

FORUM

COUNTERING PRC AMBITION IN THE ARCTIC



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Enforcing
Maritime
Security


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ABOUT THE COVER:
Members of the People's Republic of China's (PRC's) research team set up an ocean profiling float near the PRC icebreaker Xuelong in the Arctic Ocean.

XINHUA/GETTY IMAGES



Dear Readers,

Welcome to *Indo-Pacific Defense FORUM's* edition on countering coercion.

Coercion can take many forms, and the People's Republic of China (PRC) has routinely employed coercive behavior to advance its regional interests. This coercion has taken the form of building and militarizing artificial features in the South China Sea; more recently, the PRC has accelerated ongoing territorial and maritime disputes with other Southeast

Asian nations. In June 2019, the Philippines claimed a Chinese vessel rammed and sank a Filipino fishing boat anchored in the disputed South China Sea. Weeks before, satellite imagery captured a fleet of Chinese vessels gathering clams and destroying the marine ecosystem in the region. Similarly, in early July 2019, a PRC geological survey vessel and its escorts entered Vietnam's exclusive economic zone in waters near Vanguard Bank without permission. The PRC also extended its surveying operations north along the country's central coast, ignoring Vietnam's calls for the Chinese government to cease its destabilizing behavior. These actions cannot be ignored. Allies and partner nations must proactively work together to blunt these types of coercive activities.

This edition of *FORUM* examines regional actors, who are expanding coercive activities beyond the Indo-Pacific. U.S. Air Force Col. Joseph A. Mussachia, Jr. details how the PRC has been ambitiously building strategic relations in the Arctic, often using coercive economic levers, to establish a military presence in the region. Although a non-Arctic nation, the PRC is pushing to become a member of the Arctic Council in hopes of controlling resources and shipping lanes. Russia, meanwhile, has increased its military presence in the Arctic as well.

FORUM also looks at strategies to counter many types of coercion that can threaten sovereignty, including illegal, unreported, and unregulated (IUU) fishing. A team of researchers, led by Dr. Robert S. Pomeroy of the University of Connecticut, shares how the U.S. Agency for International Development Oceans and Fisheries Partnership (USAID Oceans) combats IUU fishing and seafood fraud throughout Southeast Asia. Partnering with national and local governments, the fishing industry, private sector actors, regional organizations, and fisheries stakeholders, USAID Oceans employs technology to enhance maritime domain awareness and enable defense and security priorities.

Also in this issue, U.S. Coast Guard Lt. Cmdr. Warren N. Wright discusses how bilateral maritime law enforcement shiprider agreements support host nation sovereignty by helping to enforce their laws and regulations regarding IUU fishing, human trafficking, and drug smuggling. The U.S. Coast Guard regularly exercises 16 such bilateral shiprider agreements with Eastern Pacific and West African countries, promoting a free and open Indo-Pacific.

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

All the best,

P. S. DAVIDSON
Admiral, U.S. Navy
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defense department activities to mitigate risk to personnel and resources engaged in full-spectrum military operations. Prior to arriving at USINDOPACOM, Col. Musacchia was a student at the U.S. Air War College. **Featured on Page 26**



DR. ROBERT S. POMEROY, pictured, a professor at the Department of Agricultural and Resource Economics, University of Connecticut, Groton, Connecticut; **JOHN E. PARKS**, chief of party with the U.S. Agency for International Development (USAID) Oceans and Fisheries Partnership in Bangkok, Thailand; and **GINA GREEN**, a senior associate with Tetra Tech in

Arlington, Virginia, contributed an article on how technology solutions are enhancing maritime domain awareness to reduce illegal fishing in the Indo-Pacific region, especially in Southeast Asia. **Featured on Page 32**



LT. CMDR. WARREN N. WRIGHT is chief of external affairs at the 14th Coast Guard District. An Alaska-qualified aircraft commander in the MH-65D helicopter with over 1,800 flight hours, he has been stationed in Kodiak, where he conducted multiple Bering Sea deployments in support of Operation Marine Resource Protector. He served

as head of facilities engineering at Barbers Point, Hawaii. He also served as a military fellow in the office of U.S. Sen. Lisa Murkowski from Alaska. **Featured on Page 40**



DR. NAMRATA GOSWAMI is an independent strategic analyst and consultant on counterinsurgency, counterterrorism, alternate futures and great power politics. After earning her Ph.D. in international relations, she served for nearly a decade at India's Ministry of Defence-sponsored think tank, the Institute for Defence Studies and

Analyses in New Delhi, working on ethnic conflicts in India's Northeast and the China-India border conflict. She is the author of several books, including *India's National Security and Counter-Insurgency* and *Asia 2030: The Unfolding Future*.

Featured on Page 54

Join the Discussion

We want to hear from YOU!

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

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

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TAIWAN

COUNTERING *PRC influence*

Taiwanese President Tsai Ing-wen said in May 2019 that the People's Republic of China (PRC) has stepped up efforts to infiltrate and gain influence in the self-ruled and democratic island and asked national security agencies to counter the campaign.

Tsai, speaking to reporters after a national security meeting, said the PRC's influence operations included attempts to interfere with elections and fake news campaigns. Taiwan holds presidential elections in January 2020. She did not give details of specific incidents but said Taiwan's national security agencies would be finding ways to tackle China's moves. Tsai also said Taiwan would deter military aggression in the Taiwan Strait, vowing to boost defense capabilities, including upgrading military equipment and a recently launched program to build submarines. "The Chinese Communist Party continues to demonstrate provocative actions in the Taiwan Strait, destroying the status quo across the Taiwan Strait," Tsai said.

Her comments followed a spike in cross-strait tensions in April 2019 when the PRC's military staged extensive drills with warships, bombers and reconnaissance aircraft around the island. Taiwan scrambled jets to monitor the drills, which a senior U.S. official at the time described as "coercion" and a threat to regional stability.

Beijing suspects Tsai is pushing for the island's formal independence and has steadily stepped up political and military pressure. Any formal independence move is a red line for the PRC, which considers Taiwan its sacred territory. Tsai, pictured, said she wants to maintain the status quo with the PRC but will defend Taiwan's security and democracy.

Legislators in the United States have voiced concern about the PRC's coercive activities. The U.S. House of Representatives in May 2019 unanimously backed legislation supporting Taiwan as members of the U.S. Congress pushed for a sharper approach to relations with Beijing. Reuters

PRESIDENT URGES RESTRAINT AMID MARITIME TENSIONS WITH PRC

Vietnamese President and Communist Party General Secretary Nguyen Phu Trong in October 2019 called for restraint in the disputed South China Sea amid a tense monthslong standoff between Chinese and Vietnamese ships, state media reported.

The People's Republic of China (PRC) claims almost all of the energy-rich waters, but neighbors Brunei, Malaysia, the Philippines, Taiwan and Vietnam also have claims.

Tension escalated when the PRC dispatched a research ship to conduct an energy survey in waters controlled by Vietnam in early July 2019.

"On the subject of foreign policy, including the East Sea issue, the General Secretary stressed the importance of maintaining a peaceful and stable environment, and resolutely fighting to protect Vietnam's independence, sovereignty and territorial integrity," the state-run Voice of Vietnam (VOV) said on its website in October 2019. The South China Sea is known as the East Sea in Vietnam.

Vietnam has good relations with China but should "never compromise" on its sovereignty and territorial integrity, VOV quoted Trong as saying. (Pictured: A Vietnam Coast Guard boat, used to patrol the South China Sea, is docked in Hanoi.)



THE ASSOCIATED PRESS

The Chinese vessel, the Haiyang Dizhi 8, continued its survey in Vietnam's exclusive economic zone through late October 2019, under escort from at least three Chinese ships, according to data from Marine Traffic, a website that tracks vessel movements.

Vietnam's Foreign Ministry repeatedly accused the vessel and its escorts of violating its sovereignty and demanded that the PRC remove its ships from the area, but it did not remove the ships for more than three months. In August 2019, police broke up a brief protest outside the Chinese embassy in Hanoi over the survey vessel. Finally on October 24, the research vessel and its escorts left Vietnam's exclusive economic zone and headed toward China, according to the Maritime Traffic website.

Trong has presided over a widespread crackdown on corruption in the Southeast Asian country that has seen several high-ranking ministers and politicians, including one Politburo member, sent to prison on charges ranging from embezzlement to economic mismanagement. Reuters

PLUGGING TERROR 'LOOPHOLES'

Indian Prime Minister Narendra Modi has called for a global conference to tackle the threat of terrorism in the region and around the world.

During a speech on his first foreign visit since winning reelection, he told the Maldivian parliament in Male that “terrorism is not just a threat for a country but to the entire civilization.”

“The international community has actively arranged for global convention and many conferences on the threat of climate change. Why not on the issue of terrorism?” Modi said.

He called for a global conference “so that there can be meaningful and result-oriented discussions for plugging the loopholes that terrorists and their supporters exploit.”

India is pursuing what it calls a “neighborhood first” foreign policy centered on its allies in South Asia. Modi’s trip to the Maldives is being viewed as a statement of intent to counter the rise of China, which has been making strategic inroads in the Indian Ocean in recent years.

“In the neighborhood, Maldives is priority,” Modi said in his speech. (Pictured: Indian Prime Minister Narendra Modi scatters rose petals at the Mahatma Gandhi



memorial at Raj Ghat ahead of his swearing-in ceremony in New Delhi, India.)

During the visit in June 2019, Modi signed a slew of agreements with the island nation encompassing ferry services, port terminals and a new national cricket stadium.

He stopped next in Sri Lanka’s capital, Colombo, where security was high on the agenda. A wave of bombings on Easter Sunday killed more than 250 people across Sri Lanka. Reuters

INTERNATIONAL

WEST'S

Defense Spending to Stay Ahead of

CHINA



The United States led a rise in Western defense spending in 2018 as it moved to keep ahead of Chinese and Russian pushes into advanced military technology, a 2019 report said.

U.S. President Donald Trump will likely press European states to spend even more, the International Institute for Security Studies said. European powers would together have to find an extra U.S. \$102 billion to meet his latest demands, it added.

Worldwide outlays on weapons and defense rose 1.8 percent to more than U.S. \$1.67 trillion in 2018 – with the United States on its own responsible for almost half that increase, according to “The Military Balance” report released at the Munich Security Conference.

Western powers were concerned about Russia’s upgrades of air bases and air defense systems in Crimea – the peninsula it seized from Ukraine in 2014, the annual report said. Its stationing of an S-400 air defense system there increased Moscow’s

reach in the Black Sea, where it seized three Ukrainian ships in 2018.

“China perhaps represents even more of a challenge, as it introduces yet more advanced military systems and is engaged in a strategy to improve its forces’ ability to operate at distance from the homeland,” it added.

China’s stated ambition to modernize its People’s Liberation Army by 2035 was “supported by defense spending that has been on a relentlessly upward trajectory.”

“Chinese naval capability is entering a new phase,” as it launched cruisers and began sea trials for its first indigenous aircraft carrier, the report said.

Beijing was also improving its air force and pushing into new technologies, including high-speed cruise missiles and artificial intelligence.

Western states “still retain an edge over adversaries, but the gap is narrowing. The pace of change may mean that in the future, advantages – if they exist at all – may be held only fleetingly, before the other side catches up.” Reuters



Terror Group's Leader **Killed**

Philippines uses DNA test to identify pro-ISIS militant

Philippine officials in April 2019 confirmed that a leader of an alliance of pro-Islamic State in Iraq and Syria (ISIS) militants was one of four insurgents killed in a clash with the military the previous month.

Defense Secretary Delfin Lorenzana confirmed Abu Dar's death based on the findings of a DNA test. "It is confirmed. It's Abu Dar's remains," he said.

Security forces believe Abu Dar had led Dawla Islamiya, an alliance of pro-ISIS fighters in the southern Philippines that includes foreigners. The four rebels were killed in a clash in Lanao del Sur province in March.

Maj. Gen. Roberto Ancan, commander of the Army's 1st Infantry Division, also confirmed Dar's death. He

called it a "significant accomplishment of the government and the people of Lanao del Sur, who worked together to rid their beloved province of terrorists."

Dawla Islamiya carried out the siege of southern Marawi city for five months in 2017 before some leaders were killed by the military in airstrikes and street battles, among them Isnilon Hapilon, Islamic State's anointed emir in Southeast Asia. Abu Dar, who was seen in a seized video sitting beside Hapilon, managed to escape before government forces were able to take back Marawi, according to local media.

"Well, for now his group is leaderless," Lorenzana said. "We are monitoring who will replace Dar."

Reuters



Marawi city in the southern Philippines was left in ruins after militants laid siege to it in May 2017. THE ASSOCIATED PRESS



CONTROL ISSUES

How Beijing shapes the behavior of citizens
and outsiders with social credit system

FORUM STAFF

In the People's Republic of China (PRC), forgetting to keep a dog on its leash or failing to pay a parking fine can have lasting consequences. In 2018 alone, the government blocked 23 million people from either buying airplane or train tickets in China due to low "social credit" scores, according to a report by The Associated Press (AP).

The Chinese Communist Party (CCP) contends that a social credit scoring system will improve societal order. The party's campaign to score every citizen based on digitally trackable behavior — everything from unpaid taxes to leash-law violations or posting negative comments about the government on social media — has been in development since 2014.

The ruling party has exhibited little transparency in how the scoring algorithm works. It acknowledges it rewards those with high social credit scores with the freedom to travel abroad, luxury accommodations, lower rates on loans and even better jobs. Citizens with low scores face punishment in ways that include being barred from management jobs, trains, air travel or even staying in nice hotels.

Although the CCP published a goal of having a nationwide social credit system in place by 2020, it currently runs only a mishmash of pilot projects launched by about a half-dozen local authorities and technology companies. One of those companies is Sesame Credit, which is run by Jack Ma's Alibaba, an online shopping empire, according to a report by *Time* magazine. The firm considers a range of financial and social behaviors to determine social credit scores.

The PRC tasked eight companies, including Sesame parent Ant Financial and China Rapid Finance, a partner of the social networking giant Tencent, with conducting trial runs on a credit scoring system. The party's guidance called for a nationwide system that would "allow the trustworthy to roam everywhere under heaven, while making it hard for the discredited to take a single step."

The companies have access to reams of personal data. Sesame, for example, can tap into Alibaba's mobile payment app Alipay, which has more than 1 billion users worldwide. Tencent developed the messaging app WeChat, which has more than 850 million active users.

While millions of citizens have already been rewarded or punished under the trial systems, the government has not indicated how it plans to roll out the nationwide program. Systems currently in use, however, raise international concerns that an autocratic regime is imposing "Orwellian" control over its citizens and possibly business partners outside the country. Orwellian is a reference to the dystopian scenarios depicted by novelist George Orwell in his novel *1984*. U.S. Vice President Mike Pence criticized the Chinese system in October 2018 as "an Orwellian system premised on controlling virtually every facet of human life."

SMALL CRIMES, BIG PENALTIES

The offenses could be as small as parking fines or late loan payments. The punishments, however, can be severe and long-lasting. China's National Public Credit Information Center reported that would-be air travelers were blocked from buying tickets 17.5 million times in 2018 for having low social credit scores. Another 5.5 million train tickets were denied for the same reason. The same report said 128 people were stopped from leaving China because they hadn't paid their taxes.

The social credit system extends to many facets of daily life. In Jinan, Shandong province, for example, failing to properly care for a dog could result in the government confiscating the pet. The city's social credit system requires anyone with a dog to register with police. The dog's owner, once licensed, begins with 12 points, which are embedded as a QR code on the dog's collar, according to a report by *The Daily Telegraph*, a British newspaper.

The government deducts points for infractions that range from walking dogs without a leash or tag to not cleaning up their waste. Dogs are banned from public accommodations, including transportation and hotels, and they aren't allowed to frolic in the city's public fountains. If an owner loses all 12 points, the government confiscates the dog and requires the owner to pass an exam on responsible pet ownership. State media reports that most of the people who lost their dogs eventually passed the exam and got their pets back.

Rewards for those with high scores vary from discounts on energy bills, better interest



识别信息

车型	车身颜色	性别
三轮车	蓝、绿	男
头盔	打电话	口罩
否	否	否

车牌号	车型	
车身颜色	年检标志	车品牌
蓝	是	本田

A man demonstrates traffic surveillance software during the Security China 2018 exhibition in Beijing. China could have as many as 450 million surveillance cameras nationwide by 2020.

REUTERS

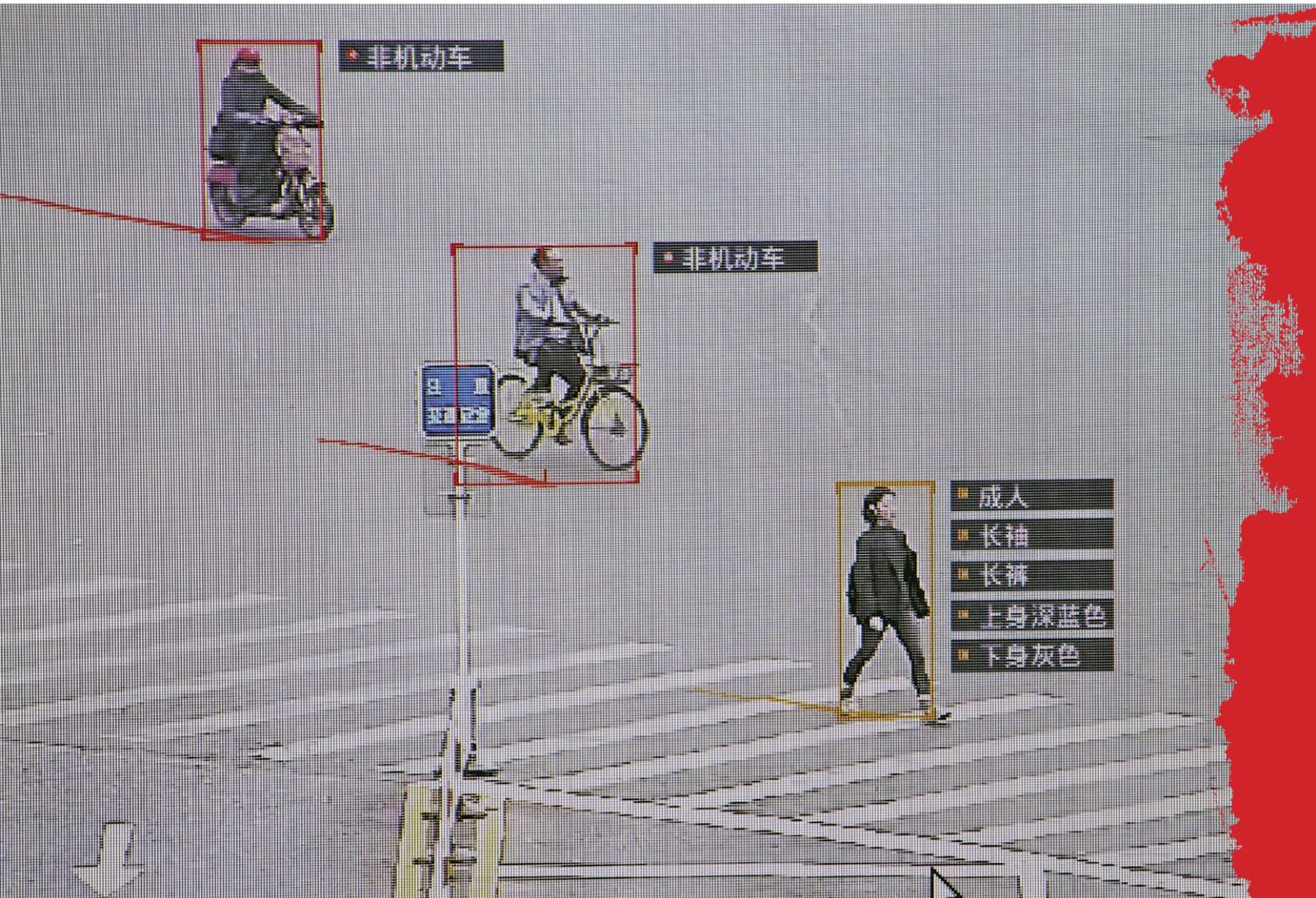
rates at banks and the ability to rent items without placing deposits. A report by BBC News said that China’s biggest dating site, Baihe, boosts the profiles of citizens with excellent social credit scores. “A person’s appearance is very important,” explains Baihe Vice President Zhuan Yirong. “But it’s more important to be able to make a living. Your partner’s fortune guarantees a comfortable life.”

While those deemed trustworthy may enjoy more active dating lives, those on the opposite end of the spectrum struggle with the shame of being publicly labeled disreputable. “It’s even worse than doing time because at least there’s a limit to a prison sentence,” David Kong, a 47-year-old former publisher, told the *South China Morning Post* newspaper. In the newspaper, which is owned by Alibaba, Kong describes life as a designated “deadbeat” as dire.

That’s because the PRC’s list of “discredited individuals” is made public, and local governments find innovative ways to broadcast it. One county added a ringtone to warn callers that they were about to speak to a “deadbeat,” according to the state-run Xinhua news agency.

“Hello, Pu’an County People’s Court reminds you that the person you have dialed has been included in the list of discredited individuals. Please be careful if you associate with him!” the message said.

Another Chinese court system, the Hebei Higher People’s Court, rolled out “the Deadbeat Map,” an app that is an add-on to the Chinese social media platform WeChat, for trial in January 2019. Critics have raised privacy concerns over the app, which allows users to check if people within a 500-meter radius have failed to pay their debts.



Government bureaucrats are not immune from the scrutiny. In March 2019, the southeastern city of Quanzhou started rating the personal behavior of civil servants. The commercial hub Wenzhou had already begun scoring the behavior of public employees for promotions and rewards, and the coastal city Zhoushan also keeps files on the social credit of government workers, Bloomberg reported.

SOVEREIGNTY QUESTIONS

This government control campaign is already making waves beyond China's borders. Dr. Samantha Hoffman, a nonresident fellow at the International Cyber Policy Centre of the Australian Strategic Policy Institute and a visiting academic fellow at the Mercator Institute for China Studies in Berlin, said the PRC's use of big-data collection

to monitor, shape and rate citizens' behavior affects countries trying to do business with China.

"Social credit regulations are already being used to force businesses to change their language to accommodate the political demands of the Chinese Communist Party (CCP)," she wrote in a 2018 report. "It will affect international business and overseas Chinese communities and has the potential to interfere directly in the sovereignty of other nations," she said in the report, "Social Credit: Technology-enhanced Authoritarian Control with Global Consequences." She gave the example of a move by the Chinese Civil Aviation Administration in April 2018 to cite international airlines for violating Chinese laws by listing Taiwan, Hong Kong and Macao on their websites.

The Chinese Communist Party uses surveillance software to identify details about people and vehicles.

REUTERS

On April 25, 2018, the Chinese Civil Aviation Administration accused United Airlines, Qantas and dozens of other airlines of “serious dishonesty” for listing Taiwan, Hong Kong and Macao on their websites. Chinese authorities said failure to classify the locations as Chinese property “would count against the airlines’ credit records and would lead to penalties under other laws, such as the cyber security law,” Hoffman wrote.

In this way, the social credit experiment is being used to “compel international airlines to acknowledge and adopt the CCP’s version of the truth, and so repress alternative perspectives on Taiwan,” Hoffman wrote.

The CCP considers these areas part of China, and the rules the airlines were accused of violating were written to “implement two key policies on establishing” the social credit system, Hoffman said. Many of the airlines changed their websites’ travel destinations to conform with the PRC’s demands.

“As businesses continue to comply,” Hoffman wrote, “the acceptance of the CCP’s claims will eventually become an automatic decision and hence a norm that interferes with the sovereignty of other nations.”

The PRC contends listing Taiwan as a country violates a law that protects the “dignity or interests of the state.” The Shanghai Administration for Industry and Commerce, for example, fined Japanese retailer Muji’s Shanghai branch 200,000 yuan, or U.S. \$41,381, for developing packaging that listed Taiwan as a country.

The case coincided with a regulation that took effect January 1, 2018, that requires

every company with a business license in China to have an 18-digit social credit code.

SURVEILLANCE STATE

This data monitoring represents only one facet of the PRC’s approach to behavioral control. Another plank is a massive network of cameras to monitor the movements of its citizens.

The PRC’s Ministry of Public Safety in 2015 called for the creation of an “omnipresent, completely connected, always on and fully controllable” video surveillance network. IHS Markit, a London-based global information provider, estimated the PRC will have installed 450 million cameras nationwide by 2020.

By August 2018, police had more than 46,000 surveillance cameras installed in Beijing, enough to cover every street corner, according to the media reports in China. More than 4,300 police officers are in charge of monitoring the footage.

This omnipresent surveillance comes with human rights implications. In February 2019, Dutch internet expert Victor Gevers of the nonprofit GDI Foundation revealed the installation of a massive video surveillance system in the Xinjiang region, which is the native home of Muslim Uighurs who have been subjected by the party-state to arbitrary mass detentions and political re-education camps. A Chinese surveillance firm, SenseNets Technology Ltd., was tracking the movements of more than 2.5 million people in Xinjiang, Reuters reported.

CHALLENGING BIG BROTHER

Indo-Pacific countries and Western democracies that want to check the PRC’s burgeoning surveillance state possess tools of resistance, Hoffman contends. Democratic governments, she asserts, should become more proactive in countering the CCP’s extension of the social credit system. “Democratic governments can’t force firms to refuse to comply with Beijing’s demands,” she wrote, “but they also shouldn’t leave businesses alone to mitigate risks that are created by the Chinese state’s actions.”

Governments should identify the potential uses of technologies that could be applied to the social credit system, she said. She recommends tighter controls on the “export of Western technologies and research already used in — and potentially useful to — the Chinese state’s SCS [social credit system.]”

Huge crowds pack a railway station in Hangzhou in Zhejiang province. The Chinese government barred about 5.5 million people from train travel in 2018 after deeming them untrustworthy.

AFP/GETTY IMAGES





Nations wanting to blunt the effects of the social credit system should review emerging technologies and pay close attention to university and research partnerships, Hoffman said. “Obvious starting points would be preventing situations such as, for example, the University of Technology Sydney’s Global Big Data Technologies Centre accepting [U.S.] \$20 million from the state-owned defense enterprise China Electronics Technology Group Corp. [CETC].”

CETC is a state-owned enterprise behind China’s video surveillance apparatus. It funded one of the University of Technology Sydney’s most recent projects, which was a public security online video retrieval system.

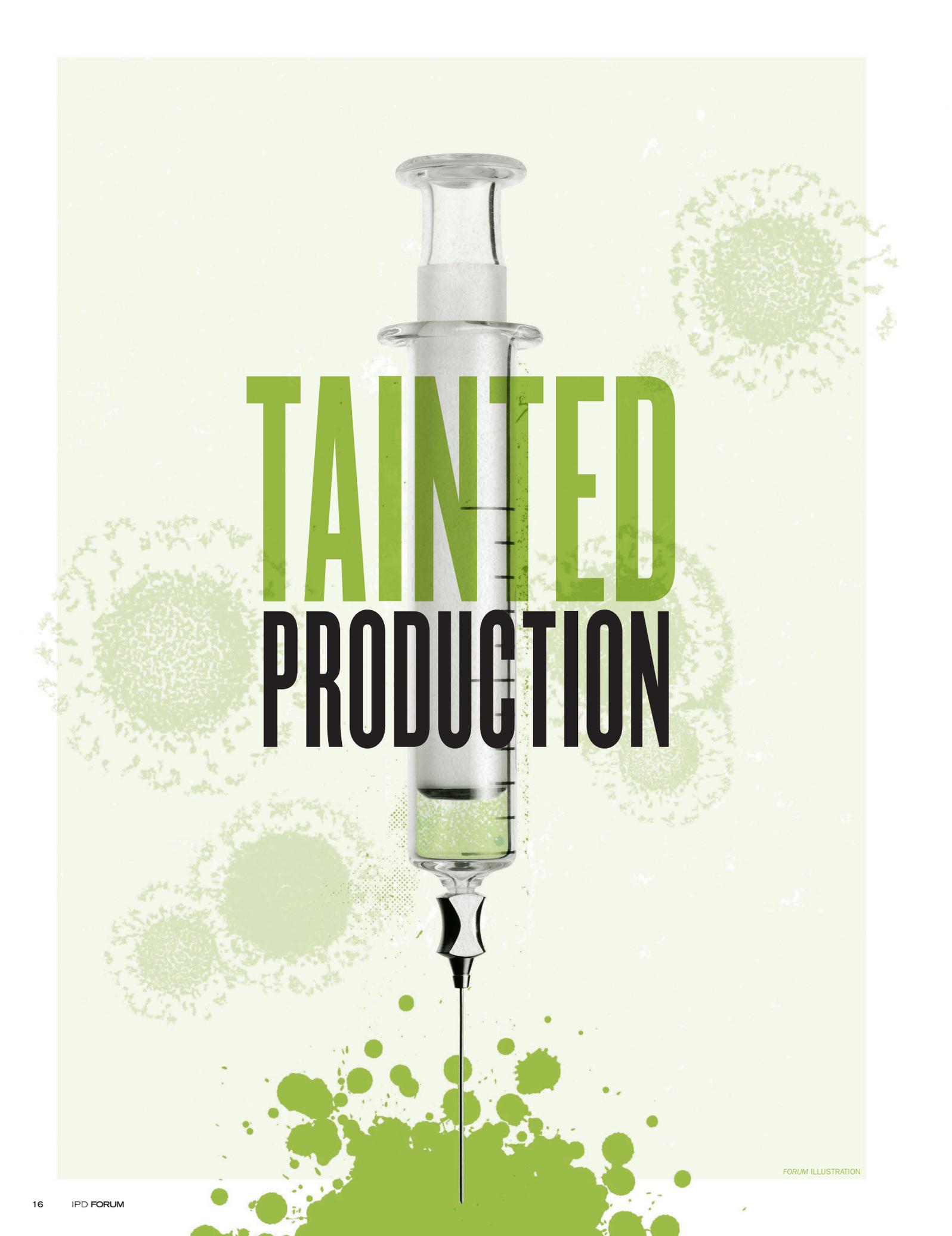
To prevent data from being exported for use in Beijing’s system, governments should emphasize data protection, particularly at the university level. For example, Confucius Institutes based on university campuses around the world should be required to store data on university-owned hardware and

software, so they can make sure it isn’t being exported to China, Hoffman wrote.

Failing to safeguard data would be contributing to a growing system that is already denying residents in China some basic rights, such as freedom of speech. Lin Hu, a journalist in China, told the Canadian newspaper *The Globe and Mail* that he was arrested, fined and blacklisted for writing about censorship and government corruption. Lue was placed on the “List of Dishonest Persons Subject to Enforcement by the Supreme People’s Court.” He was barred from buying plane tickets, banned from some trains and prohibited from buying property or taking out a loan.

“There was no file, no police warrant, no official advance notification,” he told the newspaper. “They just cut me off from the things I was once entitled to. What’s really scary is there’s nothing you can do about it. You can report to no one. You are stuck in the middle of nowhere.” □

A man takes a stroll at the China International Big Data Industry Expo in Guiyang, Guizhou province. The Chinese government is teaming up with big-data companies to monitor the online habits of its citizens to influence their behavior. REUTERS



TAINED PRODUCTION

FORUM ILLUSTRATION

THE PEOPLE'S REPUBLIC OF CHINA FAILS TO PROTECT ITS CITIZENS FROM CONTAMINATED FOOD AND HEALTH PRODUCTS, ERODING TRUST IN GOVERNMENT

FORUM STAFF

At the start of the 2019 Chinese New Year, the People's Republic of China (PRC) revealed that HIV-contaminated blood products had been distributed to its citizens. A tainted batch of intravenous human immunoglobulin, which is mainly used to treat patients with compromised immune systems, was sold and distributed in the eastern province of Jiangxi by China's second largest medical blood products supplier, Shanghai Xinxing, which is overseen by a state-run parent company.

"The faulty batch comprised 12,229 50-ml [milliliter] bottles of plasma due to expire in June 2021," according to an account in the *South China Morning Post* newspaper. Investigators from China's National Health Commission stopped production and ordered a recall of the blood products even though the same agency that made the original announcement, the National Medical Products Agency, later announced its tests were negative for HIV, the virus that causes AIDS, and for various strains of hepatitis.

The conflicting reports only fueled concern by Chinese patients and consumers over the safety of their nation's food and medical supplies. "The cleanup is always fast. Pretty soon they'll say injecting this product is good for your health," Cui Yongyuan, a Chinese television host and producer, wrote on the microblogging site Sina Weibo, commenting on a report about the investigation's preliminary results, according to *The New York Times* newspaper. "Tainted milk powder, no problem. Tainted vaccines, no problem. Tainted inoculations, no problem," he added, referring to the litany of health debacles in China in the past decade or so. "In short, if a few people die, no problem."

ANGRY CITIZENS

The PRC continues to be riddled with product safety and manufacturing scandals despite the Chinese Communist Party's (CCP's) recent and repeated pledges of reform. The contaminated plasma scare is just one of the latest incidents. Myriad vaccine scandals

in recent years have imperiled young children and their families and also put the population as a whole at risk by enabling potential outbreaks to occur.

The government disclosed in January 2019 that more than 145 Chinese children in Jiangsu province had received expired polio vaccines from a local center, sparking protests by thousands of angry parents outside a local health center and government office. The disclosure came a mere six months after a major scandal was revealed in July 2018 in which Changchun Changsheng Life Sciences, a subsidiary of the state-run company Changsheng Biotechnology, one of the nation's largest vaccine manufacturers, produced and distributed more than 250,000 defective vaccines for diphtheria, whooping cough and tetanus (DPT). The vaccines were administered to thousands of babies under a PRC program in Shandong province in 2017. Investigators also found that Changchun Changsheng Life Sciences had faked production records on more than 100,000 rabies vaccines and had been fraudulently reporting vaccine data for more than four years, according to the *South China Morning Post*.

Mo Li, in her late 20s, is the parent of a child who may have received one of the shoddy DPT doses. "I thought about all the people involved, from the vaccine company to the regulators. They cannot be called human. They are devils in hell," Mo told *The Guardian* newspaper in late July 2018 after news of the scandal broke.

Angry parents like Mo protested in front of the PRC's National Health Commission in July 2018, demanding better oversight of China's pharmaceutical industry. Inspectors discovered the defective vaccines in 2017 but didn't disclose the information until July 2018.

"The problem is not solved," He Fangmei, the mother of a 2-year-old girl, told *The New York Times* after the July protest. "Our concerns have not been addressed."

China's rank-and-file citizens, who are not members of the small, privileged percentage who belong to the governing CCP, are becoming increasingly frustrated with the PRC's shortcomings in protecting public



A child receives a vaccination at a hospital in Huaibei, Anhui province, in July 2018 after a vaccine fraud case reignited public fears over drug safety. AFP/GETTY IMAGES

health. Despite PRC claims to have set up a world-class regulation system, its agencies are failing to protect the research, production, distribution and administration of vaccines and other pharmaceuticals.

Chinese parents' mounting dissatisfaction with unfulfilled PRC promises seems more than justified. Soon after the Changsheng scandal, regulators disclosed that the state-owned Wuhan Institute of Biological Products also sold ineffective vaccines. In May 2018, the company began recalling some 400,000 doses and was ordered to pay an undisclosed fine, according to Bloomberg.com. Prior to the recent spate of incidents, the PRC disclosed in 2016 that millions of compromised vaccines, roughly U.S. \$90 million worth, had been administered to Chinese children nationally. In 2015, out-of-date vaccines caused two deaths and severe health problems in nearly 400 children in Henan province, according to Radio Free Asia. In 2010, unrefrigerated vaccines killed four children in Shanxi province and sickened 70 others, the *China Economic Times* newspaper revealed. Problems with the quality of vaccines have existed for a long time and "everyone inside the loop knows it," a director of a Chinese disease control center for about half a million people told the *South China Morning Post*.

FAILED REFORMS

The PRC established the China Food and Drug Administration in March 2013 to address such problems,

but the scandals kept coming. After each of the vaccine scandals, regulators neither notified the public in a timely fashion nor did much initially to punish companies or their officials. And after each crisis, the PRC implemented measures to supposedly improve food and drug safety, but the scandals continued into 2019. In one of the latest attempts at reform, the PRC announced in April 2018 that it would reorganize the China Food and Drug Administration into the China Drug Administration, which would be overseen by a new State Administration for Market Supervision. Meanwhile, the responsibilities for regulating food would shift to other agencies.

Largely in an apparent response to the protests and public uproar, the PRC levied a U.S. \$1.3 billion fine in October 2018 against Changsheng Life Sciences and blocked 15 executives, including its chairwoman, from working in the drug industry, according to Reuters. It also fined Changsheng Biotechnology about U.S. \$89,000. The parent company plans to pay patients harmed by the vaccine roughly U.S. \$29,000 to \$96,000 in compensation, Reuters reported. The PRC is also drafting a law that would enable citizens to sue drug manufacturers for punitive damages if defective vaccines cause serious illness or death, but until the law is implemented, victims' families have little recourse.

Historically, the parents who protest the vaccine manufacturers have received harsher treatment than the offending executives and companies who continue



People whose children died from drinking tainted milk hold signs reading: “Give me back my child. Demand judicial fairness” outside a court in Hebei province in January 2009. Families hit by China’s toxic milk scandal demanded revenge, compensation and answers as they awaited sentencing of company executives responsible for the deaths. REUTERS

production after making public apologies or paying relatively small fines averaging U.S. \$1.4 million, according to an analysis by *The New York Times*. Originally, Changsheng was only fined U.S. \$500,000 for its defective vaccines until a complaint on social network WeChat, which was deleted a day later, revealed the details publicly, *The Guardian* reported. The newspapers also reported that the PRC silences or detains parents who protest. Even so, the PRC was unable to quash protests on social media and elsewhere in the past year against the government’s handling of public health, according to various media accounts, and the systematic problems remain, industry insiders and health experts say.

Citizens of other countries should also be alarmed. PRC failures have global implications because China also produces drugs distributed in other countries. In late July 2018, for example, Zhejiang Huahai Pharmaceutical, the Chinese manufacturer of the blood pressure medication Valsartan, was forced to issue an international recall of the drug after the active ingredient in it was found to be contaminated with a cancer-causing agent, according to CNN. The Chinese company provided more than half of the drug’s supply in the United States, and the brand was widely prescribed in Europe as well. “Not only is there a potential to be harmed from the product that has been recalled, the secondary problem is there’s not enough of the products that haven’t been recalled out there,” Craig Beavers, cardiovascular clinical pharmacy coordinator at the University of Kentucky Medical Center, told WebMD.com website.

UNDERMINING TRUST

The steady stream of such potential disasters has continued to erode trust in the PRC and faith in

President Xi Jinping’s ability to reform China’s corrupt food and drug production system. Although Xi has labored to sell citizens on his brand of consolidated autocratic power by promising to take care of them, the repeated health scandals continue to damage his credibility and legitimacy, many analysts say.

“The vaccine scandal once again shows the Chinese government’s failure in law enforcement and monitoring the healthcare industry, even after years of reports about other cases,” Patrick Poon, China researcher for Amnesty International, told *The Guardian*.

The majority of Chinese families have only one child because of past PRC policies restricting family size. As a result, offenses by the government that affect the health of children are perceived as especially horrifying, according to Merriden Varrall, a China expert at the

Lowy Institute, a think tank in Australia.

“How is this still happening in a China that people are told is really on track for rejuvenation?” she told *The New York Times* in July 2018. “Scandals like this are simply not going to be accepted as par for the course anymore.”

PAST TRAGEDIES

The PRC has a long history of allowing dangerous products to reach Chinese consumers. To this day, more than a decade after the baby formula tragedy, many parents won’t feed their infants formula manufactured in China, according to media accounts. In 2008, baby formula contaminated with melamine, a chemical used in plastic and fertilizer manufacturing, killed six babies and sickened more than 300,000 other infants in China. The chemical causes kidney stones, which are rare in children and extremely painful, and eventual kidney failure and death. At least 1,200 babies in China were later diagnosed with serious kidney disease. An investigation determined 22 Chinese companies were linked to the tainted formula, including several state-owned firms, Reuters reported.

One of the top offenders, Sanlu, learned as early as August 2008 that local farmers had added melamine to their milk to increase its protein levels. The formula from these farms was found to have more than 4,000 times the acceptable level of melamine, according to World Health Organization guidelines. The company had been receiving complaints about its product for at least nine months before that, according to a July 2018 report on Quartz, an aggregated and curated news website. Because China was hosting the Summer Olympics in Beijing that year, Sanlu, which held almost 20 percent of the formula market, worked to suppress the news. Sanlu started as a state-owned company and later expanded into a joint

venture by selling 43 percent of its shares to a New Zealand company, Quartz reported.

Sanlu's top executive, Chairwoman Tian Wenhua, also a member of the Chinese Communist Party, was sentenced to life in prison for producing and selling the contaminated formula even after the company knew it could be deadly, *The New York Times* reported. Several other executives received lighter sentences. In 2009, a dairy farmer and a supplier who had distributed the contaminated product were executed, *The Guardian* reported. That same year, Sanlu filed for bankruptcy, according to the china.org.cn website.

As a result of the PRC's contributions to and mismanagement of the crisis, more than 53 percent of consumers still prefer a foreign brand for baby formula, according to a 2017 survey of 10,000 people in 44 Chinese cities by McKinsey & Co.

The demand is strong enough to cause formula shortages in nearby Hong Kong, Quartz reported. In recent years, China purchased half of Australia's retail supply of formula via consumer-to-consumer channels, according to *The Washington Post* newspaper. In 2015, Chinese demand for formula exceeded U.S. \$200 million in sales, *The Sydney Morning Herald* newspaper reported.

ONGOING HIV FEARS

China has also been rocked by previous HIV scandals afflicting entire communities. In the 1990s and 2000s, thousands of Chinese citizens contracted HIV after selling their plasma or receiving transfusions or products made from tainted blood products collected at what the PRC refers to as illegal donation centers. The contamination occurred because the facilities lacked safe procedures for collecting plasma and transfusing blood products, according to a report by National Public Radio, a nonprofit news organization headquartered in the U.S. More than 43 percent of people who provided blood at such centers contracted HIV, China's Ministry of Health said. The citizens in provinces where the blood was collected are still suffering the consequences of AIDS, according to Sixth Tone, a Chinese media startup, which vividly describes the so-called AIDS villages created by the debacle.

"The root of AIDS in China was the plasma market," Gao Yaojie, a doctor who helped uncover the cause of the epidemic in Henan province, told *The New York Times* in 2016. "This was a man-made catastrophe. Yet the people responsible for it have never been brought to account, nor have they uttered a single word of apology."

The disaster led the PRC to eventually put in place better screening procedures for blood products, but

Chinese authorities continued to let their citizens down in terms of managing the disease and conducting health education campaigns. For one thing, widespread efforts to screen affected communities didn't begin until 2004, according to Sixth Tone.

Today, although the spread of HIV has slowed worldwide on the whole, the number of citizens in China living with HIV and AIDS continues to increase at an alarming rate. The PRC's Centre for Disease Control said in November 2018 that 850,000 people in China have tested positive for HIV, according to *The Economist* magazine. The numbers are 12 percent higher than the previous year and nearly triple the number reported in 2010. Meanwhile, global new HIV infections have declined by 18 percent from 2.2 million in 2010 to 1.8 million in 2017, the most recent year for which data are available, according to Avert, an international HIV and AIDS charity.

About 40,000 new cases were reported in China in the second quarter of 2018 alone, according to a BBC report. Cases involving 15- to 24-year-olds rose by more than one-third every year between 2011 and 2015, according to a July 2018 study published in *The Lancet* medical journal.

More than 81 percent of new cases are generally thought to be linked to sexual intercourse and not blood donations, *The Lancet* reported.

Chinese officials attribute the rising numbers at least in part to more widespread testing, yet some public health officials contend that more could have been done to stop its spread.

FOOD SCARES

Besides the baby formula catastrophe, there have been past food scandals in China from melamine-contaminated eggs to formaldehyde-coated cabbage to 40-year-old frozen meat and cooking oil recycled from dumpsters. Consumers worry on a daily basis that other foods might be contaminated, according to assorted media reports. A leading reason for worries over food safety is the PRC's widespread overuse of pesticides and fertilizers in the 1980s and 1990s that contaminated farmland for crops and animals, as reported in 2001 by the Centre for Chinese Agricultural Policy, Chinese Academy of Agricultural Sciences in a paper titled, "Farm Pesticides, Rice Production, and Human Health in China." Acres have also been contaminated by industrial processes that went unchecked for decades.

The PRC has only begun to address this problem of contaminated agricultural soil, Yanzhong Huang, a senior fellow for global health at the Council on Foreign Relations (CFR), told Quartz in July 2018.





A man handles portions of frozen beef tripe from Brazil on a Hong Kong back street before they are smuggled into mainland China in July 2015. The month before, Chinese authorities seized 100,000 tons of smuggled frozen meat in China. Some of it was 40 years old and had begun to thaw, according to the state-run *China Daily* newspaper. REUTERS

The recent outbreak of African swine fever in China has done little to assuage overall food safety fears. China reported more than 100 outbreaks in 25 of the country's 34 provinces, according to the United Nations Food and Agricultural Organization. Nearly 1 million of the nation's 340 million pigs were slaughtered between August 2018 to January 2019, CNN reported in early February 2019. Although the virus has yet to infect humans, there is no treatment or cure available for swine fever, which causes lesions to form on the skin and organs of pigs, and in its most virulent form, is deadly to nearly all pigs, according to United Nations health officials.

The disease spread faster in China than in other countries, according to a February 2019 Reuters report. As the outbreak progressed, PRC officials repeatedly maintained that the "epidemic on the Chinese mainland was effectively dealt with and is under control," as the state-run media Xinhua reported, but month after month, more cases were reported. The PRC's lack of transparency likely contributed to the pace of the epidemic, some experts said. The epidemic continued after the then latest round of denials. Chinese officials in southern Hunan and northwest Gansu provinces found traces of the virus in pork products, including frozen dumplings, in February 2019, Voice of America reported.

SYSTEMIC PROBLEMS

China's biomedical and food production problems stem from deep-seeded systematic shortcomings, many analysts say. For starters, China's top-down regulatory process shuts citizens and many other key players out of the process. "Since the regulation of food safety incorporates several mutually reinforcing activities (production, marketing and consumption) and involves various stakeholders (e.g., manufacturers, traders, consumers, governmental actors), it is highly unlikely that pure top-down, state-centric regulatory and legal frameworks will be sufficient to defuse China's food and safety crisis," Huang wrote in a 2014 CFR blog post. His insights continue to hold true, given the ongoing blunders.

Until better reforms and more transparency are in place systemwide, Chinese citizens and the rest of the world, especially members of trading nations, will remain concerned about the quality of food and health products manufactured in China. Perhaps President Xi summed it best himself in a moment of clarity in 2013, the year he assumed office: "If our party can't even handle food safety properly while governing China, and this keeps up, some will wonder whether we're up to the job," he said, according to an account in *The New York Times*. □



SUSPICIOUS HARVEST

Analysts look critically at China's organ transplant system and question its legitimacy FORUM STAFF

FORUM ILLUSTRATION

The 21st century has proved to be big business for the organ transplant industry in China, which gained a reputation as the go-to country for medical tourists. Though documented cases of organ donations were few, the list of available organs for transplant remained plentiful, and the wait for a suitable match was as short as a few days to a couple of months. That type of availability and speed doesn't happen in other countries.

"In China, the organs come easy," an unnamed senior nurse said in *Killing to Live: The Dark Side of Transplant Tourism in China*, a 2017 documentary investigating Tianjin First Central Hospital, an organ transplant center in China. "It takes just two hours for them to bring the fresh organs here," the nurse said, reporting that a liver costs U.S. \$130,000, according to *The Epoch Times* newspaper, which was founded by Chinese-American Falun Gong practitioners.

Mounting suspicion and scrutiny concerning China's organ transplant business prompted the Chinese Communist Party (CCP) to create a national organ distribution system in 2013. Medical experts had long suspected that the sources of the abundance of organs available for transplant in China were political prisoners — practitioners of the forbidden spiritual movement Falun Gong, Uighur Muslims, Tibetan Buddhists, underground Christians and other supposed dissidents — who had been subjected to medical testing behind bars and whose organs were forcibly removed.

The Independent Tribunal Into Forced Organ Harvesting from Prisoners of Conscience in China has addressed specific questions that arose from evidence of systematic, widespread forced organ harvesting from prisoners of conscience in the People's Republic of China (PRC). The London-based tribunal has repeatedly invited Chinese officials to appear before it to answer questions about China's organ donation system, but its requests go unanswered.

The CCP continues to deny claims that its authorities forcibly removed organs, and as recently as April 2019, ignored yet another request to appear before the tribunal in London regarding these accusations.

The denials haven't stopped researchers such as David Matas, David Kilgour and Ethan Gutmann from continuing to ask questions. Matas, an international human rights lawyer; Kilgour, a former Canadian parliamentarian; and Gutmann, a China analyst and human rights investigator, published in June 2016 a nearly 700-page update to investigations and reports they produced 10 years prior.

The latest report, "Bloody Harvest/The Slaughter," examines the transplant programs of hundreds of hospitals in China, media reports, official propaganda, medical journals and other materials. Their research exposes data that prove Chinese officials perform upward of 60,000 to 100,000 transplants per year, contradicting official government claims that it only performs 10,000 and casting doubt that the PRC's revamped organ distribution center has

slowed its abhorrent practices.

"The fact that the evidence we have now examined shows much larger volumes of transplants than the government of China has asserted points to a larger discrepancy between transplant volumes and government of China-identified sources than we had previously thought existed. That increased discrepancy leads us to conclude that there has been a far larger slaughter of practitioners of Falun Gong for their organs than we had originally estimated," the "Bloody Harvest" report stated. "Even with the volumes of transplants the Chinese government has asserted in the past, there is a substantial discrepancy between the number of transplants and the number of sources which the government of China has identified — prisoners sentenced to death and voluntary donors. This discrepancy is one reason, among several, that led us in the past to the conclusion that the above groups have been the source of many, and indeed most, organs for transplants."

Matas, Kilgour and Gutmann notably use the term "organ harvest" — which denotes the illegal practice of removing organs from individuals — dead or alive — without their consent.

International norms, however, do exist. The World Health Organization (WHO) published

“The work of promotion of respect for human rights is not solely or even primarily the work of governments. It is the work of individuals everywhere, those to whom human rights belong.”

— David Matas, David Kilgour and Ethan Gutmann, authors of “Bloody Harvest/The Slaughter”

“Guiding Principles on Human Cell, Tissue and Organ Transplantation” that clarifies the international standards for transplanting organs. Endorsed in May 2010, the principles preserve essential points of a 1991 version while incorporating new provisions in response to current trends in transplantation, particularly the protection of the living donor, and the increasing use of human cells and tissues.

The WHO’s Guiding Principle 1 requires consent from the donor to remove an organ for the purpose of transplantation. Guiding Principle 10 requires traceability of organ transplants. Guiding Principle 11 requires that donation activities be transparent and open to scrutiny.

“The work of promotion of respect for human rights is not solely or even primarily the work of governments. It is the work of individuals everywhere, those to whom human rights belong. The killing of innocents in China for their organs is an atrocity which must concern us all,” Matas, Kilgour and Gutmann wrote.

Through their research, the men identified transplant recipients who later learned their donor had died during the extraction procedure and have expressed their shock over the gruesomeness of organ harvesting. “I was astonished to hear about the source of the organs. I felt very sad that I participated in such [a] thing,” Taiwanese resident Rourou Zhuang, who received a new kidney in China, said in the documentary *Human Harvest*, according to *The Epoch Times*. “I want to tell my story so that people can know about it.”

Hokamura Kenichiro, a Japanese patient, was shocked at how easy it was to get a new kidney. Ten days after he spoke with a Japanese broker in China, he found himself on a Shanghai operating table with a doctor who had only examined him the morning of the procedure.

“It was so fast, I was scared,” he said, according to *The Epoch Times*.

The cost of his kidney: U.S. \$80,000.

Oftentimes, people travel to China in groups for organ transplants. In 2001, for example, a broker arranged for nine patients from Southeast Asia to travel to Taiping Hospital for procedures. Doctors



David Matas, who co-authored reports on organ harvesting in China, speaks about his research at a conference in Hong Kong.

AFP/GETTY IMAGES

completed all nine transplants in two days, according to “Bloody Harvest/The Slaughter.”

In another instance, seven patients traveled from Hong Kong to China for kidney transplants. Doctors performed them all in the same day, and the patients went home a week later, the report said.

“Considering transplant volumes, hospital by hospital, doctor by doctor is, in China, a mammoth task. There are almost nine hundred hospitals and between nine and ten thousand medical personnel engaged in transplants. Moreover, cover-up is not just in China an aggregate, national phenomenon. It exists as well at the doctor and hospital level,” Matas, Kilgour and Gutmann noted. “Nonetheless, to get a grip on transplant volume figures, it is a task which must be undertaken.”

Several countries have held hearings on CCP organ harvesting. Spain, Italy and Israel are among those that prevent their citizens from traveling abroad for transplants.

In the absence of any official Chinese response or evidence to the contrary, the Independent Tribunal Into Forced Organ Harvesting from Prisoners of Conscience in China has entered an interim judgment against the CCP condemning the Chinese government of illegal organ harvesting based on



witness accounts and reports it has reviewed.

“The tribunal’s members are all certain — unanimously, and sure beyond reasonable doubt — that in China, forced organ harvesting from prisoners of conscience has been practiced for a substantial period of time involving a very substantial number of victims,” reads the interim judgment published by the tribunal in December 2018. A final judgment is expected in June 2019.

“We will deal in our final judgment in detail with our findings as to whether any international crimes have been committed by this practice, if so by whom and with detail as to time periods and numbers of victims. This final judgment will be derived from our further analysis of present material and other material yet to be provided and to legal advice yet to be received,” the interim judgment stated. “But — to repeat — it is beyond doubt on the evidence presently received that forced harvesting of organs has happened on a substantial scale by state-supported or approved organizations and individuals.”

The tribunal stressed that its conclusion is driven by evidence. Should evidence come later — from doctors, academics or Chinese government officials — the tribunal has said it would weigh that evidence just as if it had been presented in due course during the regular hearings with other evidence.

“We have to have in mind how the repeated

Falun Gong members demonstrate an organ harvesting procedure as they protest the alleged practice by the Chinese Communist Party.

THE ASSOCIATED PRESS

accounts in reports of forced harvesting of organs in the PROC [People’s Republic of China] — even those reports that have touched on possible criminality — have not, so far as is known, had any or much effect on transplant practices in the PROC,” the tribunal said. “It is possible that the clear and certain finding — beyond reasonable doubt — that we make about forced organ harvesting, although not by itself and at this stage a finding of international criminal liability, will have a direct effect on the PROC or on those with whom it interacts. They should, once aware by our judgment or otherwise of the practice in China of forced organ harvesting, reflect on any support they effectively give by engaging with the PROC.”

In the meantime, and in another attempt to continue shedding light on this once secretive Chinese practice, authors of “Bloody Harvest/The Slaughter” urge anyone with further knowledge of China’s organ harvesting techniques to share that information — anonymously if necessary — by contacting ChinaOrganHarvest.org in either Chinese or English, [Doctors Against Forced Organ Harvesting](http://DoctorsAgainstForcedOrganHarvesting.org), or EndOrganPillaging.org in English. □

ARCTIC AMBITION



The People's Republic of China launched its first domestically built polar icebreaker, Xue Long 2, at a shipyard in Shanghai in September 2018. REUTERS



THE PEOPLE'S REPUBLIC OF CHINA IS STAKING A MERITLESS CLAIM TO THE POLAR REGION

COL. JOSEPH A. MUSACCHIA JR./U.S. AIR FORCE

The Arctic region has become an important area of interest to the world. The search for a shorter route from the Atlantic to Asia has been a dream and quest of maritime powers for centuries. The melting of Arctic ice raises the possibility of saving several days of sailing and several thousands of kilometers between major trading blocs. The receding ice has resulted in increased maritime traffic in the region and has the potential to open two trans-Arctic routes, the Northern Sea Route (NSR) and the Northwest Passage (NWP). This increase in shipping will create the potential for possible conflict between nations.

The NWP has been unreliable, so it is not a viable option for commercial shipping through the Arctic region, which is defined as the area within the Arctic Circle, a line of latitude roughly 66.5 degrees north of the Equator. The region contains the Arctic Ocean basin and the northern parts of Norway, Sweden, Finland, Russia, Canada, Greenland and the U.S. state of Alaska. The NSR has been ice-free to a greater extent than the NWP, and Russia has operated in these waters since the 1930s. The NSR travels along the Russian coast and thus Russia claims the NSR as part of its territorial waters. Russia has defined the

NSR as “historic waters,” or those over which the state has historically exercised sovereignty. In 1964 and 1986, the United States sent research vessels into the NSR — an action allowed under internationally recognized laws of the sea — and they were blocked from further passage by Soviet Navy vessels, according to a 2012 U.S. Air War College analysis.

Such threats to the so-called global commons are a major concern to not only Arctic nations but also to all who desire to exercise their right to sail and operate in international waters — free of coercion. In the 2016 Joint Operating Environment 2035 document, the U.S. Joint Chiefs of Staff stated that open and accessible global commons are the pillars of the current international economy and empower states that use them to conduct commerce, transit, scientific study, or military surveillance and presence. This document predicts that in 2035 nations will find themselves challenged in parts of the global commons as states and some nonstate actors assert their own rules and norms within them. In particular, it is expected some states will begin to enforce their own interpretations of acceptable behavior in the air and maritime commons, specifically near strategic maritime chokepoints. It is feared that these states will attempt to extend administrative control over commercial activities transiting their continental shelf areas and their exclusive economic zones, backed by increasingly capable and numerous adversary maritime assets and warfare capabilities, the document said.

PRC'S ECONOMIC INTEREST

The Bering Strait is one of the eight global maritime chokepoints. Regardless of vessels traveling through the NWP or the NSR, all must pass through this key strategic point. (See insert: “Melting Ice Changes the World.”)

Freedom of navigation is key to commercial shipping. The increased use of the Arctic, in particular the NSR in the near future, is of concern and of interest to many states because it could transform shipping. It is 40 percent quicker to ship goods from Europe to Asia along the NSR than it is to use conventional shipping routes. This can significantly reduce fuel cost and allow goods to reach market in one-third of the time.

Asia's big exporters are looking north, but none with a more intense gaze than the People's Republic of China (PRC). The PRC relies heavily on international shipping for its economic development — 46 percent of its gross domestic product (GDP) is shipping dependent, according to a 2012 report in the journal *International Affairs*. Many U.S. officials and academics suspect that the PRC's interest in the Arctic is to exert influence as a rising regional power through partnerships with Arctic countries and a presence in the region. This is not only an economic interest but also contains a security aspect.

The PRC has been working aggressively to build strategic relations in the region through commercial

efforts to advance its economic interest and also to establish a presence in the region, as the International Security Advisory Board detailed in its 2016 “Report on Arctic Policy.” The nation that the PRC has been most successful with is Iceland, a member of NATO and the European Union. The PRC has a large diplomatic presence in Iceland, and its embassy is the largest in Reykjavik, the capital. This presence facilitated a free-trade agreement with Iceland, the first between China and a European country, according to a 2015 report in the peer-reviewed journal *Polar Record*.

In the 1990s, the PRC began to conduct Arctic research. In 2004, it established a permanent research station at Ny-Alesund in Norway's Svalbard archipelago. The PRC attempted to solidify this foothold with a bid by a Chinese billionaire to purchase 218 square kilometers of land in Svalbard. The Norwegian government saw this as a strategic move by the PRC and stopped the action by purchasing the property to secure full control over development in this key strategic area, *The Barents Observer*, an online newspaper, reported in October 2016.

China made a bid to become a permanent member of the Arctic Council and claims that it is a “near-Arctic state.” In roughly 1993, the PRC purchased the icebreaker *Xue Long*. This provided the PRC with the ability to operate in the high Arctic, and in 2016, the PRC built and launched *Haibing 722*, a second icebreaker that also has the capability to land helicopters. In September 2018, the PRC launched its first domestically built polar icebreaker, *Xue Long 2*, at a shipyard in Shanghai. In the meantime, the PRC also assigned the *Haibing 722* to the Chinese navy's Northern Fleet, according to *Popular Mechanics* magazine. This fits the PRC's strategy that it identified in a 2008 defense white paper to shift from a coastal to a far sea defense. In 2010, a Chinese rear admiral stated, “With the expansion of the country's economic interest, the navy wants to better protect the country's transportation routes and the safety of our major sea lanes,” according to a spring 2013 report in the *Naval War College Review*. The PRC's Arctic strategy stresses cooperation over confrontation to avoid countermeasures from the Arctic coastal states. However, in March 2010, Chinese Rear Adm. Yin Zhuo proclaimed, “The Arctic belongs to all the people around the world, and no nation has sovereignty over it.” This was a hint to the Arctic coastal states that there should be no attempt to lock up the sea lanes of the Arctic.

PRC AMBITION

In 2015, the Chinese military presence materialized in the Arctic. For the first time in history and during a visit by then-U.S. President Barack Obama to Alaska, the PRC sailed five ships of the People's Liberation Army Navy (PLAN) in the Bering Sea. The ships entered U.S. territorial waters off Alaska, coming within 12 nautical miles of the coastline. The ships were exercising



The People's Republic of China built a research facility, pictured in 2016 under construction, in Karholl, Iceland, as part of a strategy to establish a presence in the Arctic.

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The U.S. Coast Guard cutter Douglas Munro sails past a glacier in Glacier Bay National Park, Alaska.

PETTY OFFICER 3RD CLASS TRENTON HIRSCHI/U.S. COAST GUARD

a freedom-of-navigation patrol in accordance with United Nations Convention on the Law of the Sea rules for innocent passage, which do not require, nor did the PLAN provide, notification to the coastal state, according to CNN.

This was clearly signaling to the U.S. and all Arctic coastal nations that the PRC can and will establish a military presence to protect Arctic sea lanes and the PRC's economic interests. The PRC ships were in the area of the Bering Strait, which provides access to the Arctic for China and all other Asian nations. This maritime chokepoint is the termination of both the NSR and NWP and the point through which all energy and trade transiting the Arctic must pass. The PRC presence demonstrated that it has the maritime reach and ability to protect that area with force.

The U.S. has no significant military presence in or around the Bering Strait. Additionally, Adm. Paul F. Zukunft, commandant of the U.S. Coast Guard, stated that the PRC has also positioned research vessels outside the 200 nautical-mile limit of the U.S. Exclusive Economic Zone, in the area that could be claimed as the limit of the continental shelf, according to Zukunft. As demonstrated with the freedom-of-navigation patrols in Alaska, the PRC has the strategic vantage point of exerting pressure on the U.S. in the event of a confrontation. The PRC could make strategic moves upon the Bering Strait, or what some now refer to as the "Bering Gate."

POWER PROJECTION

The PRC, for the first time, participated in Russia's Vostok 2018, which included Russia's nearly 300,000 personnel. The PRC sent a contingent of 3,200 personnel, 1,000 military vehicles and equipment, and 30 fixed-wing and rotary-wing aircraft. This exercise involved transit of Russian naval vessels through the Bering Strait and was designed to rehearse the defense of Russia's eastern territories and the NSR. The PRC wanted to demonstrate that it is capable of fighting a ground war, and it sent a clear message to rivals and the region that the PRC's military can operate in unfamiliar territories without difficulties — in particular, the Arctic.

Rear Adm. Steve "Web" Koehler, director for operations, U.S. Indo-Pacific Command (USINDOPACOM), stated that to compete for influence one must be present. A key element that the U.S. lacks in the Arctic region is a presence. A presence, as demonstrated previously, is well established by other Arctic coastal nations and even the non-Arctic nation of China.

While the U.S. has no assets permanently based above the Arctic circle, U.S. Air Force and Army units stationed in Alaska have increased their capabilities to conduct operations in the Arctic. Additionally, U.S. Marine Corps units continue to hone their Arctic capabilities in combined exercises such as NATO's Trident Juncture. The closest U.S. Coast Guard facility



A U.S. Navy Landing Craft Air Cushion hits the beach in Alvund, Norway, during exercise Trident Juncture 2018.

ALLIED JOINT FORCE COMMAND NAPLES

to the Arctic Ocean is in Kodiak, Alaska. The U.S. Defense Department states in its 2013 Arctic Strategy that it will “seek innovative, low-cost, small footprint approaches to achieve its objectives in the Arctic.”

The U.S. Navy wrote in its 2014 Arctic road map that it will make targeted investments in Arctic capabilities to hedge against uncertainty and safeguard an enduring national interest. In its 2013 Arctic Strategy, the U.S. Coast Guard stated that the U.S. must think and act strategically in this region. It emphasized the increasing importance of the Bering Strait, the U.S.’ current lack of maritime domain awareness (MDA) in the region, the need to provide a surface presence to safeguard U.S. territory and its resources and to safeguard freedom of navigation. The strategy argues that an effective presence on shore and at sea would enable MDA to focus U.S. resources on the highest risk and threats in the region. This presence is currently lacking with the closest deep-water port and U.S. Coast Guard station roughly 1,600 kilometers away. The strategy emphasizes interagency cooperation and whole-of-government solutions to create efficiencies and eliminate redundancies.

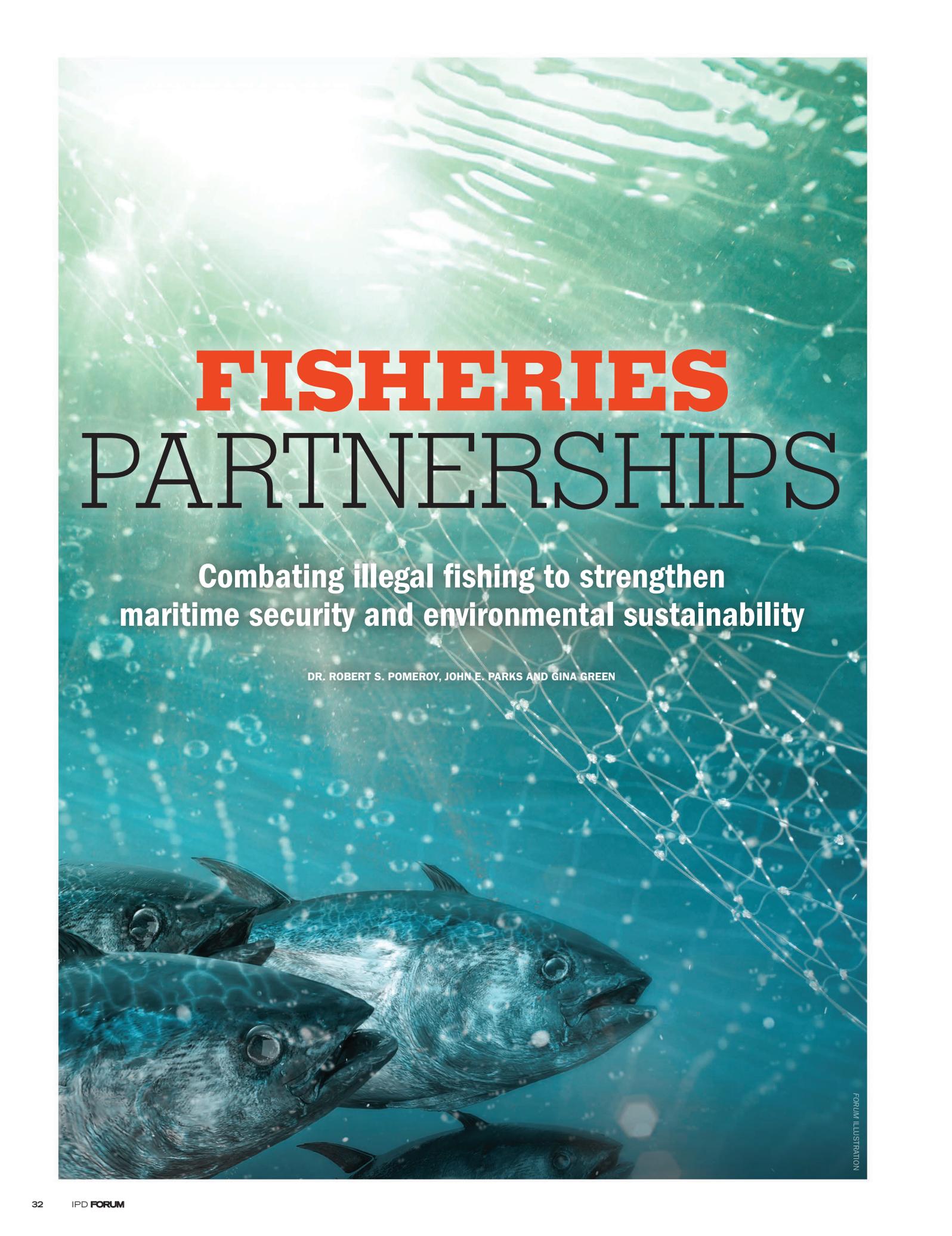
U.S. PORT PROPOSAL

A solution being considered that would counter the ambition of the PRC in the Arctic is the construction of a deep-water port in the Arctic. This would meet the intentions of all the previously mentioned Arctic

strategies, establish a presence, and provide a key piece of critical infrastructure that could be used in conjunction with Indo-Pacific allies to be present in this key global maritime chokepoint. The U.S. Army Corps of Engineers has studied this concept of building a deep-water port. U.S. Coast Guard cutters and icebreakers have drafts of 10 to 12 meters, and National Oceanic and Atmospheric Administration research vessels have drafts of 4.5 to 9.5 meters. As a result, these types of vessels are based outside the Arctic. Nome, Alaska, is a top contender in the Corps’ research and is considered one of the two most suitable ports.

The Corps study concluded that this type of port could serve as a base of operations and is best suited due to proximity to the Bering Strait. As a forward operating location, assets could be deployed when needed by the U.S. Navy and U.S. allies. The port could become a permanent base for a U.S. Coast Guard icebreaker. Nome also has a suitable airfield that could be improved to support forward deployed operations of the U.S. Air Force and allied aircraft.

This could counter the ambition and presence, if exerted by the PRC, with a combined effort of the U.S. and its allies in the Indo-Pacific. The development of this key piece of infrastructure would allow the U.S. and its allies and partner nations to, in the words of USINDOPACOM Commander Adm. Philip S. Davidson, “win without fighting.” □

An underwater scene with a fishing net in the background and several fish in the foreground. The water is a deep teal color with light rays filtering through from the surface. The net is made of thin, white lines forming a grid pattern. The fish are dark blue-grey with lighter spots on their sides. The overall mood is somber and focused on the theme of illegal fishing.

FISHERIES PARTNERSHIPS

**Combating illegal fishing to strengthen
maritime security and environmental sustainability**

DR. ROBERT S. POMEROY, JOHN E. PARKS AND GINA GREEN

FORUM ILLUSTRATION



Fishing is the largest extractive use of wildlife in the world. Fisheries products are the world's most widely traded foods, with commerce dominated by the developing countries. Fishing and fisheries-based commerce provide invaluable employment and cash income, create and grow local economies, and generate foreign exchange. In Southeast Asia alone, more than 250 million people rely on fish for at least 20 percent of their average per capita intake of animal protein. In some nations, for example, Cambodia and Indonesia, fish comprise more than 50 percent of dietary animal protein intake. More than 200 million people in Southeast Asia also rely on fisheries for their livelihood and income.

Despite the important role that fisheries play in maintaining the economies, livelihoods and food security of many countries, increasing scientific evidence indicates that marine and coastal ecosystems around the world have been drastically altered during the past 50 years, reducing their productivity, resilience and potential to continue providing societal benefits in the future. Evidence from recent assessments indicate broad reductions in the size and value of fish caught and the destruction of key, high-value fish species, particularly large predatory fish such as sharks and tuna. The decline in larger, predatory fishery catches has resulted in subsequent shifts to fishing for smaller and less-valuable species — a trend known as “fishing down the food web.”

In Southeast Asia, many fisheries have been fished down to only 5 to 15% of their original natural population levels. Overfishing and declining fish populations in Southeast Asia are leading to increased levels of competition and conflict among fishers over remaining stocks, leading to decreased economic and food security, reduced environmental sustainability, and threats to peace and order, recent research reveals.

Overfishing in Southeast Asia

Illegal, unreported and unregulated (IUU) fishing is one of the largest contributors to overfishing in Southeast Asia. IUU fishing occurs when national or foreign fishers and vessels violate the fishery laws of the relevant state or international treaty obligations, according to the United Nations Food and Agricultural Organization (FAO).

IUU fishing operations are known by law enforcement officials and fisheries managers in Southeast Asia to be associated with supporting insurgency, terrorism and organized maritime crime, particularly piracy, kidnapping and the trafficking of narcotics, humans and small arms.

Types of IUU fishing include the use of unauthorized fishing methods and gears, fishing within prohibited areas or during restricted time periods, conducting unauthorized catch transshipment, and altering catch reporting or falsifying information. A common example of IUU fishing occurs when overfishing and fisheries scarcity require fishers to venture beyond their traditional fishing grounds to meet catch requirements, including in the waters of neighboring countries where they are not licensed to fish. Coupled with other negative impacts from climate change, marine pollution and coastal habitat destruction, IUU fishing can result in the decline of a country's marine populations and biological diversity, including various fish stocks and the marine habitats that they rely upon. Recent studies suggest that a significant proportion of seafood products imported into the U.S. are being illegally caught and/or mislabeled.

In addition to its environmental impacts, IUU fishing is also commonly linked to serious human welfare abuses, including slave labor, and represents a nontraditional threat facing maritime security across Southeast Asia. IUU fishing operations are known by law enforcement officials and fisheries managers in Southeast Asia to be associated with supporting insurgency, terrorism and organized maritime crime, particularly piracy, kidnapping and the trafficking of narcotics, humans and

small arms. Maritime security threats are complex and interconnected, and although they may occur at sea, have large onshore impacts. In regions where there is ineffective governance at sea and insufficient monitoring, control and surveillance (MCS) capacity, these threats can proliferate and lead to maritime insecurity.

Tracking Catches

Recognizing that IUU fishing is a complex challenge facing the international community, governments and nongovernmental organizations are increasingly looking to multinational initiatives and regional policies that increase information exchange and promote collaborative approaches to combating IUU fishing within specified waters, according to the FAO. Also, large seafood-consuming nations, including the U.S. and European Union (EU) member countries, have developed new seafood import regulations that require the governments and/or private companies of exporting countries to provide verifiable documentation that their seafood products being imported are IUU-free, accurately labeled and involve no forced labor within their supply chain.

More recently, in 2018, the U.S. launched the Seafood Import Monitoring Program, joining the EU in requiring robust import documentation to verify product legality. To meet these requirements,

exporting countries are increasingly using electronic catch documentation and traceability (eCDT) systems to collect real-time, accurate and verifiable information at all points along the seafood supply chain, from point of catch through to landing, processing, transport and export.

The data provided along the supply chain by these eCDT systems can be used by the importing country to follow the verifiable information regarding seafood products “from bait to plate” to detect and deter IUU products. Such eCDT systems are typically a combination of hardware and software used on fishing vessels and on land, at port, in processing facilities, and within transportation systems. With an eCDT system, operators can document relevant information about a seafood product digitally and transmit it in real time to online data exchange services via satellite, cellular or radio frequency communication technologies. When combined with strong port-state control measures to prevent the importation and sale of undocumented fish, the big data generated through eCDT systems can significantly limit the entry of IUU fish into the supply

A Thai Navy Officer inspects a fishing boat in waters near Samut Sakhon, Thailand. The Thai Navy is using new technology to monitor fishing boats to crack down on illegal fishing and forced labor.

THE ASSOCIATED PRESS

Workers haul in nets on a fishing boat in Prachuap Khiri Khan, Thailand.

ISTOCK





The objective of MDA is to detect, prevent and mitigate a range of threats, such as piracy, trafficking and other forms of transnational criminal activity, based heavily on collecting, triangulating, fusing, analyzing and acting on information from a variety of sources and systems.

chain, thereby reducing revenues to illegal operators while strengthening market access for producers who are operating legally and traceably.

The U.S. Agency for International Development Oceans and Fisheries Partnership (USAID Oceans) is working to combat IUU fishing and seafood fraud throughout Southeast Asia by partnering with national and local governments, the fishing industry, and other private sector actors, regional organizations and other fishery stakeholders to encourage their adoption of eCDT systems. As of late 2018, project partners had deployed and were testing eCDT systems — including policies, hardware and software — onboard small and large-scale tuna fishing vessels, as well as at landing sites, tuna processing facilities and throughout transportation systems. Throughout 2019, USAID Oceans will support the analysis and decision-making use of eCDT data to help regional fishery managers and government agencies to manage sustainable fish catch levels, improve their understanding of fish stock status and strengthen real-

time MCS of fishing operations at sea, including issues associated with human welfare and transnational crime.

Enhancing Maritime Awareness

Maritime domain awareness (MDA) is the effective understanding of events, behaviors and dynamics within the maritime domain that have or could have security, safety, economic and/or environmental impact on the associated domain area of responsibility, according to U.S. Department of Homeland Security and International Maritime Organization definitions. A robust MDA capability requires real- or near-real time actionable intelligence triangulated from interagency, regional governments and private sector sources. The objective of MDA is to detect, prevent and mitigate a range of threats, such as piracy, trafficking and other forms of transnational criminal activity, based heavily on collecting, triangulating, fusing, analyzing and acting on information from a variety of sources and systems.

Continued on page 39

A Sea of Threats

The Indo-Pacific houses the world's most productive and biodiverse ecosystems that provide food and income to over 200 million people in the region. Unsustainable fishing practices, however, threaten the region's biodiversity, food security and livelihoods. In recent years, the fisheries sector has garnered attention for its adverse human welfare conditions, which are perpetuated by illegal, unreported and unregulated fishing, limited fish stocks and a lack of uniform standards.

Unregulated fishing

- Labor abuse/human trafficking
- Few champions for sustainable fishing
- Inconsistent enforcement of regulations

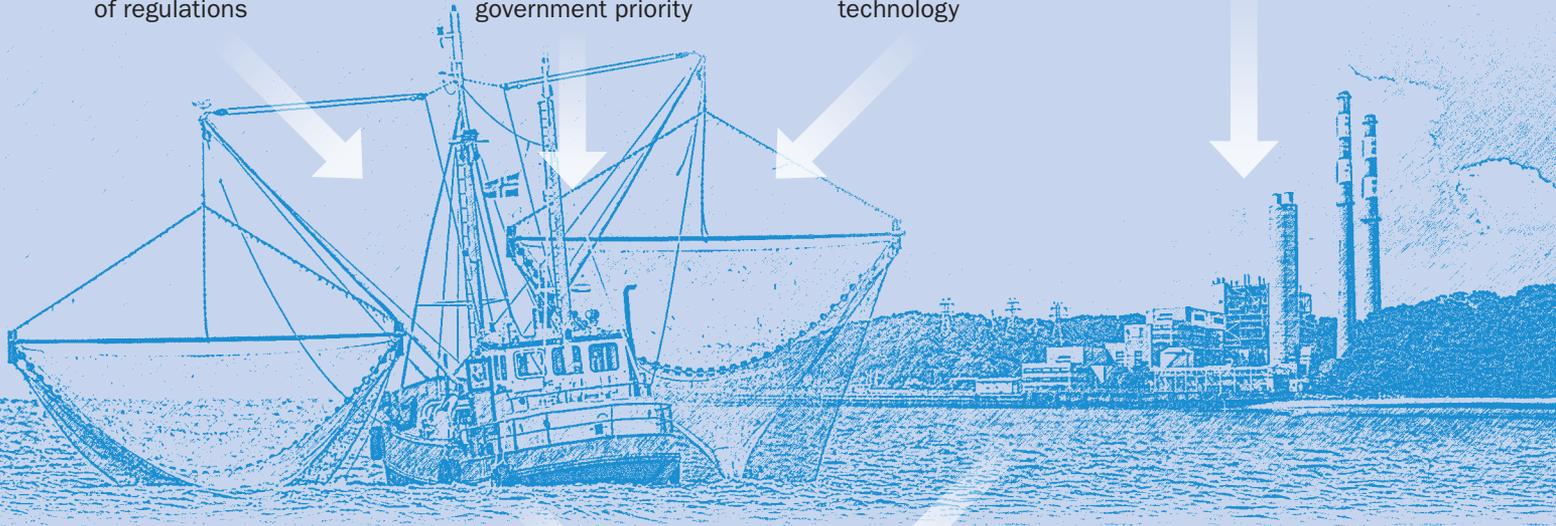
Illegal fishing

- Limited regional cooperation
- Inadequate national and marine governance
- Sustainability low government priority

Unreported fishing

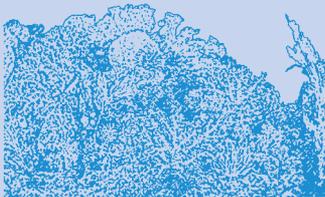
- Increasing demand for cheap fish
- Limited alternative livelihoods
- Lack of affordable technology

Climate change, destructive development, and marine and land-based pollution

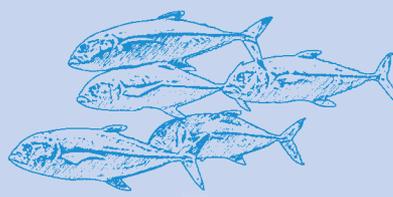


Illegal fishing threatens species and habitats

Reef and reef-associated species



Near to offshore pelagic species

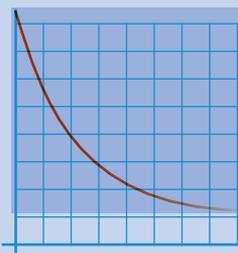


Soft-bottom coastal species

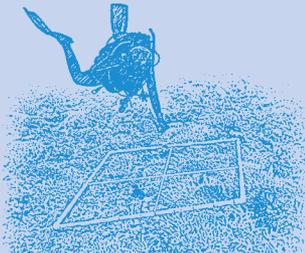


Sustainability and biodiversity suffers

Reduced diversity/abundance



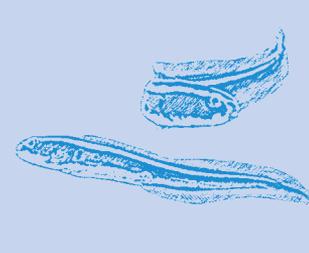
Habitat degradation



Changing temperatures and pH levels



Reduced reproductive capacity



Source: U.S. Agency for International Development Oceans and Fisheries Partnership

Catch Documentation and Traceability

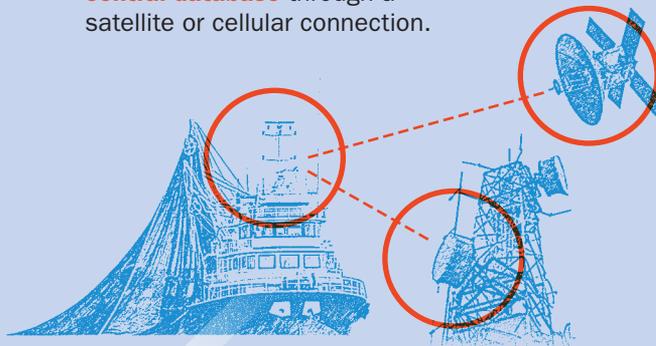
Electronic Catch Documentation and Traceability (eCDT) provides a means for governments and the fishing industry to better regulate fishing, prevent overfishing and enforce against illegal fishing – key drivers of marine biodiversity loss. With eCDT data, governments can strengthen laws and improve management of marine ecosystems.

TECHNOLOGY

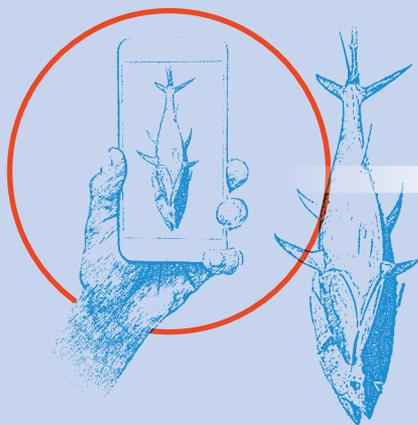
- 1 At sea, small- and large-scale fishers **enter catch data** via custom vessel monitoring devices equipped with data entry dashboards.



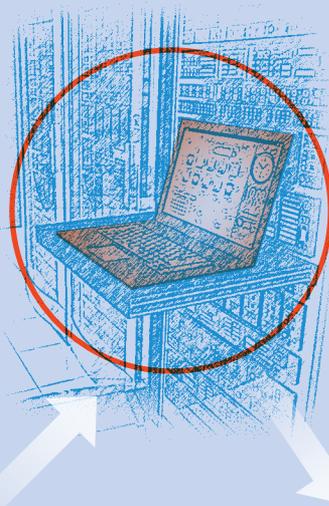
- 2 Information is **uploaded to a central database** through a satellite or cellular connection.



- 3 The vessel and its catch arrive in port or at the local landing site. **Data is captured by buyers/brokers** using custom smartphone or tablet applications.



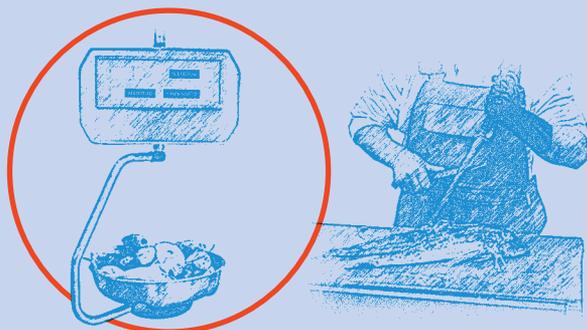
CENTRAL DATABASE



- 4 The seafood is purchased on-site and either exported immediately or sent to a processor. Its **data travels along with it**.



- 5 The seafood arrives at the processor with its data since catch and is canned, filleted or otherwise transformed for consumption. **Processors capture product data** as it moves through the assembly line.



- 6 Finished and **fully traceable** seafood products are sent to local or international export markets, with **data available** for every step in its journey.



Philippine program progresses to monitor fishing **digitally**



Fish for sale at the Wet Market in Palawan, Philippines

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

The Philippines is nearing completion of its implementation of a digital seafood traceability system in General Santos City that will eventually be expanded throughout the country.

The Philippine government, through its Bureau of Fisheries and Aquatic Resources (BFAR), designed its electronic catch documentation and traceability (eCDT) system to address illegal, unreported and unregulated fishing through full-chain traceability, from the point of catch to export. The eCDT pilot was launched in September 2017 during the Philippines' 19th National Tuna Congress.

At the point of catch, the BFAR eCDT system will use vessel monitoring systems (VMS) onboard large-scale fishing vessels to capture key data and ensure fish has been caught from a permitted area. Upon landing, data captured by the VMS will be electronically submitted to BFAR, which fishery officers will use to approve fish unloading and validate shipments for processing.

BFAR is working with the U.S. Agency for International Development Oceans and Fisheries Partnership (USAID Oceans) and the South Cotabato, Cotabato, Sultan Kudarat, Sarangani and General Santos region (SOCKSARGEN) Federation of Fishing and Allied Industries Inc. (SFFAI) to complete all links of the system. Based in Santos City, SFFAI

is a nongovernmental, nonprofit organization established in 1999 as an umbrella organization of seven associations that include over 100 companies involved in fishing, canning, fish processing, aquaculture production and processing, and other related industries.

The eCDT system is being piloted with several fishing and processing companies. To date, the system has traced over 25 metric tons of tuna from these companies, which include Tuna Explorers Inc., Marchael Sea Ventures, Rell and Renn Fishing Inc., Dex Sea Trading, General Tuna Canning Corp., Philippine Cinmic Industrial Corp., and RR Seafood Sphere Inc.

For now, the companies are using the eCDT system in parallel with traditional paper-based documentation systems, with the goal to transition to

entirely electronic documentation once the system is fully functional.

USAID Oceans and SFFAI have held a series of live data testing activities with the fishing companies, canneries and fresh-frozen processors to demonstrate the efficiency of the technology. BFAR programmers and technicians based in Manila are leading the system maintenance and improvement process, further building their capacity in adaptive system design and management.

A leading lesson learned during the ongoing pilot phase is that efficient and consistent communication between stakeholders is crucial in expediting the solutions to recurring issues, facilitating uninterrupted system testing and overcoming any problems in a timely manner.

USAID Oceans has been coordinating between BFAR and SFFAI to facilitate exchanges of feedback and solutions related to the technical challenges encountered through regular meetings and system development workshops. The workshops enabled all partners to address issues encountered during testing, as well as initiate action plans for further implementation of the eCDT system.

USAID Oceans continues to work with its partners across Southeast Asia, including in Indonesia and Thailand, to provide technical guidance and support to improve traceability, sharing experiences from the Philippines' pilot.

Used effectively, MDA can promote economic, social and political security and stability across Southeast Asia and around the world. At recent global conferences, including Our Ocean Conference 2018, maritime security has increasingly come to the forefront of private and public sector interest with large investments backing joint initiatives. Maritime security was one of the areas of action discussed at the conference, with its impact on national economic growth acknowledged and the requirement of sophisticated technological innovation.

Under the USAID Oceans project, nations in Southeast Asia are testing eCDT systems to combat IUU fishing that could also be used to enhance MDA and strengthen national and regional maritime security. Big data generated in real time along all points of the supply chain — from large- and small-scale operations — could be used by national and regional security partners to enhance existing MDA initiatives, including through analysis of information about at-sea position, fishing activities and vessel behavior, as well as legally documented and validated fishing crews. These capabilities also empower responsible large- and small-scale supply chain actors to verify their commitment to responsible, legal fishing practices.

For eCDT data to be used most effectively for MDA, it must be interoperable and able to be easily exchanged across governmental information systems, including those that house port in/out documentation, catch certificates, fishing licenses and vessel registrations, crew manifests, and law enforcement databases. Thus, an eCDT system extends into a range of mission-critical sectors related to maritime security to address drivers of instability, extremism, crime and violence. During 2018, USAID Oceans engaged with the Pacific Environmental Security Forum of the U.S. Indo-Pacific Command and began preliminary discussions relating to how such eCDT data could be demonstrated with national-level security and defense partners to enhance regional MDA.

Technology Solutions

To combat IUU fishing, eCDT systems in Southeast Asia can generate accurate and verifiable data relating to fishing vessel behavior, operations and position at sea in real time, thereby strengthening existing methods of MCS while enhancing MDA. The Philippines, for

Police watch as the Indonesian government destroys foreign boats seized for illegally fishing in Indonesian waters.
REUTERS



example, launched a pilot eCDT program (see sidebar) in September 2017 that is nearing completion. In the future, when such systems become increasingly accepted and used, the capture of multiple types of real-time eCDT data across thousands of operators, such as licensed fishing companies, will generate large data sets. They will require active machine learning with real-time, geospatial visualization tools so the data can be effectively integrated, analyzed and updated to provide accurate, real-time risk analysis to enhance MDA and enable defense and security priorities.

Such machine learning and risk analysis of big eCDT data will become an invaluable tool for security analysts and fisheries managers. Not only will such eCDT systems provide information on the position and behavior of fishing vessels at sea and their crews but also the status of threatened or endangered marine species and valuable fish stocks. Analysis of these big data will allow fishery managers to adaptively limit fishing, restrict bycatch, and enforce the use of prohibited gear types within specified waters. (Bycatch refers to fish and other marine species caught unintentionally while catching target species of target sizes of fish.) Big data generated by these eCDT systems will be used to enhance MDA within the Association of Southeast Asian Nations (ASEAN) member countries. □

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Shiprider Program



Members of the U.S. Coast Guard participate in exercise Pacific Blitz 2019 near Port Hueneme, California.

PETTY OFFICER 1ST CLASS MATTHEW MASASCHI/U.S. COAST GUARD

THE U.S. COAST GUARD PROMOTES THEATER SECURITY COOPERATION FOR A FREE AND OPEN INDO-PACIFIC

LT. CMDR. WARREN N. WRIGHT/U.S. COAST GUARD

The Theater Security Cooperation (TSC) efforts of the U.S. Indo-Pacific Command (USINDOPACOM) regional country teams, partner nations and allies have tied the Indo-Pacific region together for decades. TSC serves as a kind of military diplomacy that can create positive effects in regional political relations to counter detrimental outside influences and to enhance stability and security.

Through TSC projects, USINDOPACOM subordinate commands exercise military readiness, disaster relief and humanitarian assistance, bringing the governments of the region together in activities that provide mutual benefits. TSC efforts also support USINDOPACOM Commander Adm. Philip S. Davidson's vision for a free and open Indo-Pacific, in which "all nations should enjoy unfettered access to the seas and airways upon which our nations and economies depend."

BILATERAL AGREEMENTS

The U.S. Coast Guard's (USCG's) flagship maritime security cooperation program is the Shiprider program, and it is growing within USINDOPACOM every fiscal year. Through TSC, the USCG regularly exercises 11 bilateral fisheries law enforcement agreements with countries throughout the Pacific islands region. These agreements enable USCG and U. S. Navy (USN) vessels

and USCG law enforcement personnel to work with host nations to protect critical regional resources. Like TSC projects orchestrated by the U.S. Defense Department, USCG Shiprider projects promote host-nation sovereignty by enabling Pacific islands partners enforce their laws and regulations, while protecting resources.

USINDOPACOM's TSC program strives to achieve a balance in the region through activities and exercises that develop and leverage the diverse professional capabilities of the region's militaries, from the sophisticated such as Australia, Japan, the Republic of Korea and Singapore; to those in a transitional stage such as Fiji, the Philippines and Vietnam; to countries whose capabilities remain underdeveloped because of resource constraints, such as the Federated States of Micronesia, Kiribati and the Marshall Islands. U.S. relationships with these partners are crafted to factor differing capacities and to help improve varying competencies.

USINDOPACOM's TSC programs remain the cornerstone of the United States' sustained joint engagement with Pacific islands partners. They are focused on building operational and institutional capacity and developing partners' capabilities. They also provide a framework within which regional partners engage in interagency activities. These activities complement and reinforce other U.S. government agency programs, such as those of the State and Interior departments.



U.S. Navy Lt. j.g. Natalie Spritzer performs a wellness check during Pacific Partnership 2019 in Chuuk, Federated States of Micronesia. The exercise is the largest annual multinational assistance and disaster relief preparedness mission conducted in the Indo-Pacific. | Peruvian Navy Lt. John Gamara performs a wellness check during Pacific Partnership 2019.

PETTY OFFICER 1ST CLASS TYRELL MORRIS/U.S. NAVY

PROTECTING TRADE

Securing maritime highways for international commerce has always been important to the U.S. to ensure the Pacific links of the global supply chain. The Pacific islands region covers a vast portion of the Indo-Pacific, and its nations enjoy the shared importance of the economic value of their territorial seas. This economy remains dynamic, with some countries being rich in natural resources and successful in managing these assets and other countries lacking the capacity to succeed alone. The security problems these nations face also differ. In this highly active region, growing powers such as China and India are openly discussing trade and security goals with the realization that to ensure the former, the latter is required. How nations approach these engagements in the region also differ. Some favor agreements based on resource and territorial control, while others settle for access and future partnership.

In the Pacific islands region, the People's Republic of China (PRC) has embarked on two programs: Building a maritime force of navy, coast guard and commercial fishing vessels that is larger than most other nations and inserting them into the PRC's One Belt, One Road plan, and then creating an offshoot commercial artery, linking China through Southeast Asia with Pacific islands.

PRC initiatives appear to target perceived geostrategic advantages the U.S. has enjoyed from the combination of its bilateral agreements, the location of three U.S. territories and the Compact of Free Association with the Federated States of Micronesia, the Marshall Islands and Palau, a relationship that facilitates a U.S. strategic presence in the region.

PRC activities strive to alter the geostrategic balance by undermining U.S. relationships with its allies and partners, such as Australia, New Zealand and Fiji, by providing targeted and predatory development assistance to Pacific island partners.

The U.S. is working with regional partners such as Australia and New Zealand to stabilize the region and working with smaller partner nations such as Fiji and Palau to bolster resiliency. The best way to achieve these goals is to move beyond states and promote people-to-people interactions and cultural mingling of societies through intergovernmental security engagements and TSC.

In the maritime arena, the USCG is the agency partner of choice for many entities in the Pacific islands. The USN is a superior force, charged with the projection



Members of the U.S. Coast Guard (USCG) and Australian Fisheries Management Authority approach a suspect fishing vessel for boarding in the Western Pacific.

CHIEF PETTY OFFICER SARA MUIR/U.S. COAST GUARD

of U.S. sovereignty and freedom of navigation throughout the Pacific. These U.S. forces also perform maritime enforcement and environmental protection. Many U.S. partners will never have or need such a force.

SECURITY COOPERATION

The focus of USCG TSC projects is to build maritime safety and security by increasing maritime awareness, response capabilities, prevention methods and governance infrastructure. Through TSC, USCG and its interagency partners conduct engagement activities with Pacific islands partners and governmental/nongovernmental organizations to enhance partner nation self-sustaining capability to maintain maritime security within their inland waterways,

territorial seas and exclusive economic zones.

USCG provides sustained engagement using mobile training teams, interagency and international trainers, working from the 14th Coast Guard District, the Coast Guard's Directorate of International Affairs and Foreign Policy, the USN Pacific Fleet (PACFLT) and Nevada National Guard partners. As previously stated, these USCG capacity-building activities complement Department of State programs and are planned with the U.S. embassy country teams and partner nations. The goal is the development of professional officials who are disciplined, capable and responsible toward civilian authorities and committed to the well-being of their nation and its citizens.

Relationships are key to countering aggression and coercion in the region. TSC programs such as the USCG Shiprider program build enduring relationships while working alongside our partners as they conduct independent operations to maintain their sovereignty. Since 2010, these bilateral maritime law enforcement (MLE) shiprider agreements have provided U.S. vessel and aircraft platforms, as well as MLE expertise to assist Pacific islands officials with exercising their enforcement authority.

These agreements help close regional MLE shortfalls; improve cooperation, coordination and interoperability; and build MLE capacity to more effectively combat illegal, unreported and unregulated fishing, and other illegal activity. The agreements also allow partner nation law enforcement officials to embark on USCG and USN vessels and aircraft and allow these same platforms to assist host nation law enforcement officials with maritime surveillance and boardings.

U.S. COAST GUARD SHIPRIDER AGREEMENTS

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

The U.S. Coast Guard regularly exercises 16 bilateral fisheries law enforcement shiprider agreements with countries in the Eastern Pacific and in West Africa. In November 2018, Fiji became the latest nation to sign a shiprider agreement, which allows partnering nations' defense and law enforcement officers to embark on U.S. Coast Guard and U.S. Navy vessels to observe, protect, board and search vessels suspected of violating laws or regulations within their exclusive economic zones or on the high seas.

Shiprider agreements help close global maritime law enforcement gaps; improve cooperation, coordination and interoperability; and build maritime law enforcement capacity to more effectively combat illegal, unreported and unregulated (IUU) fishing and other illegal activity. The agreements are meant to complement and reinforce arrangements in place with partners such as Australia, New Zealand and France.

Fiji's law enforcement officers, for example, can now work on U.S. Coast Guard and Navy vessels as "shipriders." Missions include interdicting suspicious vessels potentially involved in illicit activities,

such as illegal fishing and smuggling, including the trafficking of illegal drugs. In the past six years, U.S. Coast Guard and Navy vessels have helped host nations board 103 vessels, identifying 33 violations, according to a 2018 U.S. Coast Guard report.

Bilateral maritime law enforcement shiprider agreements promote host nation sovereignty by helping the host nation enforce their laws and regulations. The adoption of shiprider agreements between other countries and in other regions could help strengthen global maritime law enforcement efforts.

The U.S. has signed a counter-high seas driftnet bilateral shiprider agreement with China, five bilateral shiprider agreements with West African countries — including Cape Verde, Gambia, Ghana, Sierra Leone and Senegal — and 11 permanent bilateral shiprider agreements with Pacific island countries, including Cook Islands, Fiji,

Kiribati, Marshall Islands, Micronesia, Palau, Nauru, Samoa, Tonga, Tuvalu and Vanuatu.

The collaborative, ongoing, international fisheries enforcement shiprider operations have been conducted by the U.S. Coast Guard over the past 23 years with China and nine years with the West African and Pacific island countries.

Shiprider agreements are an innovative and collaborative way to more effectively police the world's oceans. Countries interested in learning more about shiprider agreements are welcome to contact the U.S. Coast Guard or their local U.S. Embassy.



A joint boarding team awaits permission to proceed to a fishing vessel (not pictured) in the Palau Exclusive Economic Zone in accordance with a bilateral shiprider agreement.

CHIEF PETTY OFFICER SARA MUIR/U.S. COAST GUARD

Generally, USCG vessels, aircraft and MLE teams execute shiprider agreements; however, USN and host-nation vessels and aircraft participate as well, such as PACFLT's support of joint shiprider operations through the Oceania Maritime Security Initiative.

The USCG Shiprider program continues to be an innovative and collaborative way to effectively influence the region. With each adoption of a new bilateral shiprider agreement with a Pacific partner, the USCG helps strengthen regional stability.

DEEPER COMMITMENT

A greater re-engagement with Pacific islands partners is imperative for the U.S. and its allies to counter the growing PRC presence in the Pacific islands region. The USCG Shiprider program is perfectly aligned

to help meet this need in coordination with other USINDOPACOM TSC projects.

What may seem like 11 individual bilateral agreements between the U.S. and various Pacific island nations is actually the foundation of a regional partnership; an investment in shared environmental and maritime resources; a transparent agreement between nations with a shared interest in maritime safety and security; and a commitment to fair and reciprocal trade, throughout the central and south Pacific.

The U.S. stands firmly with its partners to ensure a free and open Indo-Pacific available to all nations. As the growing interest in the Shiprider program shows, the USCG is in a unique position to continue facilitating the enhancement of stability and security of U.S. partners in direct support of the USINDOPACOM mission. □

ALLIANCES *and* INNOVATION

KEY TO FUTURE MILITARY OPERATIONS



Gen. Robert B. Brown, commanding general of U.S. Army Pacific, spoke with *FORUM* on the sidelines of Yama Sakura in December 2018. He talked about the importance of such exercises, multi-domain operations, Pacific Pathways 2.0, India's growing regional influence and hypercompetition with China.

FORUM STAFF

FORUM: How is this year's Yama Sakura different from past iterations?

BROWN: Yama Sakura (YS) is a key exercise we do with one of our most important allies, Japan. When you look at the U.S.-Japan alliance, it's really the cornerstone of security in the Indo-Pacific region. At YS, we can exercise at the highest level possible. This year, we've made it even more complex. We brought in some multi-domain operation aspects. We've brought in all the domains, not just land, air and sea, but cyber and space as well. You have to be ready for anything that might happen anywhere in the world, and you have allies for a reason. They're your closest partners. You want to make sure that you develop those relationships before a crisis occurs. The good news is Yama Sakura is the best I've seen, and I participated over 20 years ago in YS.

FORUM: Explain the concept of multi-domain operations and how it relates to the Army.

BROWN: We have really the first new concept in quite a while because of how the world has changed, and that's multi-domain operations, which is really an evolutionary process, with revolutionary potential. Air-land battle was very effective in the past, but some things have changed. We no longer have dominance in all

domains or in any domains for a long period of time. Technology has adjusted things so those who will do us harm, in some ways, can move even faster than we can. Multi-domain operations present multiple dilemmas to your adversary and give you options, and you're not as predictable. It requires maneuver in all domains. And maneuver is a movement of position to relative advantage. We're seeing that even here in this exercise by leveraging multi-domain operations to keep the enemy off guard and to be successful. In this case, it's the defense of Japan scenario, but it could be any scenario. You're going to want to be less predictable, present multiple dilemmas to your enemy, and put them in the horns of the dilemma and make them make a decision, not you.

FORUM: Army rotations for Pacific Pathways will go to fewer rotations but stay longer to enable a greater understanding of how everyone works together. Talk to the benefits partner nations can expect to see from this change.

BROWN: Pacific Pathways started about five years ago, and it's one of the most innovative and effective engagement programs we've had across the Pacific and really throughout the world. You can talk about being expeditionary, tailorable, scalable and getting to a conflict or a situation, but unless you practice it, it's just talk. In Pacific Pathways, we're practicing deploying the way we would for real. We really concentrated in the first five years going to three or four countries and practicing those principles. In the future, we're looking at Pacific Pathways 2.0 and adjusting Pathways to stay longer in key nations to build stronger partnerships and alliances. We're staying up to six months in some countries. That will enable us to really help that country with what they need as we work together. We always learn from them, and they learn from us. There's some things we do better; there's some things they do better. It will give us more time to build those alliances and partnerships. That's a presence in the region that's very important. If something should happen, the USINDOPACOM (U.S. Indo-Pacific Command) commander wants options. Pathways unit, a brigade minus being in a country, gives him options west of the international dateline, closer to whatever might happen in the Indo-Pacific region. It's really an innovative program now moving into an even more innovative phase that will build key



“WORKING CLOSER TOGETHER AND MORE MULTILATERAL IS THE WAY OF THE FUTURE.”

– Gen. Robert B. Brown

Gen. Robert B. Brown, center, commander of U.S. Army Pacific, meets the Japan Northern Army commanding general, Lt. Gen. Masato Taura, during Yama Sakura 75 at Camp Higashi-Chitose, Hokkaido, Japan, in December 2018.

SGT. ERICA EARL/U.S. ARMY

partners and alliances, which is a key part of our national defense strategy.

FORUM: The U.S. has worked more deliberately to include India in future partnerships. What can you say about the evolution of India’s role in the region and its partnership with the United States?

BROWN: The U.S. has seven alliances in the world. Five of those alliances are in the Pacific when you look at Japan, Korea, Philippines, Thailand, Australia. Alliances are critical,

but also partners are critical. And emerging relationships. Our relationship with India continues to grow at a rapid pace. India is the largest democracy in the world. They have a huge impact on the region. One of the reasons Pacific Command changed to Indo-Pacific Command is the influence of India and the Indian Ocean on the region, where in some cases, we weren’t paying enough attention to it. We’ve leveraged a five-year plan to increase the complexity of exercises and to increase our engagement with India. India will be a key player in the Indo-Pacific region for many



years to come. Working closer together and more multilateral is the way of the future. One thing that's a huge advantage is when you have allies and partners, five or six nations helping to solve a problem, that's a heck of a lot better than one. And it will help maintain a free and open Indo-Pacific for the benefit of all nations.

FORUM: You said in a recent interview that the U.S. was in hypercompetition with China, which has resulted in greater multilateral relationships that the U.S. is building. Please expound on that.

BROWN: I've been in the Pacific for over 30 years on different assignments at all different levels, from a junior officer to the level I am now. What I've seen is that we used to have what we called phase zero, where not much was happening, and that's long gone. Now, it's a competition constantly, and that's in many

areas. Economic competition. Certainly security competition. Many would call it a hypercompetition. You have to be able to compete, and allies and partners are key. Five of our seven alliances are in the Pacific, and we're building additional partners and friends. When you tackle a tough problem, the more nations that are involved, the better off you're going to be. We've seen that in disaster response. We've seen that in dealing with North Korea. An entire world, the United Nations, said stop this effort to have nuclear weapons. Multilateral, multinational is the future. In that competition phase, it's really key that you get partners and friends to help you. Our goal is a free and open Indo-Pacific. It's the fastest growing region in the world. It's got the largest economies and incredible success from being based on an international rules-based order and a free and open Indo-Pacific that's available to every nation — not one that benefits a few, but one that benefits all. □

An Armed Forces of the Philippines Soldier, left, and Sgt. 1st Class Ron Mcvey operate communication equipment in March 2019 during Salaknib, an annual exercise that builds partner interoperability, capacity and relationships.

STAFF SGT. CODY JONES/
U.S. ARMY



FORUM ILLUSTRATION

SPACE WASTE

Working together to defend the planet from orbiting debris

THE WATCH STAFF



China tested its anti-satellite capabilities in 2007 by purposely destroying a nonfunctional weather satellite with a surface-launched, medium-range missile. The test created more than 3,300 pieces

of debris larger than 10 centimeters in diameter. A collision with any one of these pieces would prove catastrophic to the average satellite circling Earth or even the International Space Station (ISS), according to the European Space Agency (ESA).

The missile test also produced more than 200,000 debris particles as small as 1 centimeter, large enough to disable a spacecraft or penetrate the ISS shields. Even a collision with a particle smaller than 1 millimeter, such as a fleck of paint, could destroy a satellite subsystem because even those particles travel at more than 24,700 kilometers per hour in orbit.

“Any of these debris has the potential for seriously disrupting or terminating the mission of operational spacecraft in low Earth orbit” about 400 to 2,000 kilometers up, explained Nicholas Johnson, chief scientist at the U.S. National Aeronautics and Space Administration’s (NASA’s) Orbital Debris Program, which was founded in 1979 at Johnson Space Center in Houston, Texas. “This satellite breakup represents the most prolific and serious fragmentation in the course of 50 years of space operations,” he told space.com after the 2007 test.

Two years later a defunct 950-kilogram Russian satellite known as Cosmos-2251 collided with and destroyed a functioning U.S. Iridium commercial satellite, creating another 2,000 large pieces and more than 100,000 smaller particles. Together, the two incidents increased the amount of debris in low Earth orbit by 60 percent, with more than a third of the additional particles remaining in orbit for 20 more years.

In the past decade, the potential threat to satellites from orbital debris has continued to grow. The ESA estimates there are up to 34,000 pieces of space junk bigger than 10 centimeters in diameter; 900,000 objects between 1 to 10 centimeters; and 128 million objects between 1 millimeter and 1 centimeter in size orbiting the planet, for a combined mass of more than 8,400 metric tons — an amount greater than the mass of the metal structure of the Eiffel Tower. The figures include more than 2,900 satellites that are no longer operational but remain in orbit.

To mitigate the threat, the U.S. Space Surveillance Network (SSN), led by U.S. Strategic Command (USSTRATCOM), relies upon a global network of partners to identify, track and share information about space objects. Employing a range of internationally operated satellites, sensors, optical telescopes, radar systems and supercomputers, SSN actively tracks more than 25,000 man-made objects in orbit that are roughly the size of a softball or larger and then warns operators worldwide of pending collisions, according to Diana McKissock, a space lead with the U.S. Air Force’s 18th Space Control Squadron, which tracks space debris for SSN.

In 2018, for example, the U.S. Air Force documented 942,143 potential collisions with active satellites and 6,469 potential emergency situations, McKissock told *The Watch*. Operators reposition satellites roughly twice a week based on that information. Chief among the recent space hazards was China’s defunct Tiangong-1 space station that uncontrollably crashed to Earth on April 2, 2018, threatening land-based populations before its fiery demise. Luckily, the debris fell into the Pacific Ocean about 4,000 kilometers south of Hawaii.

CROWDED ORBITS

Managing man-made debris caused and created by space missions is increasingly challenging, especially as space becomes more accessible and congested as ambitions grow. Today, 60 governments are operating more than



International Space Station flight controllers routinely conduct avoidance maneuvers to steer the station clear of space fragments. This image features a night view of the station above Earth's city lights and the green glow of aurora along the outer edge of its atmosphere.

NASA

2,060 active satellites, and 12 countries and one governing body possess launch capabilities, according to the Union for Concerned Scientists, a nonprofit U.S.-based science association that keeps count. Experts predict the number of satellites in orbit could more than triple over the next decade because an average of 300 satellites with a mass of more than 50 kilograms are now being launched each year, and the pace is expected to accelerate. Within two decades, the number of satellites circling the planet could increase by a factor of 10 to 16,000 and with it the number of alerts, according to a 2018 policy paper published by the Aerospace Corp.

Space-based systems confer technological, tactical and economic advantages on nations that possess those

capabilities in the military and commercial sectors. Satellites enhance navigation, precision targeting, drone operations, communications and real-time situational awareness on the battlefield and beyond. Some commercial companies such as SpaceX and OneWeb plan to launch thousands of small satellites.

The world's increasing reliance on satellites reinforces the need for fostering cooperation and building partnerships, experts say. "As more space capabilities are launched worldwide and the number of people benefiting from the use of those systems grows, it is in all of our interests to work together to ensure the security, safety and sustainability of space," U.S. Air Force Maj. Gen. Nina M. Armagno, USSTRATCOM director of plans and

“The space domain is a global resource that is best protected and managed collectively.”

U.S. Air Force Maj. Gen. Nina M. Armagno



policy, said in April 2018. “The space domain is a global resource that is best protected and managed collectively.”

INTERNATIONAL COOPERATION

Nations are already working together to improve monitoring capabilities as well as technologies to control space junk. To ensure safe operation in space, USSTRATCOM signed space situational awareness (SSA) agreements with 89 entities, including 14 countries and two intergovernmental agencies to share data. They include Australia, Belgium, Canada, Denmark, France, Germany, Israel, Italy, Japan, Norway, South Korea, Spain, the United Arab Emirates and the United Kingdom, as well as the ESA and the European Organization for the Exploitation of Meteorological Satellites. USSTRATCOM, which has been monitoring space junk since 1957 when the Soviets launched Sputnik I, also shares information with more than 65 commercial satellite companies and is

MANAGING THE THREAT

Nations are teaming up to develop ways to remove space debris from orbit, testing many of the systems from the International Space Station (ISS). A consortium of researchers, led by Guglielmo Aglietti, director of the Surrey Space Centre at the University of Surrey, has been developing methods that strive to tether, harpoon or net space junk and bring such debris down to about 200 kilometers above the surface to re-enter Earth’s atmosphere and be burned up. The RemoveDebris satellite carrying the leading wave of these experiments was deployed from the ISS in June 2018 by the Japanese experiment module’s robotic arm to begin a series of tests.

“We have spent many years developing innovative active debris removal systems to be at the forefront of tackling this growing problem of space debris,” said Nicolas Charmussy, head of Airbus Space Systems, which developed three of the key technologies aboard the RemoveDebris satellite. “We will continue to work close with teams across the world to make our expertise available to help solve this issue.”

Space scientists from various space-faring nations are also working on approaches to create high-powered lasers that can vaporize space junk of all sizes. In 2015, Japanese researchers first proposed focusing small lasers into a beam and mounting them on Japan’s module on the ISS or on a satellite to target debris. Researchers at China’s Air Force Engineering University in Xi’an, Shaanxi province, proposed using satellite-mounted lasers to blast orbital debris, including pieces less than 10 centimeters wide. They published their approach in a February 2018 article in *Optik*, the international journal for light and electron optics.

Meanwhile, Precision Instrument Systems, which is a research and development branch of the Russian space agency, plans to build a 3-meter optical telescope that can track space junk in orbit and then blast it into oblivion, the Live Science website reported in June 2018.

Mitigating Future Risk

In the future, as space becomes more crowded, space junk could become even more perilous due to the Kessler effect. The notion posited in 1978 holds that as the density of objects in space increases, so does the probability for collisions between them. In a Kessler syndrome event

in a congested orbit, one collision leads to another and another, creating a disastrous chain reaction of collisions of space junk that could close regions of Earth's orbit to satellite traffic altogether.

Most space scientists think this wouldn't happen, if it happens at all, for several decades, however. "I'm not saying we couldn't get there, and I'm not saying we don't need to be smart and manage the problem," Jesse Gossner, an orbital-mechanics engineer who teaches at the U.S. Air Force's Advanced Space Operations School, told the website Business Insider. "But I don't see it ever becoming, anytime soon, an unmanageable problem."

Gossner and many other experts think finding, tracking and alerting parties about potential collisions remains the most effective approach to managing debris. "It's just a matter of watching and, with our active satellites that we do control, avoiding collisions," Gossner said. "It becomes a very important problem not just for that satellite, but then for the debris that it would create." And for now, some space scientists contend, the smallest particles, which are not trackable, may do the most damage.

Space debris of all varieties will undoubtedly be a continuing challenge for the international community as space ambitions and dependence grow. "Space is going to be a vulnerable domain, so we're going to have to think of ways to mitigate that risk and mitigate those threats," Elbridge Colby, then a senior fellow at the Center for a New American Security, told *The Washington Post* newspaper in January 2016. Colby is now deputy assistant secretary of defense for strategy and force development at the U.S. Department of Defense (DOD).

The new U.S. Space Force, which U.S. President Donald J. Trump announced in June 2018, will be up for the challenges. Trump has also advanced transferring some space situational awareness (SSA) responsibilities to the U.S. Commerce Department. Regardless of how the new space command is structured, the SSA mission within DOD will continue for reasons of national security, Gen. John Hyten, who now heads U.S. Strategic Command, advised on June 22, 2018, to the House Armed Services Committee. "That will not change ... because we have to have that information in order to defend ourselves against potential threats."

The cost of not doing so could be immense. "Every day, we use and rely on services provided by satellites without ever realizing how vulnerable they are," Dr. Hugh Lewis, head of astronautics research at the University of Southampton, told *UK Wired* in April 2017. "It's not just that satellites can be damaged or destroyed by space debris today or tomorrow, it's that the actions of our generation may affect the dreams and ambitions of future generations to work and live in space."

SPACE DEBRIS BY THE NUMBERS



Number of rocket launches since the start of the Space Age in 1957:
About **5,450** (excluding failures)



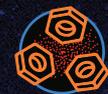
Number of satellites placed into Earth orbit:
About **8,950**



Number of these still in space:
About **5,000**



Number of these still functioning:
More than **2,060**



Number of debris objects tracked by Space Surveillance Network:
About **25,000**



Estimated number of breakups, explosions, collisions or anomalous events each year:
More than **500**



Total mass of all space objects in Earth's orbit:
More than **8,400** metric tons

Source: European Space Agency, January 2019



The RemoveDebris satellite was released from the International Space Station to test new technologies.

AIRBUS

working to expand the network. “Anyone in the world can request our data,” McKissock told *The Watch*.

USSTRATCOM’s SSA Sharing Program offers collision warning information for the lifetime of a satellite. The Combined Space Operations Center can provide prelaunch information to foreign and commercial operators to prevent collision of space objects with the launch vehicle and payload into early orbit. The program also conducts satellite re-entry assessments and can help track asteroid threats, as it did when the 45-meter-wide Asteroid 2012 DA14 passed between Earth and its geostationary satellites in February 2013.

The SSN includes a Space Based Space Surveillance satellite, which orbits at 628 kilometers above the planet, and sensors operated by Australia, Canada, Norway and the United Kingdom, as well as the Space Surveillance Telescope (SST), developed by the U.S. Defense Advanced Research Projects Agency. The SST, which can detect faint objects in geosynchronous orbit up to 35,400 kilometers high, is being moved to Australia from New Mexico to enhance launch detection and tracking in the Southern Hemisphere. In addition, the U.S. upgraded a C-band radar and recently moved it from Antigua Air Station in the Caribbean to Naval Communication Station Harold E. Holt in Exmouth, Western Australia. The radar was expected to become operational in 2019.

The SSN also includes the Space Fence System radar, a second-generation space surveillance system designed to track artificial satellites and space debris in low Earth orbit, which is nearing completion. The initial large S-band radar and facilities are being built at Kwajalein

Atoll in the Marshall Islands and also were expected to be operational in 2019, with an option for another radar site to be built in Western Australia. The enhanced capabilities will enable faster warnings of potential space debris collisions and a greater number — perhaps as many as 200,000 objects, including those down to 4 centimeters in diameter — to be tracked and cataloged.

The international space community also formed the Inter-Agency Space Debris Coordination Committee (IADC) in 1993 to serve as an international governmental forum for the worldwide coordination of activities related to the issues of human-made and natural debris in space. IADC’s members include experts on space debris and other specialists from 13 space agencies, including the Canadian Space Agency, China National Space Administration, European Space Agency, Indian Space Agency, Japan Aerospace Exploration Agency, Korea Aerospace Research Institute and NASA. USSTRATCOM also supports IADC’s efforts and those organized by the United Nations Office for Outer Space and its Committee for the Peaceful Uses of Outer Space to address space debris.

Nations are stepping up their contributions to space junk management. By 2019, for example, Japan will add a space monitoring division within its Self-Defense Force. “Initially, the force will be tasked with monitoring dangerous debris floating in Earth’s orbit and with protecting satellites from collisions with space debris,” according to *The Japan Times* newspaper. Japan will share information obtained by the new division with the U.S. military to strengthen cooperation in space, the newspaper said. □

The Watch is a publication of U.S. Northern Command.



ISIS

IN SOUTH AND SOUTHEAST ASIA

DR. NAMRATA GOSWAMI

Unmasking the underground version of the terrorist group and its vulnerable regional targets

The literature on terrorism, insurgency and information warfare indicates that terrorists and insurgent groups that use violence for political ends usually base their movements on popular support, legitimacy, ideology and local grievances.

This is true of terrorist groups such as al-Qaida and the Islamic State in Iraq and Syria (ISIS) that highlight Muslim grievances to justify their use of violence. They claim to represent those marginalized groups and fight for their redemption and dignity.

While a majority of Muslims rejects these apocalyptic self-styled groups that claim to represent Muslims, there is a target audience that has proved susceptible. The key is to find out who this minority audience is that supports this kind of violence and work

toward limiting their influence by connecting the silent, “usually neutral” majority with this minority audience that visibly opposes these terror groups and their activities, especially in areas where they have established presence.

Usually, this requires security guarantees from counterterrorism forces because people living in conflict areas are motivated by self-preservation and suffer from high stress. The primary goal of terrorist groups such as ISIS is to undermine the legitimacy of the state, promote disorder and establish control over the target population in the short term to meet their long-term goals of establishing their own state structure. ISIS has adopted a strategy to coerce, persuade and intimidate the population to support its political causes. ISIS is operationalized by running parallel governments, visibly broadcasting its presence and threatening the population via its armed presence with dire consequences if support is not enlisted.

ISIS framed its movement within well-known apocalyptic Islamic literature of end times and portrayed the idea of its caliphate as offering the space where the Messiah or Mahdi will emerge. To this end, ISIS captured strategically inconsequential towns, such as Dabiq in Syria, which it cites in apocalyptic literature as the site where “Western crusaders” will be defeated.

The rapid takeover of territory by ISIS in Iraq and Syria in 2014, its secretive organizational structure and its goal of establishing a Sharia-based state and caliphate, marked the entry of a new type of territorially oriented terror group, one that was heavily influenced by al-Qaida in Iraq, led by Abu Musab al-Zarqawi, in terms of tactics and visible demonstrations of violence, including the beheading of foreigners on video. ISIS went on to develop a propaganda strategy that streamed its videos and speeches to millions.

Unlike al-Qaida, which had a long-term goal of targeting the West, ISIS aimed to take on a more near-term enemy — namely, the Shias and those who did not adhere to ISIS' interpretation of Islam. Also unlike al-Qaida, which broadcast its audio and videotapes through networks like Al-Jazeera, ISIS produced its own films, short documentaries and audio narratives of what an Islamic state should look like and then used social media to disseminate its videos and imagery.

ISIS has used its online presence to reach out to Muslims across the world, especially from the West, by calling them a “chosen few from distant lands” and cleverly using British or Canadian Muslims to describe life in the caliphate as normal, prosperous and a religious paradise. In one of the videos, a Canadian ISIS member describes how he enjoyed a normal life in Canada, earning good money and enjoying a good life, when the call of the caliphate, a religious obligation for all true Muslims, landed on his doorstep in the form of a laptop.

Using Canadian or British English, such videos are aimed at susceptible Muslim youth in the West. The impact has been felt with several youths, mainly in the 16-to-35 age group, traveling to the caliphate. ISIS locates its discourse in a heady mix of sectarianism, apocalyptic narrative, longing for a caliph, or chief ruler, and an attention to spreading their propaganda beyond Arab-speaking populations. ISIS magazines, videos and audio broadcasts are available in several languages and are easily accessible.

The designs are slick and cater to the millennials' sense of internet savviness. Significantly, ISIS leadership is mostly drawn from Iraq, the seat of Sunni grievance, to include Saddam Hussein-era military officers at the level of colonel and above. What this implies is that ISIS brings to the table years of military training, survival tactics, local networks and the experience that these officers gained while sustaining Saddam's authoritarian regime. The fusion of intoxicating religiosity, heavily based on the life and sayings of the prophet, social media campaigns, Quranic recitation, ancestry, ethnicity and military culture all fused together to deliver to ISIS the quick success it enjoyed when it rolled into Syria and Iraq. The civil war in Syria only helped matters for ISIS, especially when coupled with the Bashar al-Assad regime's own focus on ensuring that it does not become another victim of regime change in the Middle East, as was the fate of Tunisia, Egypt and Libya.

Moreover, while al-Qaida has established subgroups for different territories, it has not established a caliphate. ISIS established a caliphate and then released a map in which it identified territories, including Bangladesh, Burma, India and Indonesia, to which it aimed to expand its presence and domain. Toward this end, ISIS utilized the idea of Khorasan, historically viewed as the golden age of Islam. This belief is based on the hadith in Sunan at-Tirmidhi that black banners will rise from Khorasan and spread to Mecca and Jerusalem, cities with deep-seated religious significance in Islam. ISIS envisions an



A Muslim woman releases a dove as a symbol of peace during a rally against ISIS in Jakarta, Indonesia. The banner reads: “ISIS is not Islam’s voice. Stop killing journalist.” THE ASSOCIATED PRESS

end-times battle in India (*Ghazwa-e-Hind*) between true believers and unbelievers.

In mid-March 2019, a U.S.-backed alliance of Syrian fighters announced that ISIS had lost the last section of territory in Syria it controlled, “bringing a formal end to the ‘caliphate’ it proclaimed in 2014,” the BBC reported.

There are concerns, however, that ISIS will aim to expand to Afghanistan, and then through its Khorasan province into South and Southeast Asia. This is based on its “remaining and expanding” goals.

STATED TARGETS

ISIS wants to spread physically to Bangladesh, Burma, India and Indonesia. In recent years, violent attacks have been registered against secular bloggers and foreigners with ISIS claiming responsibility specifically for those targeting foreigners. ISIS lists Bangladesh in “The Revival of Jihad in Bengal” manifesto and warns that it will use Bangladesh as a base for further expansion into Burma and India. The rising intolerance in the country, including the growing political chasm between the Awami League (AL) and the Bangladesh Nationalist Party over the targeting of Jemaah Islamiyah (JI) leaders in a criminal investigation by the AL government, creates a vicious atmosphere of division and hate. Organizations such as Islami Chhatra Shibir, whose goal is to establish Sharia in Bangladesh, have been accused of instigating



Members of Indonesia's counterterrorism squad Special Detachment 88 escort radical cleric and ISIS recruiter Aman Abdurrahman to his court trial in Jakarta, Indonesia, in May 2018. He was sentenced to death in June 2018 for inciting five deadly attacks in the country. THE ASSOCIATED PRESS

violence against secular bloggers. The matter gets further complicated by the fact that while the Bangladesh Constitution includes secularism as one of its principles, its state religion is Islam.

BANGLADESH

Both ISIS and al-Qaida in the Indian subcontinent aim to spread to Bangladesh, taking advantage of divisions within the country. The Bangladesh government denies the existence of ISIS within its territory and blames local terror groups for the growing violence. The weak state presence in rural areas of Bangladesh could provide some ground for ISIS' upstate presence. Areas of vulnerability could be Rohingya refugee camps, as well as the Cox's Bazar area, infamous for its illegal small-arms factories and as a conduit for the flow of illegal small arms, given its proximity to the Golden Triangle where the borders of Burma, Laos and Thailand meet.

The U.S. and Bangladesh issued a joint statement in 2016 that identified the shared threat posed by ISIS and al-Qaida. Bangladesh is also a participant in the U.S. Counterterrorism Partnership Fund. U.S. Special Operations Command (USSOCOM) and Bangladesh could work within that framework to share intelligence. Of special relevance is ISIS' use of apps such as Viber, WeChat and WhatsApp to share its ideology and recruit volunteers. Bangladesh lacks a skilled regulatory system

to monitor these activities efficiently. International partnerships can augment this capacity.

BURMA

Burma has witnessed growing violence against the Rohingyas, part of its majority Buddhist population. Rohingya Muslims are denied citizenship despite living in Burma for generations, and most have fled the violence in recent years to seek refuge in neighboring Bangladesh. In the new democratic structure, the National League for Democracy (NLD) has failed to offer representation to this community, rendering them voiceless. Muslims accuse the NLD of compromising with democratic principles, while anti-Muslim sentiments are raked up by Buddhist monks like Asin Wirathu. Both ISIS and al-Qaida noted the Rohingya crisis and pledged to fight on their behalf. The Rohingya Muslims have armed groups such as Harakah al-Yaqin (HaY) and the Rohingya Solidarity Organization claiming to fight for them. HaY has attacked the Tatmadaw and the Border Guard Police, bringing about a counterinsurgency operation that has been accused of massive human rights violations.

There are concerns that Rohingya Muslims could fall for ISIS propaganda and recruitment. This view is strongly countered by Wakar Uddin, director-general of Arakan Rohingya Union, who believes that linking the Rohingya crisis to ISIS is a deliberate attempt to



THE ASSOCIATED PRESS



Left. Bangladesh police stand guard in late December 2016 after cordoning off a building where suspected militants are hiding in Dhaka, Bangladesh. **Right.** A member of Indonesia's Special Detachment 88 walks past wreckage after an attack, inspired by ISIS on a church in Surabaya in May 2018.

distract international attention from the humanitarian crisis underway. In addition, Rohingya Muslims follow a moderate Sunni Islam and practice Sufism. Puritanically extreme Islam of ISIS holds little appeal. Furthermore, the areas that ISIS aims to spread in Burma harbor strong ethnic armed insurgencies like the Was and Kachins. This will pose a severe threat to an ISIS presence.

INDIA

ISIS desires to occupy territory in India via Pakistan and Afghanistan, first by establishing bases in these two countries and then adopting a strategy of attrition regarding India. It wants to collaborate with Indian terror groups such as Indian Mujahideen, Ansar ut-Tawhid fi Bilad al-Hind and Junud al-Khalifa-e-Hind. ISIS cites the 2002 Gujarat riots, the issue of Kashmir and treatment of Muslims in a Hindu majority India as causes for the terror group's expansion into India. ISIS mocks Indian Muslims for peacefully co-existing with Hindus (*kuffar*) and tries to instigate them to carry out terror attacks in India. In a May 2016 video, ISIS pledged to fight for Muslims in Assam, Kashmir and Gujarat. ISIS mocked Indian Muslim clerics for standing up to their extreme tactics and designated them infidels. In March 2017, ISIS launched its first terror strike in India, injuring 10 passengers by setting off a bomb on a train. The chapter on India specifies four factors that have limited ISIS' appeal in India; its representative political structure: its social fabric of diversity that fuses together several cultures and creates

societal harmony; the issuance of fatwas (legal decrees) by influential Indian Muslim *ulema* (scholars) against ISIS; and a web of counterterrorism agencies and special forces that have worked to limit terrorism. Two key areas of vulnerability in India are regions that have a weak state presence as well as the rising tide of Hindu nationalism.

INDONESIA

Indonesia views its fight against ISIS in ideological terms, a battle between moderate and radical Islam, with its version of moderate Sunni Islam offering a fitting counter to ISIS. Despite this, ISIS still attempts to spread its presence in Indonesia. ISIS Indonesian leaders such as Bachrumsyah Mennor Usman, Bahrun Naim and Gigih Dewa operated from Iraq and Syria. Bachrumsyah was appointed by Abu Bakr al-Baghdadi as leader of an ISIS Southeast Asia battalion called Katibah Nusantara. However, major Indonesian terror groups, including JI, view ISIS as a rival. Moreover, Indonesian civil society organizations, such as Nahdlatul Ulama and the Brotherhood Forum of Indonesian Council of Religious Scholars, have rejected ISIS ideology and instead preach an Islam based on pluralism, tolerance and socioeconomic development. Indonesian political institutions are based on democratic values, and Muslims are well represented. Former Indonesian presidents such as Abdurrahman Wahid played an instrumental role in accepting the country's diversity as part of Pancasila principles of peaceful coexistence.



Special counterterrorism units such as Special Detachment 88 have succeeded in thwarting ISIS-inspired plots. The unit has benefited from assistance from the U.S. and Australia for training and intelligence sharing. It is critical to persistently counter ISIS messaging in the cyber domain, given that it is perhaps the most advanced cyber-battlefield messaging adversary. With battlefield losses, especially in its declared caliphate, ISIS is losing its seeming power of invincibility that attracted thousands of foreign recruits. This message should be sent to the target audience by U.S. regional partners in the Middle East through online platforms in regional languages. It is perhaps important to know who are hard-core ISIS fighters and who are fair-weather patriots in order to intelligibly decide direct operational action against the hard-core.

Hacking into accounts of ISIS sympathizers can reveal effective intelligence. Moreover, the role of women in ISIS, mostly depicted based on gender roles within Islam and affected by personal feelings, is highly exaggerated. More often than not, women join ISIS for the same reasons men do: agreement with its ideological doctrines, a shared sense of identity, and in reaction to perceived or real discrimination against fellow Muslims.

RECOMMENDED COUNTER STRATEGY

Through the cyber domain, ISIS now transcends borders like al-Qaida. Eradicating the ISIS threat requires a five-pronged strategy. First, it requires a ground-based military effort that eradicates its bases, thereby activating an area denial strategy. ISIS' core appeals are its territory and the caliphate; deny those and ISIS loses much of its appeal. This area denial strategy will have to

consist of simultaneous military response and enhanced civilian governance: establishing a state structure where Muslims, both Sunni and Shia, believe they are adequately represented. This aspect is particularly significant, given ISIS' loss of territory to an international coalition in recent months.

Terror groups that are weakened tend to lie low, merge into the civilian population and then regroup at a later date. Consequently, it is imperative for USSOCOM along with partner nations to help improve partner capacity in governance.

Second, it is critical to publicly question ISIS' interpretation of Islam by utilizing the Quran. Indonesian and Indian Muslim elders have effectively activated such a strategy and it has had a social impact, especially in countering ISIS social media strategy. This could form part of "countering the messenger" strategy as part of USSOCOM-partner nations collaboration, either bilaterally or through a multilateral forum.

Third, broadcast the internal divisions within ISIS and expose the poor conditions when it governed. It's critical to expose the so-called paradise for what it is. In this, ISIS defectors play a critical role because their stories have greater credibility than a campaign run by USSOCOM.

Fourth, connect the counterterrorism efforts against ISIS into a single grid. The battle to defeat ISIS took so long due to the mixed purposes and fractious relationships of those who were fighting against it. For example, the Turkish military and the Kurdish peshmerga did not get along, the Russians attacked Syrian rebel forces that fought ISIS, and there were divisions and much misinformation in rebel camps. It's a complex battlefield and greater effort will help future counterterrorism efforts. Counterterrorism cooperation — including joint training efforts, intelligence assessments and strategic planning, especially with those countries identified by ISIS as future areas of operation — will help thwart any capability ISIS develops in establishing terror networks.

A goal of USSOCOM is to analyze and successfully respond to ISIS' attempts to spread terror across borders. Within the domain of counterterrorism and counterinsurgency, understanding the manner in which ISIS creates networks in countries outside of its caliphate in Iraq and Syria offers useful insights not only to break those networks but also to create awareness in the U.S. of similar ISIS efforts. ISIS utilizes the same strategy in the West, where it aims to motivate Western citizens to join the caliphate and then carry out attacks in its name in their countries of origin, as it does in India. The more ISIS loses territory in Iraq and Syria, the more likely it is that the group will quickly draw upon this sort of nonstate strategy. It is therefore critical to be prepared because that metamorphosis is bound to happen sooner than later. □

FORUM excerpted this article from "ISIS 2.0: South and Southeast Asia Opportunities and Vulnerabilities" by Namrata Goswami with contributions from Robert A. Norton and Greg S. Weaver, originally published in Joint Special Operations University (JSOU) Report 18-6 in 2018 by the JSOU Press and edited to fit FORUM's format. Please access: <https://jsou.libguides.com/jsoupublications>

In the Eye of the STORM

— DATO LIM JOCK HOI

Red Cross Plays Key Role In Disaster-prone Region

Good morning everyone, and thank you all for being here at the ASEAN-ICRC [Association of Southeast Asian Nations-International Committee of the Red Cross] platform on challenges and humanitarian action in the ASEAN region. This event marks yet another opportunity for ASEAN to recognize the contributions of the International Committee of the Red Cross and the unique role it plays in the service of the region. The ICRC has been a crucial actor in alleviating human suffering in the aftermath of natural and man-made disasters in the ASEAN region. It is an honor to grace this event in partnership with the ICRC to launch the first in a series to commemorate the assistance rendered over the years and provide a platform for productive dialogue among practitioners, policymakers and think tanks in the region.

In line with the theme of this event, “Challenges and Humanitarian Action in ASEAN,” it is opportune to have a moment of introspection and have constructive discussions on how ASEAN may prepare itself to effectively respond to disasters in the region.

ASEAN has been facing the changes in the humanitarian landscape in recent years. First, the ASEAN region is one of the most disaster-prone in the world, and extreme climate events are projected to increase in frequency and intensity. In 2018 alone, ASEAN saw a total of 424 disasters reported in the region, compared with 118 in

2017. Of these, ASEAN responded to 23 incidents, the highest frequency of disasters that ASEAN has responded to since the inception of the ASEAN Coordinating Centre for Humanitarian Assistance [AHA Centre]. Additionally, with the changing demographics of the ASEAN population, the number of economic losses and fatalities are bound to increase proportionally. We are facing

Association of Southeast Asian Nations Secretary-General Dato Lim Jock Hoi of Brunei arrives for a meeting in Brussels.

AFP/GETTY IMAGES





Members of the Red Cross in Burma carry an elderly woman, who is fleeing a conflict area, as she arrives in Sittwe jetty in the Rakhine State in August 2017.

AFP/GETTY IMAGES



“ ASEAN must be ready to be the first and foremost support to any affected member state. As our closest neighbors, we must be able to rely on each other before seeking help from partners farther away who may not be able to lend their support expeditiously. ”



Association of Southeast Asian Nations (ASEAN) Secretary-General Dato Lim Jock Hoi of Brunei poses with participants of an ASEAN-International Committee of the Red Cross platform on challenges and humanitarian action in April 2019.

ASEAN

the rising challenge of massive displacement of people due to natural disasters such as tsunamis and typhoons, secondary impacts such as dam collapse or dump site fires, and climate change impacts, including slow-onset droughts and floods. Disaster response and humanitarian assistance arising from

natural disasters remain one of the fundamental challenges for ASEAN.

Second, in 2018, ASEAN leaders instructed the AHA Centre with the support of the ASEAN Secretariat to respond to humanitarian emergencies in Rakhine State, Myanmar [Burma], broadening the scope of work of ASEAN in humanitarian response. With that, the ASEAN Emergency Response Assessment Team has been deployed to identify areas for ASEAN to support the government of Myanmar [Burma] to facilitate the repatriation process.

Such recent developments stress the need for ASEAN to rapidly mature in our humanitarian response strategies to meet the needs of affected member states with heightened sensitivity,

particularly when it involves conflict and security issues.

ASEAN must be ready to be the first and foremost support to any affected member state. As our closest neighbors, we must be able to rely on each other before seeking help from partners farther away who may not be able to lend their support expeditiously. Keeping the people-centered focus in ASEAN's priorities, the needs of the ASEAN people must be the primary concern, including their well-being, safety and security and their social and economic health.

Understanding that no disaster impacts every community the same way, humanitarian efforts in all forms should similarly take into consideration the local context and localize efforts to tailor to individual needs and respect the wishes of the affected states.

In spite of the hurdles, I urge participants of this dialogue to be optimistic in confronting these challenges. ASEAN already has institutional arrangements in place to respond to disasters, such as the ASEAN Ministerial Meeting on Disaster Management; the ASEAN Committee on Disaster Management, some members of which are present today; the ASEAN Agreement on Disaster Management and Emergency Response [AADMER]; the ASEAN Vision on Disaster

Management 2025; and, of course, the One ASEAN One Response mechanism. ASEAN recognizes the cross-sectoral nature of humanitarian actions and that effective disaster response strategies would necessitate the involvement of other sectors, particularly at the strategic level.

This may concern coordination, monitoring and policy development, as well as addressing emerging issues such as mental health. As such, ASEAN also has mechanisms for cross-sectoral coordination such as the Joint Task Force on Humanitarian Assistance and Disaster Relief and Technical Working Group on Civil-Military Coordination. In addition to these, the AHA Centre as ASEAN's coordination body and engine of AADMER stands ready to respond to any large-scale disasters in the region.

These ongoing mechanisms collectively lay the groundwork for ASEAN's coordinated and comprehensive response to disasters in the region. Acknowledging the need for practical and flexible arrangements, ASEAN should place more focus on maximizing the existing mechanisms already in place.

ASEAN, strategically positioned with access to disaster areas that are inaccessible to other NGOs and in some cases even the United Nations. In 2017, under the chairmanship of the Philippines, ASEAN released a statement on its engagement with the Red Cross and Red Crescent Societies, recognizing the organizations' work and contribution as first responders in disasters and their close collaboration with local authorities and communities. In late 2018, I met the president of ICRC, Mr. Peter Maurer, at the sidelines of the United Nations General Assembly, where he reaffirmed ICRC's intention to expand relations with ASEAN. We value the continued partnership, cooperation and contribution of the ICRC to the ASEAN region.

As the ASEAN humanitarian assistance coordinator, I am thrilled to observe the sharing of ASEAN perspectives and the increased awareness of ASEAN's overall response in disasters. With that, I also observed the changing paradigm of international response to regional and local response, whereby our regional organizations are now focusing more on education, awareness

“ The Red Cross and Red Crescent Societies are unique partners for ASEAN, strategically positioned with access to disaster areas that are inaccessible to other NGOs and in some cases even the United Nations. ”

However, governments cannot work alone in the cycle of disaster management and humanitarian assistance, whether it is in the stage of early warning, preparation, response or recovery. In my view, we need to advance the “ASEAN Way” toward a strong coordination mechanism involving key stakeholders, such as policymakers, industry players, academics and civil society. The AADMER Partnership Group, a consortium of NGOs (nongovernmental organizations), is an excellent example from which we have been able to mobilize resources and knowledge to support the implementation of the AADMER Work Plan.

Nevertheless, ASEAN must not be complacent in our strategies and continue to nurture cooperative relationships with other actors in the region including international organizations such as the ICRC. The Red Cross and Red Crescent Societies are unique partners for

and capacity building of the National Disaster Management Organizations.

I also look forward to the presentations from our partners in the hope their ideas may enhance ASEAN's response mechanism further.

Before closing my opening remarks, I would like to thank the deputy secretary-general of ASEAN socio-cultural community, Kung Phoak, and Mr. Alexandre Faite, head of ICRC for Indonesia and Timor-Leste, for their initiative in actualizing this ASEAN-ICRC platform. I commend ASEAN and ICRC's existing cooperation and hope for continued engagement in the future. I wish distinguished guests a productive and meaningful discussion at the dialogue sessions today. □

Dato Lim Jock Hoi of Brunei, secretary-general of the Association of Southeast Asian Nations, delivered this speech in April 2019. It has been edited to fit FORUM's format.

UNITED STATES

CRACKING
DOWN

on Chinese narcotics traffickers

U.S. officials are stepping up their efforts to stop Chinese businesses from making and selling chemicals used to manufacture synthetic opioids, which ultimately end up in the United States.

The U.S. Financial Crimes Enforcement Network identified three Chinese nationals – Fujing Zheng; his father, Guanghua Zheng; and Xiaobing Yan — as “significant foreign narcotics traffickers” and designated them as narcotics “kingpins.” The U.S. Department of Treasury said the three “run an international drug trafficking operation that manufactures and sells lethal narcotics, directly contributing to the crisis of opioid addiction, overdoses and death in the United States.”

Fujing Zheng and Yan have shipped hundreds of packages of synthetic opioids to the U.S., “targeting customers through online advertising and sales, and using commercial mail carriers to smuggle drugs,” the department said.

The U.S. Treasury Department’s Office of Foreign Assets Control reported that the three men are known to use the digital currency bitcoin. The office is identifying bitcoin addresses associated with the alleged traffickers to “maximize disruption of their financial dealings.”

In 2018, the U.S. Attorney’s Office unsealed a 43-count indictment charging Fujing Zheng and Guanghua Zheng with conspiring to make and ship illegal drugs to at least 37 states in the U.S. and 25 countries. Xiaobing Yan was indicted on similar charges in 2017. *The New York Times*

newspaper reported that the accused men remain at large.

In April 2019, China announced that it was banning all variants of fentanyl, but it did not ban the chemicals used to make it. That leaves Chinese manufacturers free to make and ship those chemicals to other countries, including Mexico, where the drug can be made. (Pictured: These packets of fentanyl and methamphetamine were seized from a truck crossing into the United States from Mexico.)

Fentanyl is a cheap opioid painkiller that is relatively easy to synthesize. It is 50 times more potent than heroin and has played a major role in the U.S. opioid crisis. *FORUM Staff*

MURDERS DROP, GUN SEIZURES INCREASE

Costa Rica announced in May 2019 a reduction in murders and an increase in the confiscation of illegal weapons as it put into force a law that tightens gun controls.

“Up to today, we’ve had 201 murders in the country, which sounds like a lot, but if we compare it to last year, we have 47 less,” Security Minister Michael Soto said at a May 23, 2019, ceremony in the capital, San Jose. “This is great progress,” he said, adding that 67% of murders are committed with firearms.

The Security Ministry had seized 863 guns by the time of the announcement, 34 more than in the same period the previous year. “These weapons can take someone’s life, they can be used in a crime against property,” Soto said.

The Central American country saw a spike in its murder rate between 2012 and 2017, reaching 12.1 per 100,000 inhabitants, according to the police. That number dropped slightly to 11.7 in 2018, but that was still more than twice the global average of 5.3 in 2015, according to the United Nations Office on Drugs and Crime.

However, it is considerably lower than the 2017 average of 22 in Latin America and the Caribbean, the most violent region in the world, according to an Inter-American Development Bank study from 2018.

Soto spoke at a ceremony in which new gun control laws came into



effect that increase punishments for the illegal purchase of a weapon and for individuals or businesses that fail to report the theft or loss of a firearm.

“Every effort made to regulate or educate in relation to gun control is a victory for our society,” President Carlos Alvarado said. *Agence France-Presse*



BEFORE



AFTER



BEFORE



AFTER

DEGRADABLE PLASTICS COULD *revolutionize* **MILITARY** OPERATIONS, SUPPLY CHAINS

Imagine a small plane or a drone that virtually disappears after completing its mission, leaving behind no evidence of its activities and no chance for the equipment to fall into enemy hands. Or, envision stealthy sensors that collect and transmit environmental or medical data and then dissolve without a trace.

The U.S. Defense Advanced Research Projects Agency (DARPA) funded research at the Georgia Institute of Technology that has moved closer to making such vanishing sorties a reality.

The team of engineers has produced a new plastic material that can be molded into pliable sheets and sturdy mechanical parts and then triggered to vaporize within minutes to hours after being exposed to ultraviolet light or temperatures over 80 degrees Celsius, *Scientific American* magazine reported.

DARPA has already successfully tested the new class of plastics in parachutes and gliders. “They are great for applications where you want things to disappear right away,” Dr. Paul Kohl, a Georgia Tech professor and engineering team member, told *Scientific American* at an August 2019 conference in San Diego, California.

Although many teams of researchers have been working on degradable

plastics for some time for recycling and other purposes, the resulting self-destructing materials often broke down at room temperature. The new material, however, can be stable for up to 20 years, provided it is protected from the sun, Kohl explained at the annual American Chemical Society conference. The team developed a way to essentially trigger the degradation on command.

DARPA began funding its program to develop such vanishing materials for air-delivery vehicles, known as Inbound, Controlled, Air-Releasable, Uncoverable Systems (ICARUS), which supported the Georgia Tech research. (In Greek mythology, Icarus’ wings, which were made with wax, melted when he ventured too close to the sun.) DARPA said the program aimed “to mimic the material transience that led to Icarus’ demise but leverages that capacity in scenarios with more uplifting endings,” NBC.com reported.

RE-FORMING MILITARY WASTE

DARPA is also investing in other work to revolutionize recycling of materials in the battlespace. DARPA’s new ReSource program strives to enhance the U.S. military’s legendary supply chain management capabilities by converting military waste generated during deployment into critical stocks, such as chemical lubricants for weapons and machinery or even into food and water. The portable, self-contained systems will recycle energy-dense waste on-site and on demand to support humanitarian assistance and disaster relief operations as well as expeditionary operations conducted

Researchers, funded by the Defense Advanced Research Projects Agency, have developed plastics that disappear after covert missions. They can be molded into delivery vehicles, such as glider wing material, left, and miniature parachutes. AMERICAN CHEMICAL SOCIETY

by Special Operations Forces troops.

“In a remote or austere environment where even the basics for survival can’t be taken for granted, there can be no such thing as ‘single use,’” said DARPA program manager Blake Bextine.

DARPA anticipates the systems will blend mechanical, biological and chemical catalytic approaches and likely be fueled in part by a combination of biomolecules and microbes. For example, Soldiers could feed discarded wrappers from their prepackaged meals into these systems and select what recycled product the material should be converted or re-formed into, depending on the Soldiers’ immediate needs.

“We hope to give troops the ability to extend their time in field, expand their operational flexibility or stabilize at-risk populations by taking advantage of almost any resource on hand,” Bextine said. “Even in otherwise barren locations, we could make it possible to forage for waste that can be broken down and converted into emergency rations or other critical supplies.”

The ReSource program would shift waste management from burning, burying and shipping practices to on-site conversion of used materials to a strategic resource, a capability that would also interest the environmental sustainability community. FORUM Staff



TEACHING HYDRATION FOR *peak performance*

When it comes to quenching thirst on a sweltering summer day, some beverages do more harm than good, according to military health experts. To perform at peak levels, Soldiers should educate themselves on safe ways to rehydrate.

“Army-wide, heat injuries are on the rise with the highest rates in Soldiers less than 25 years old,” said U.S. Army Capt. Erica Jarmer, a registered dietitian, according to the Military Health System’s website, health.mil. Jarmer hosted a training event for hospital staff and Fort Campbell tenants on proper hydration for Soldiers and athletes. Dietitians and medics have a critical role in teaching health-related military skills, including tactical hydration.

Soldiers should hydrate regularly and frequently, even when they are not thirsty, Jarmer said. Water is usually the better choice over caffeinated or sugary beverages, which include soda, energy drinks, coffee, beer and alcohol, fruit juices, sweet tea and lemonade. Those beverages can pull water from the body and promote dehydration.

“Many Soldiers are so undereducated when it comes to taking care of themselves. We are required to ask a lot physically of our bodies, but we don’t always get the education needed to perform at our peak levels,” said Master Sgt. Jennifer Alvey, a medic and the noncommissioned officer in charge of Blanchfield Army Community Hospital’s Department of Primary Care.

“Hydration for tomorrow occurs today. Hydration for today occurred yesterday,” Jarmer said. “Often times, we’re playing catch-up. If Soldiers and athletes understand their baseline hydration needs and routinely maintain their hydration status, our need for reactive rehydration will decrease.”

Baseline needs are based on body weight. A rule of thumb is to consume a half ounce of fluid per pound each day. This equates to about 3 liters of fluid per day for men and 2 liters per day for women.

Once baseline hydration is established, adjustments can be made for environmental factors and physical activity. In hot, humid environments, at high altitude and with physical activity, more fluid is required to maintain hydration. *FORUM Staff*

A JOINT OPERATION IN THE OPERATING ROOM

Military medical colleagues from Japan and the United States worked to improve their battlefield interoperability in April 2019 by simulating a joint operation to treat a patient with a gunshot wound.

The department of surgical services at U. S. Navy Hospital Yokosuka (USNHY) welcomed its counterpart from the Japan Maritime Self-Defense Force Yokosuka Hospital to perform a simulated operation that also required a hernia repair and scar revision, according to a report from USNHY.

“The primary goal of this exercise was to focus on a small team concept, working together in the surgical suite performing a general surgery case,” said U.S. Navy Cmdr. Glenn Bradford, a perioperative nurse who serves as director of surgical services at USNHY. “The small group was able to overcome some of the early training obstacles with language and preoperative preparation variances between the two teams.”

The simulated operation was the result of a 10-month partnership between the two medical teams.

“Our efforts are to further the goal of interoperability between ourselves and our host nation,” Bradford said. “It is essential that we understand our strengths and limitations when working jointly but, more importantly, strategies and tools to sustain the things we do well together and create methods to overcome the obstacles identified during simulated scenarios.”

Successes achieved in previous joint exercises are the result of dedicated efforts to bridge language barriers and incorporate the unique perspectives of each medical team.

“This evolution utilized a newer, more efficient, structure centered around a small team concept that allowed for members of both surgical teams the opportunity to work closely and navigate their unique difficulties on a one-to-one basis that lent an air of camaraderie to their work,” Bradford said. *FORUM Staff*





DEFENSE MOVES

Republic of Korea Soldiers demonstrate their martial arts skills on May 30, 2019. The training took place on the last day of the Ulchi Taeguk exercise in Goyang, South Korea. The four-day exercise included massive civilian evacuation drills for handling national crises and disasters, and joint military and civilian drills aimed at promoting military preparedness.

Photo By: **LEE JIN-MAN** | The Associated Press

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