, take 3-D images of the nanoworld, film chemical reactions and study processes occurring deep inside planets."

Institutions from Germany, France, Italy, Poland, Russia, Spain, Sweden, Switzerland and other countries are involved in the project. THE ASSOCIATED PRESS

BRICS Countries Cooperate on Terrorism

CHINA

The BRICS group of five major emerging economies called in September 2017 for tougher measures against terrorist groups, while denouncing North Korea's latest nuclear test at a summit in China that seeks to enlarge the organization's presence on the world stage.

The BRICS nations — Brazil, Russia, India, China and South Africa — agreed in a joint declaration to strengthen cooperation against a range of organizations it described as terrorist, including some based in Pakistan, in a diplomatic victory for New Delhi.

In the 43-page declaration, Chinese President Xi Jinping, pictured center, Indian Prime Minister Narendra Modi, pictured right, Russian President Vladimir Putin, left, Brazilian President Michel Temer and South African President Jacob Zuma said they would work together to improve global economic governance to foster "a more just and equitable international order."

They also strongly condemned North Korea's sixth — and most powerful — nuclear test that took place in September 2017 and overshadowed the two-day BRICS summit in the southeastern Chinese city of Xiamen. Preeti Saran, an official with India's Ministry of External Affairs, said each leader had referred to North Korea's nuclear test when speaking at the meeting. The declaration said the five emphasized that the issue should only be settled through "peaceful means and direct dialogue of all the parties concerned."

Some observers, however, suggest the group's influence is waning, given the ongoing political



and economic rivalry between China and India and the economic woes faced by Brazil, Russia and South Africa. In addressing terrorism, the declaration named organizations including the Pakistan-based militant groups Lashkar-e-Taiba and Jaish-e-Mohammad, the Islamic State group and al-Qaida. Saran said it was the first time there had been a specific listing of alleged terrorist groups in a BRICS document, calling that "a very important development."

THE ASSOCIATED PRESS

Kiwis Bounce Back

New Zealand Birds a Bright Spot in Bleak Extinction Report

THE ASSOCIATED PRESS

Two types of New Zealand kiwi birds are a rare bright spot in a mostly grim assessment of global species at risk of extinction.

The International Union for the Conservation of Nature (IUCN) upgraded the Okarito kiwi and the northern brown kiwi, pictured, from endangered to vulnerable, thanks to New Zealand's progress in controlling predators such as stoats and cats. The conservation group's latest update of its Red List of endangered species, however, mostly reported grave threats to animals and plants due to loss of habitat and unsustainable farming and fisheries practices.

The group said the Irrawaddy dolphin and finless porpoise that roam coastlines of Southeast Asia are now endangered, imperiled by entanglement in fishing nets and other human activities. Gillnets used on the Mekong River and in other major waterways "hang like curtains of death across the river and entrap everything in the stream," said Craig Hilton-Taylor, head of the Red List's global species program.

Some 91,523 out of nearly 1.9 million described species have been assessed for the Red List, of which 25,821 are threatened, 866 are extinct and 69 extinct in the wild. The IUCN describes 11,783 species as vulnerable, 8,455 as endangered and 5,583 critically endangered.

The IUCN is made up of government and nongovernment experts whose scientific assessments of the risks to species are subject to independent reviews and are provided to help guide decisions on conservation efforts.

The organization aims to increase the number of assessed species to 160,000, said Jane Smart, global director of its biodiversity conservation program. The total number of species is unknown but is thought to be as many as 20 million, many of them microorganisms.



Behind the numbers are life-and-death struggles for survival as human populations grow and industrialize and habitats are transformed by climate change. Australia's western ringtail possum has slipped from vulnerable to critically endangered, the IUCN said, as its population plunged by 80 percent over the past decade. Once widespread in peppermint and eucalyptus forests of Western Australia, it now has only a few fragmented habitats and is prone to heat stress at temperatures above 35 Celsius that are becoming increasingly common where it lives.

The group said three reptile species on Christmas Island, also in Australia, had gone extinct in the wild: the whiptail skink, the blue-tailed skink and Lister's gecko. The group said the losses of reptiles could result from disease or infestations of the yellow crazy ant, which is listed by the IUCN and Global Invasive Species Database as one of the 100 worst invasive species.

A Japanese university is planning what it says will be the world's first research center devoted to ninja — the black-clad assassins known for secrecy and stealth. While mostly confined to history books and fiction, ninja have been enjoying something of a resurgence as Japanese authorities increasingly deploy them to promote tourism ahead of the 2020 Olympic Games in Tokyo.

Now, Mie University in central Japan - the region considered the home of the feudal martial arts masters — has announced the establishment of a ninia research facility. It plans to compile a database of ninja and encourage cooperation between scholars from different disciplines who study ninja, according to Yuji Yamada, a professor of Japanese history at the university.

"We'll conduct research on ancient documents and collaborate with science researchers to be able to apply the wisdom of ninja to modern society," said Yamada, who is setting up the center.

"For instance, ninja burnt Japanese incense before going out to avoid evil things. We assume the incense could boost concentration, and thus ninja could avoid injuries," he said, adding that research on such fragrances might prove useful in today's world. The facility will be in Iga, 350 kilometers southwest of Tokyo. The mountain-shrouded city was once home to many ninja. Yamada also said the center plans to publish its research in English as well as Japanese to make it accessible for interested researchers and fans overseas. Agence France-Presse

ROBOT FOR HIRE TO **PERFORM** BUDDHIST



A Japanese company has introduced a new role for SoftBank's humanoid robot "Pepper" — a Buddhist priest for hire at funerals. It is programmed to chant sutras in a computerized voice while tapping a drum.

Nissei Eco Co., an unlisted plastic molding maker, wrote the chanting software for Pepper, which was introduced by SoftBank Group Corp. in 2014.

With Japan's population aging and shrinking, many **Buddhist priests receive less** financial support from their communities, prompting some to find part-time work outside their temple duties, said Michio Inamura, Nissei's executive adviser.

The funeral robot could step in when a priest was not available, he said. It also costs less at 50,000 ven (about U.S. \$450) per funeral compared to more than 240,000 yen (U.S. \$2,200) for a human priest. Reuters

Four-legged guardians



n advertising agency in Thailand has developed a "smart vest" that potentially could turn stray dogs into guardians of Bangkok's streets and alleyways. Equipped with a hidden video camera. the vest has sensors that transmit live streaming videos when the dog barks, showing what the dog sees via a mobile phone and computer application.

There are stray dogs

on the streets of most Thai cities, and the developer thought smart vests could help the dogs as well as the community.

"It will make people feel that stray dogs can become night-watches for the communities," said Pakornkrit Khantaprap, a member of the creative team that came up with the idea at the Cheil advertising agency, a subsidiary of South Korea's Samsung Electronics.

Martin Turner, managing director of the Phuketbased Soi Dog Foundation, which was formed over a decade ago to save stray dogs and cats across Thailand, welcomed the initiative, which began in March 2017 and took about five months to materialize.

The developer said a lot more tests are needed before the vest can be introdued into communities for trial runs. Reuters



An Indonesian military band performs for Indonesian President Joko Widodo and Singaporean Prime Minister Lee Hsien Loong to celebrate 50 years of bilateral relations between the two countries at the Marina Bay Cruise Centre in Singapore on September 7, 2017. The two nations formalized their diplomatic relations on September 7, 1967, a month after they, along with Malaysia, Thailand and the Philippines, created the Association of Southeast Asian Nations (ASEAN). Today, ASEAN also includes Brunei, Burma, Cambodia, Laos and Vietnam for a total of 10 member nations.



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