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WATCHING THE WATER
Security Forces Protect the Blue Economy

PLUS **A Conversation With Rear Adm. Peter Kofi Faidoo, Ghana's Chief of Naval Staff**

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ON THE COVER:
This *ADF* photo illustration
highlights the need to
maintain vigilance along
Africa's coasts.

Africa, a continent with 30,500 kilometers of coastline, sees its future and fortunes inextricably tied to the sea. With its wealth of life-sustaining fish and energy-producing resources, the ocean can support development and prosperity on land.

The sea also is the source of many challenges. Although the number of incidents has dropped from its peak nearly a decade ago, Somali-based piracy still presents a danger in the Gulf of Aden and the Indian Ocean. In fact, the number of incidents has increased steadily since 2016.

In the Gulf of Guinea, West African nations still must contend with maritime thieves who seek to steal oil from tankers and — like their East African counterparts — take vessels and crew members hostage. International fishing vessels, some sailing under dubious flags, try to strip the waters bare of vital fish, destroying local economies and delicate ecosystems in their wake.

The dangers are clear, but African nations and their leaders have stepped up to address them. Nations have committed to sharing information on the East and West coasts, and naval exercises such as Phoenix Express in the Mediterranean Sea, Obangame Express in the Gulf of Guinea and Cutlass Express in the Indian Ocean have helped navies and coast guards practice cooperation.

More and more countries are realizing that it's not enough just to ensure safety at sea. Nations must also see the maritime domain as an essential part of a national economy. In the Indian Ocean, the tiny island nation of the Seychelles has leveraged preservation of its pristine waters as a way to pay off sovereign debt. It also has led the way in establishing fish traceability policies, a move that others are working to replicate.

The Whole of Africa Maritime Dialogue, held in 2018, brought together representatives from 26 nations to consider the full range of maritime threats and challenges and to swap best practices and lessons learned. The threat goes beyond piracy. Nations also must prepare to fight the smuggling of drugs, weapons, humans, contraband and fuel.

The maritime dialogue is expected to continue in 2019. Protecting and harnessing vast maritime spaces is a tremendous challenge for any nation. But Africa has demonstrated time and again that it is work best done together.

U.S. Africa Command Staff

Boys prepare fishing lines in Yoff, a community in Dakar, Senegal, in March 2018. REUTERS

'Our Watchword Should Be Sustainability'

Dr. Dakuku Peterside, director general and chief executive officer of the Nigerian Maritime Administration and Safety Agency, *gave the keynote address May 21, 2018, at the First National Tourism Transport Summit and Expo 2018 in Abuja, Nigeria. His remarks have been edited to fit this format.*

We are making efforts to tackle piracy, sea robbery and all illegal activities within our maritime domain through the establishment of the Maritime Guard Command with the combined efforts of NIMASA [Nigerian Maritime Administration and Safety Agency], the Nigerian Navy, Nigerian Air Force, Nigerian Police Force, and Nigerian Security and Civil Defence Corps. We are championing the anti-piracy bill before the National Assembly to provide a legal framework for punishing piracy and other maritime crimes. When passed into law, it will ensure adequate sanctions against offenders and act as a deterrent to others. We have also achieved over 85 percent compliance on International Ship and Port Security Code implementation, which ensures that ports and vessels within our maritime domain are protected against any form of terrorist attack.

In the area of maritime safety, NIMASA has installed a satellite surveillance system, a coastal radar system, and a Global Maritime Distress and Safety System. These are electronic and digital facilities that enhance our maritime domain awareness capability.

The agency also is on the verge of acquiring state-of-the-art maritime safety enforcement platforms. Our Deep Blue Scale Up initiative is a technology-equipment-process-based architecture designed to optimize maritime security in Nigeria.

In addition, the agency is building its capacity for search-and-rescue operations with the approval of the minister of transportation to increase the number of search-and-rescue marshals from 100 to 1,000. We are also working on effective regional search-and-rescue coordination. Furthermore, the agency has successfully hosted two Sub-Regional Technical Committee meetings to build a formidable regional network on search and rescue. The regional network has increased our level of alertness, thereby improving our capacity to respond to distress calls, which has ultimately led to a considerable reduction in the cases of piracy along the Gulf of Guinea, making our maritime environment more secure.

In the area of marine pollution prevention, the primary responsibility of the agency is to prevent the pollution of the seas by vessels. The agency has, however, gone a step further to tackle marine pollution from pipeline vandalism and domestic waste dumping into our lagoons, which is now threatening the tourism potential of our coastal waters. Recently, the agency inaugurated a 100-man environmental guard to fight domestic dumping of refuse into

A Nigerian Air Force pilot monitors vessels from an ATR 42-500 Maritime Patrol Aircraft. AFP/GETTY IMAGES

lagoons. Measures also have been taken in collaboration with the federal government and the Nigerian Navy to stop the vandalizing of oil pipelines, which is one of the major sources of marine pollution in Nigeria. The oil companies are now to be held strictly responsible for any negligence in the course of exploration of oil that results in the pollution of the seas.

In developing our tourism and transport industry, our watchword should be sustainability. This task cannot be left for government alone, but can only be achieved through collaborative efforts and shared responsibility among government, private organizations and the citizenry. We must create awareness of the importance of the seas and oceans to our lives and the economy. We must let everyone know that the seas provide the fishes we eat, the oil and gas that sustain our economy, and the means of transport for over 95 percent of our international trade. It also contributes immensely to our power generation, the development of the tourism industry, agricultural irrigations and, most important, the moderation of our climate and weather, which makes the environment attractive to tourists.

AFP/GETTY IMAGES

GHANA FIGHTS
MALARIAL CHEMICAL RESISTANCE
WITH NEW SPRAY

AGENCE FRANCE-PRESSE

Bismark Owusu covers clothes and furniture with a sheet before mixing a mosquito-killing chemical with water. He then puts on safety gear, straps the spray pack to his back and methodically sprays walls, windows and corners of the room.

Owusu's visit to Domeabra, a community in central Ghana, is his latest stop in the country's fight against malaria.

The death of two of his friends from the disease spurs him on. "Why wouldn't I help if others are dying?" he said. "I am here today helping to eradicate this deadly malaria."

There were 216 million cases of malaria in 91 countries in 2016 and 445,000 deaths, according to the World Health Organization. About 90 percent of those cases and deaths were in Sub-Saharan Africa.

In Ghana, home to 28 million people, there were 4.8 million cases and 599 deaths in 2017, a marked drop from the 2,200 who died in 2011. Ghana is the first on the continent to introduce the large-scale use of a new insecticide against mosquitoes.

The nonprofit organization AGALMal is working in a laboratory at an old mining site in Obuasi. The program was expanded with support from global health initiative Unitaid and the Global Fund partnership.

Technologist Paul Osei-Bonsu said chemical resistance is a major issue. If a population of mosquitoes is sprayed and just one survives and reproduces, the resistance will be passed on. "If you use the same spray, over time you will have 90 percent of the population not dying," he said.

Program Director Samuel Asiedu said the safe new chemical, SumiShield 50WG, should be more effective when rotated with others.

In 2006, after two years of the indoor spraying, the hospital in Obuasi saw a 75 percent decrease in malaria cases. In 2018, the program targeted the homes of 1.2 million people. "We are anticipating other chemicals to come on board by the end of the year so we can be rotating the use of chemicals to prevent resistance development," Asiedu said.

Sprayers talk about the disease, which can lead to severe illness and death if not treated within 24 hours. "If I go to the whole house and someone does not want it, I have to sit the person and let them know the importance of the spraying because malaria kills," Owusu said.

FOG CATCHERS
Conjure Water Out of Moroccan Mist

Growing up on Mount Boutmezguida in southwest Morocco, Khadija Ghouate never imagined that fog would change her life. Every day Ghouate and other women would walk 5

Mounir Abbar, fog manager for Dar Si Hmad, tends to fog collection nets on Mount Boutmezguida, Morocco.
THOMSON REUTERS FOUNDATION

kilometers to fetch water from open wells. Overuse and drought made getting water more difficult.

But a mathematician whose family came from the area had an idea: using fog to make water.

Now Ghouate's village is connected to the world's largest fog collection project. "You always had to go to the wells — always be there, mornings, evenings," Ghouate said. "But now water has arrived in our house. I like fog a lot."

Moroccan nongovernmental organization Dar Si Hmad founded the project in 2015. It was the brainchild of mathematician and businessman Aissa Derhem, whose parents were from Mount Boutmezguida, where the slopes are covered in mist about 130 days a year.

Derhem learned about one of the world's first projects in Chile while living in Canada in the 1980s. Years later he realized the Moroccan location, at the edge of the Sahara and 35 kilometers from the Atlantic Ocean, was perfect for fog.

Mist accumulates in coastal areas where a cold sea current, an anticyclone wind pattern and a land obstacle combine. "When the seawater evaporates, the anticyclone … stops it from becoming rain, and when it hits the mountain, that's where it can be gathered," Derhem said. "If we look at the planet, we see this happening in all tropical regions."

Fog collection projects have spread to countries such as Eritrea, Ghana, Guatemala, Nepal and the United States. In Morocco, Dar Si Hmad has built a system of nets stretching 870 square meters, about the size of 4½ tennis courts.

These nets are hung between two poles. Wind pushes fog through the mesh, trapping water droplets that condense and fall into a container. Pipes connect the water to reservoirs.

The project reaches about 140 families in 14 villages. A second set of nets is being built.

AFRICAN DONKEYS TAKEN, KILLED TO FEED CHINESE DEMAND

Joseph Kamonjo Kariuki, 37, known in his Kenyan village as "Joseph of the Donkeys," thinks three of his animals were victims of a black market scheme that uses donkey skins as a key ingredient in a Chinese health fad.

Animal rights groups say agents are seeking to feed China's insatiable appetite for a gelatin they call ejiao (pronounced "uh-jee-ow"), which is made from stewed donkey skins and purports to provide health benefits.

Shrinking donkey herds in China have driven ejiao producers to seek supplies from Africa, Australia and South America, activists say. Fourteen African governments have banned the export of donkey skins, according to the United Kingdom-based animal welfare group Donkey Sanctuary.

In Kenya, the donkey population has fallen in the past nine years from 1.8 million to 1.2 million. Kenya's three licensed slaughterhouses butcher 1,000 donkeys a day to supply skins to China, said Calvin Onyango of the Donkey Sanctuary Kenya.

Most Kenyan donkey hides end up in an eastern Chinese town called Dong'e, where most of the world's ejiao is made. On the road into Dong'e, billboards proclaim the gelatin's purported curative powers.

Ejiao demand has driven prices from $78 per hide in 2010 to $405 in 2015, according to the Shandong Ejiao Association. China's donkey population has gone from 9.4 million in 1996 to 5.5 million in 2015, according to Chinese state media.

State-built donkey slaughterhouses have sprung up in Botswana, Ethiopia, Kenya, Namibia and Tanzania. Niger's hide exports tripled. Botswana slaughtered 3 percent of its donkey population in six months, according to the Donkey Sanctuary.

More than 2 million of the world's 44 million donkeys are killed for their skins every year, according to Donkey Sanctuary.

In western Zimbabwe, farmers like the Chingodza family are resisting market pressure to sell their donkeys. "I like my donkeys. They help a lot and are dear to me," said Jeffrey Chingodza, 65. "I won't sell for export to Chinese abattoirs."

His 20-year-old son, Tawanda, however, said surging prices are tempting.

"When you have a car, and you get the first buyer saying, 'I will give you $3,000 for it,' and the second buyer says, 'I will give you $6,000,' what would you do?" Tawanda said. "I will definitely sell. All of us want money."

THE ASSOCIATED PRESS

SECURITY

From Coast to Coast

**Piracy Remains a Problem,
but African Nations
Are Working Together**

ADF STAFF

Algerian Sailors speed across the Mediterranean Sea to board a Tunisian Navy vessel as part of a drill during exercise Phoenix Express in May 2018.

PETTY OFFICER 2ND CLASS
RYAN U. KLEDZIK/U.S. NAVY

W

With more than 30,000 kilometers of coastline, the fortunes of the African continent are inextricably bound to safety and security at sea.

From Senegal to Angola, nations are working to deter pirates and thieves who ply the waters of the Gulf of Guinea for oil, fish and ransoms. In the Red Sea, Gulf of Aden and the Indian Ocean — all the way down to the Mozambique Channel — nations and international forces combat Somali pirates, who have staged something of a resurgence recently.

Seventy percent of Africa's nations — 38 out of 54 — border the sea and depend on it for travel, trade and livelihoods.

In short, a secure maritime domain is a vital part of national stability. A vibrant economy depends on a stable nation, and vice versa. Lt. Cmdr. Ghislain M. Moussavou of the Gabonese Navy said in advance of exercise Obangame Express 2018 that "if you have a maritime area that is not safe and secure, there is a negative impact on the livelihood of local communities, and then that can destabilize the country."

Piracy is as old as seagoing itself, but the scourge has been a constant African security problem for close to two decades now, first in East Africa and later off the coast of West Africa.

Oil and Ransom in West Africa

ADF STAFF

Piracy in Africa's Gulf of Guinea ramped up later and took on a different character than piracy in East Africa.

Pirates and maritime criminals in West Africa mainly sought to steal oil from tankers, a process called bunkering. However, there have been more instances of kidnapping for ransom in recent years that The Maritime Executive attributes to two causes: First, increased naval patrols in the gulf mean that thieves and pirates don't always have the time to pull vessels alongside oil tankers and drain them of crude. Second, a dip in global oil prices makes bunkering less profitable. Kidnapping for ransom promises potentially high payoffs with less time and risk.

Oceans Beyond Piracy (OBP) reports that kidnapping for ransom continued in 2017, despite rises in oil prices. Its report indicates that there was only one incident of hijacking for cargo in 2017, but early data for 2018 showed criminals may be returning to that practice.

The overall number of piracy incidents stayed level in the Gulf of Guinea for 2017, but the number of successful kidnappings increased, OBP reported. Total incidents logged in at 54 in 2015 and were nearly doubled to 97 by 2017. Gulf of Guinea attacks were centered off the coast of Nigeria between eastern Ghana and São Tomé and Príncipe.

Starting in 2016, OBP noted the trend of robbers hitting vessels anchored near major ports. That trend continued in 2017 and 2018. Early in 2018, attackers hit three ships anchored off Cotonou, Benin's, port. Two ships disappeared, and the third was involved in a gunbattle between criminals and Benin Navy personnel. OBP noted that the Port of Cotonou has grown recently, largely because of increases in maritime trade and the danger of operating off the coast of Nigeria. Cotonou handled twice as much cargo in 2017 as in 2007. As traffic increases, ships spend more time anchored and waiting for a berth, which makes them more vulnerable to attack.

"These recent attacks show that pirates are following the merchant traffic and moving their operations to where easy targets can be found," according to OBP's report, "The State of Maritime Piracy 2017."

A member of the Ghanaian Special Boat Service communicates with his team during a search aboard a target vessel at exercise Obangame Express.
PETTY OFFICER 1ST CLASS THERON J. GODBOLD/U.S. NAVY

Economic Cost of Piracy
(2015-2017)
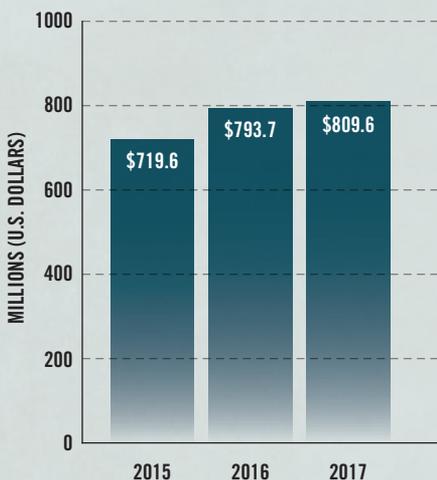
MILLIONS (U.S. DOLLARS)

2015	2016	2017
$719.6	$793.7	$809.6

Total Incidents of Piracy/Robbery **(2015-2017)**

2015	2016	2017
54	95	97

Total Seafarers Exposed to Piracy/Robbery **(2015-2017)**

2015	2016	2017
1,225	1,921	1,726
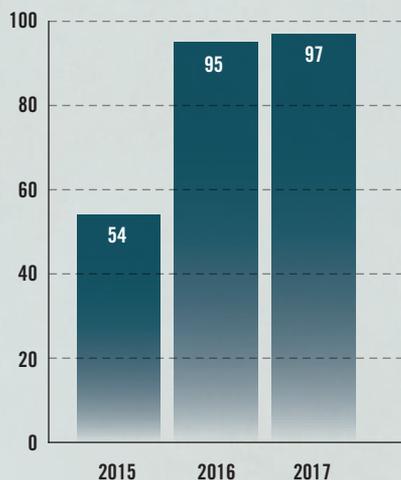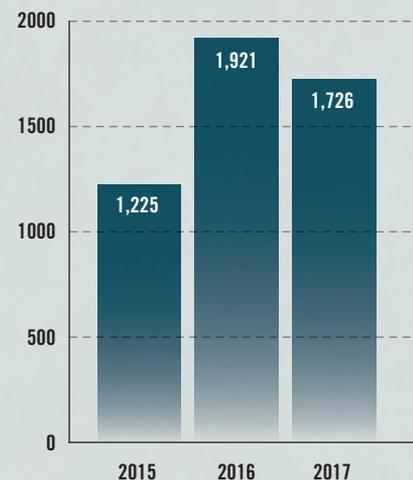
An Old Foe Returns to East Africa

ADF STAFF

Although piracy is not new to East Africa, the seeds of modern piracy were sown off the coast of Somalia after the collapse of the national government in 1991. With no navy to patrol the Gulf of Aden, Somali waters became vulnerable to international fishing vessels, which plundered fish stocks and were accused by locals of dumping toxic waste into the ocean.

A 2009 *Time* magazine report indicated that piracy rose in response to indiscriminant foreign trawling, which took plentiful mackerel, sardines and tuna from the ocean at a pace that "would virtually empty the world's oceanic stocks by 2050," quoting a 2006 study in the journal Science. As Somali piracy ramped up, outlaws could capture vessels and count on a quick ransom because shipping companies didn't want to draw attention to fishing practices.

In 2003, Southeast Asia — notably the area around the Strait of Malacca — still was the prime location for maritime piracy. It was not until 2007 that piracy incidents in East Africa surpassed Asian totals. A year later, East and West African piracy incidents each doubled those in Southeast Asia, according to The Hague Center for Strategic Studies Piracy Database.

Somali pirates typically attacked vessels using either dinghies or larger boats called "mother ships." Ships were boarded and directed back to mainland Somalia, where pirates would issue ransom demands for crew members and craft.

After gaining international attention in 2008, Somali piracy peaked around 2010 and 2011, but the number of attacks plunged soon after. Three international naval patrol efforts, in addition to security efforts by private shipping companies, began to stave off piracy in the Red Sea, Gulf of Aden and beyond. By 2015, the total number of incidents had dropped to 16 from a high of 239 in 2011.

However, in 2016, the number of incidents increased 69 percent to 27, and then by 100 percent a year later to 54, according to OBP. The spike in incidents, which includes failed attacks, hijackings, kidnappings and suspicious activity, can be attributed to a few things. First, continuing conflict in Yemen, which is across the Gulf of Aden from Somalia, adds to instability in the region. Second, international naval coalitions have scaled back presence in the gulf and Red Sea. NATO ended Operation Ocean Shield in December 2016. Independent deployers, not coalition forces, were the main naval presence in the region, and both had reduced their time patrolling. Finally, pirate groups retain the intent, ability and opportunity to launch attacks.

> Outlaws could capture vessels and count on a quick ransom because shipping companies didn't want to draw attention to fishing practices.

Source: Oceans Beyond Piracy

Economic Cost of Somali Piracy (2010-2017)
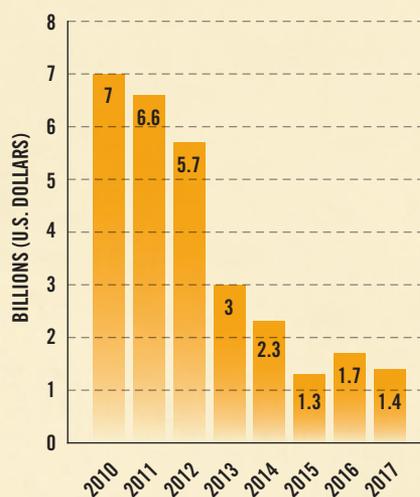
BILLIONS (U.S. DOLLARS)

Year	Value
2010	7
2011	6.6
2012	5.7
2013	3
2014	2.3
2015	1.3
2016	1.7
2017	1.4

Total Incidents of Piracy/Robbery (2015-2017)

Year	Value
2015	16
2016	27
2017	54

Total Seafarers Exposed to Piracy/Robbery (2015-2017)

Year	Value
2015	306
2016	545
2017	1,102
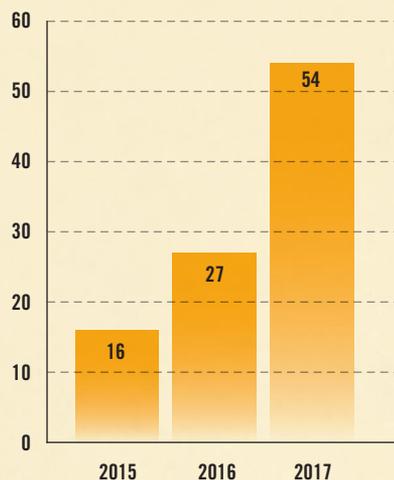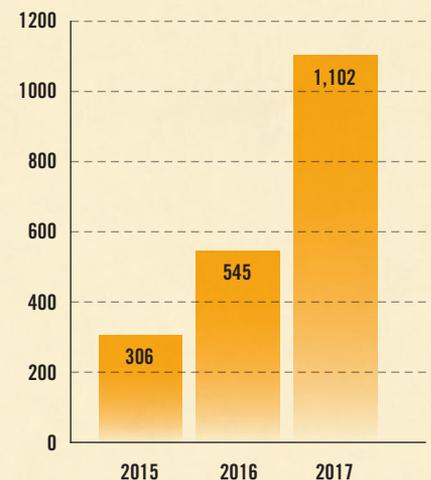
Codes of Conduct

East and West African regions each have codes of conduct that set standards of cooperation among nations in the fight against piracy and other maritime crimes. East Africa's Djibouti Code of Conduct came first in 2009, enacted by the International Maritime Organization (IMO). The IMO told *ADF* in 2012 that the code was intended to promote information sharing, regional training, national legislation and capacity building.

Now, after years of success, the IMO says the code has been amended to cover illicit maritime activity beyond piracy and armed robbery, such as arms, drugs, human and wildlife trafficking; illegal waste dumping; illegal fishing; and crude oil theft. This happened in 2017 during a meeting in Jeddah, Saudi Arabia. The result is the Jeddah Amendment to the Djibouti Code of Conduct 2017.

West and Central African nations in 2013 signed the Yaoundé Code of Conduct in Cameroon, which similarly commits them to cooperate on maritime security by sharing and reporting information, interdicting vessels suspected of illegal activities, apprehending and prosecuting criminals, and caring for and repatriating seafarers subjected to illegal activity.

Exercises Solidify Cooperation

African nations and their international partners come together in each coastal region to practice and perfect the goals and mandates laid out in the codes of conduct. U.S. Africa Command sponsors three regional "Express" series exercises off African coasts to test and improve the capacities of African and international partner nations and organizations.

In East Africa, the Seychelles hosted Cutlass Express 2018, which used the Jeddah Amendment to the Djibouti Code of Conduct as a framework for conducting information-sharing drills and other exercises. Participating nations were Australia, Canada, **Comoros**, Denmark, **Djibouti**, France, **Kenya**, **Madagascar**, **Mauritius**, **Mozambique**, the Netherlands, New Zealand, **Seychelles**, **Somalia**, **South Africa**, Turkey and the United States.

In West Africa, Gabon hosted Obangame Express 2018, the eighth iteration of a naval exercise that plays out all along the West African coast, including the crucial Gulf of Guinea region. Nations participate in boarding and search-and-seizure drills at sea, and land bases work on communications and information sharing. The exercise is intended to help African nations counter all types of illicit trafficking, illegal migration, piracy and illegal fishing. The 2018 iteration of the event included maritime operation centers in five areas and covered 2.36 million square kilometers.

Participating were **Angola**, Belgium, **Benin**, Brazil, **Cape**

A member of Madagascar's Coast Guard participates in a drill during exercise Cutlass Express 2018 in Victoria, Seychelles.

PETTY OFFICER 3RD CLASS FORD WILLIAMS/U.S. NAVY

East and West African regions each have codes of conduct that set standards of cooperation among nations in the fight against piracy and other maritime crimes.

Illegal, Unreported and Unregulated Fishing

Globally, **$23.5 billion** is lost annually from illegal fishing

Estimated losses in West Africa: **$2.3 billion**

$400 million

Estimated losses in East Africa
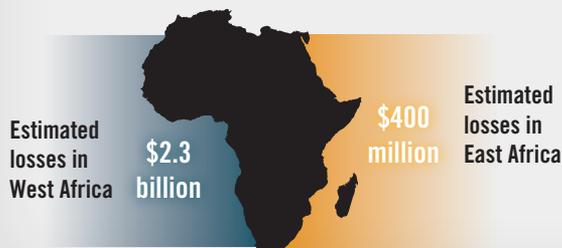
37 percent of all fish caught in West Africa are caught illegally.

37%
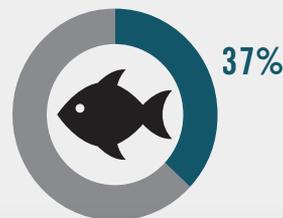
25 percent of all fish caught in East Africa are caught illegally.
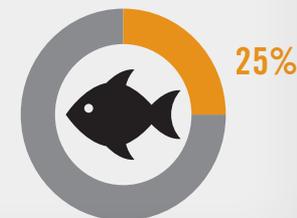
25%

Verde, **Cameroon**, Canada, **Côte d'Ivoire**, the **Democratic Republic of the Congo**, Denmark, France, **Gabon**, Germany, **Ghana**, **Guinea**, **Guinea-Bissau**, **Liberia**, **Morocco**, **Namibia**, the Netherlands, **Nigeria**, Portugal, the **Republic of the Congo**, **São Tomé and Príncipe**, **Senegal**, **Sierra Leone**, Spain, **The Gambia**, **Togo**, Turkey and the United States, as well as the **Economic Community of West African States** and the **Economic Community of Central African States**.

Although East and West Africa are best known for piracy and maritime crime, the coast of North Africa has its own set of maritime issues. Phoenix Express 2018 helped improve regional cooperation, increase maritime domain awareness, information-sharing, and operations to promote safety and security in the Mediterranean Sea.

Phoenix Express, which began in 2005, was headquartered in Souda Bay, Greece, but included operations throughout the Mediterranean Sea, including territorial waters of North African nations. The exercise tested the ability of European, North African and U.S. forces to respond to irregular migration and to combat illicit trafficking and the movement of illegal materials.

Participating were **Algeria**, Canada, Denmark, Greece, Italy, **Libya**, Malta, **Mauritania**, **Morocco**, the Netherlands, Spain, **Tunisia**, Turkey and the United States.

Success Stories

Piracy and other maritime crimes endanger lives, livelihoods and national security. The connection between land- and sea-based crime is well-established, and African nations on all coasts will have to continue to be vigilant in building their individual capacities while cooperating with each other. Even so, progress is being made across the continent.

Dr. Ian Ralby, adjunct professor of maritime law and security at the Africa Center for Strategic Studies, said because of the attention paid to piracy in recent years, a lot of countries have "turned to face the sea" more directly to address maritime concerns. This was clear during the Whole of Africa Maritime Dialogue in Victoria, Seychelles, which focused on enhancing African maritime security.

The weeklong event in March 2018 had nearly 50 people from 26 countries and 13 regional organizations meet to discuss an array of topics, including cooperative responses to maritime issues, developing a maritime strategy, technological surveillance, developing a "blue economy" and prosecuting sea-based crimes.

Participants visited the Seychelles' piracy court and appeals chamber. They also boarded and inspected an Iranian dhow captured during a drug-trafficking case. The boat now is used as a training tool. "A pier-side talk about the dhow and how the drugs were hidden helped participants grasp, first-hand, the operational challenges facing the region," according to a program summary of the dialogue. "In boarding the vessel, participants could see what searching such a ship would require."

Ralby said he hopes the dialogue will become an annual fixture on the continent. The next one is likely to be in February 2019. There should be many ideas and viewpoints to share, as Ralby said progress is being made across the continent:

- Morocco and Algeria are cooperating, despite their differences.
- The Seychelles, Africa's smallest nation, is leading the way on piracy prosecutions and harnessing its maritime domain to secure economic wealth.
- Cameroon, Equatorial Guinea, Gabon and São Tomé and Príncipe can successfully undertake combined operations at sea every day of the year. Their information sharing through the Economic Community of Central African States' Zone D, one of five such zones in West Africa, is a model for others.
- Senegal has been successful at fighting illegal fishing.
- Ghana's Navy works and shares with neighboring countries.
- São Tomé and Príncipe are working to replicate the Seychelles' fish traceability policies. The nation also in February 2018 published an integrated maritime strategy, and Sierra Leone was close to doing the same. Côte d'Ivoire published its maritime strategy in 2014.

"There's something to celebrate pretty much everywhere," Ralby said. ❑
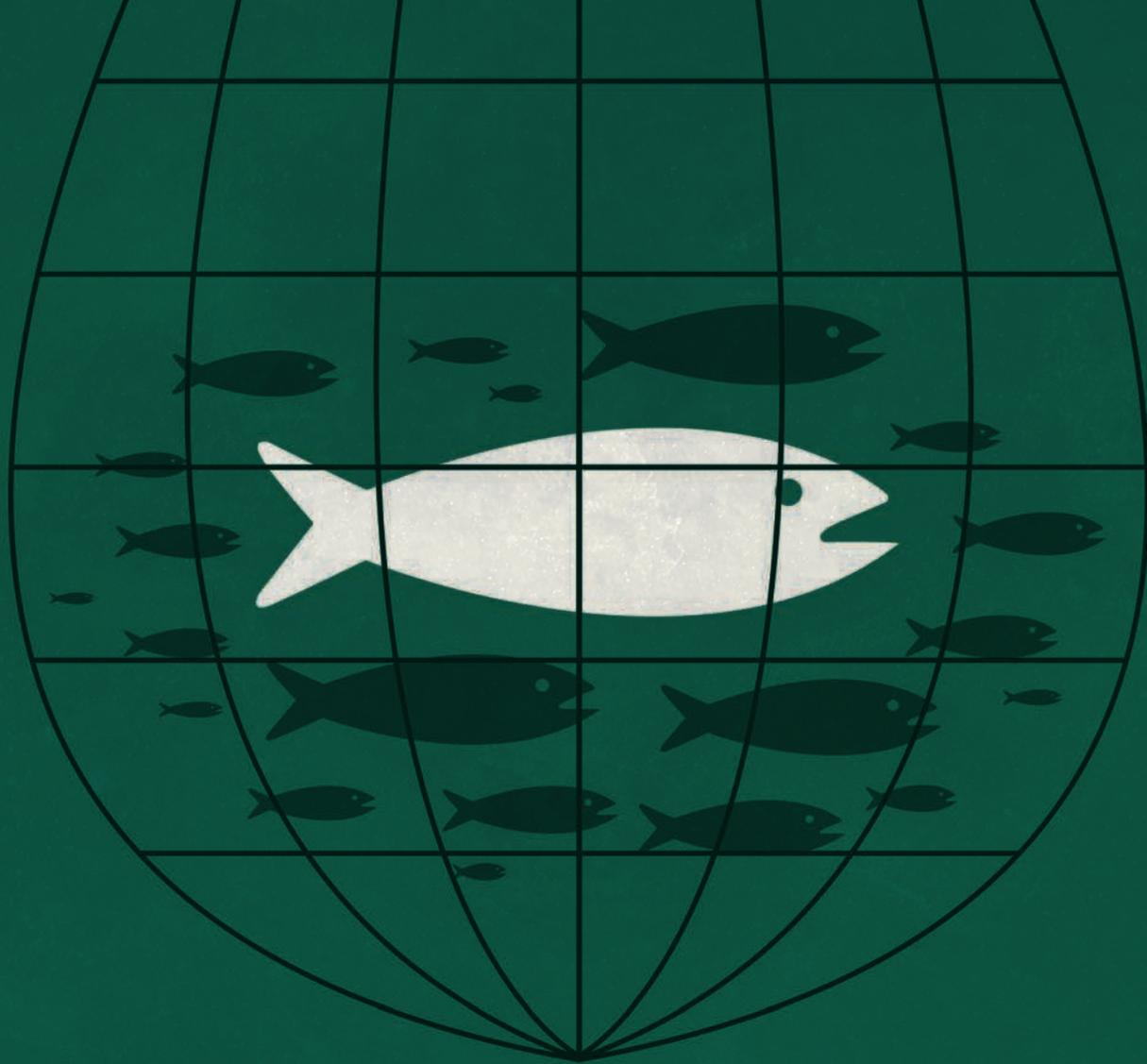
STEALING
THE OCEAN'S BOUNTY

ADF STAFF

*FOREIGN TRAWLERS ARE DEPLETING
AFRICA'S FISH STOCKS, BUT NATIONS HAVE
THE TOOLS TO FIGHT BACK*

ADF ILLUSTRATION

For the Oleg Naydenov, a Russian trawler, the blue waters off the coast of West Africa once were an all-you-can-eat buffet.

The rusted 120-meter vessel and its 82-person crew could haul in and process 18,000 metric tons of fish each year. They paid little attention to the laws in the waters where they sailed, operating without permits.

That changed in 2012 when Senegal strengthened its laws, increased enforcement and raised the maximum penalty for ships caught fishing illegally. In late 2013, French forces conducting aerial surveillance tipped off the Senegalese Navy. They said that the Oleg was fishing in Senegal's waters near the maritime border with Guinea-Bissau.

Senegalese Navy commandos boarded the ship and escorted it back to port in Dakar, arresting the people on board. Having found 1,000 metric tons of fish in the hold and calling the Oleg a repeat offender, Senegal assessed a fine of $727,000 — double the highest fine possible at the time.

"Today they have understood the message," Senegalese Fisheries Minister Haidar El Ali told the radio station RFI. "We're not going to allow pirate ships here. I say 'pirate' because it is worse than drug trafficking. These are the people who plunder our resources and turn our fish, which is vital to our food security, into flour to feed their pigs. No, this cannot happen."

Officials estimate that illegal fishing costs Senegal $272 million per year. The hardest hit are small-scale fishermen who use canoes and have lived off the sea for generations. A ship like the Oleg can haul in as much fish in one week as an artisanal boat collects in a year.

"We are constantly losing out because our resources have considerably diminished, and foreigners are coming to take a share of what we have left," said Amadou Wade, coordinator for Senegal's National Federation of Fishing Industry Economic Interest Groups. "We are finding it harder and harder to find fish, and our incomes are suffering."

Two Chinese trawlers are docked at the Port of Abidjan, Côte d'Ivoire, after Ivoirian authorities seized them and accused the crews of fishing illegally. AFP/GETTY IMAGES

Senegal is not alone in fighting the scourge of illegal, unreported and unregulated (IUU) fishing. About 40 percent of the fish caught off the coast of West Africa are taken illegally. The theft costs the region $2.3 billion annually and primarily benefits companies from Eastern Europe, Russia and Asia.

AVOIDING DETECTION

Ending illegal fishing is easier said than done. Criminal fishing crews hunt for weak spots where enforcement is lax. To avoid detection, unscrupulous captains "go dark" by turning off their boats' transponders, known as the automatic identification system (AIS), so they cannot be traced electronically.

The nonprofit environmental group Oceana examined 20 million instances of vessels turning off their AIS and found numerous cases in marine protected areas where fishing is illegal or tightly regulated. One ship investigated by the group went dark 21 times in 19 months near Gambian waters. The result was 8,000 hours in which the ship's activity could not be monitored.

"They're turning off this system in locations around the world that may raise suspicion or warrant further investigation, such as in noted marine protected areas where commercial fishing is prohibited or in developing [countries'] waters that may lack the resources to effectively police their waters," Lacey Malarky of Oceana told *Wired* magazine. "It indicates they're trying to avoid detection and hiding something."

The fishermen have other tricks to elude enforcement. Some use what are called "flags of convenience." These are flags offered for a fee by countries that do not check the history of the vessel or its crew. By registering in countries that have little oversight, ships avoid being traced or tightly regulated.

Another common practice is transshipment, in which fish are transferred at sea from a fishing vessel to a refrigerated cargo ship sometimes called a "reefer." These ships process and deep freeze the catch at minus 28 degrees Celsius and hop from port to port unloading fish and obscuring its origin. A worldwide study of transshipment

by Oceana found the waters off the coast of Guinea-Bissau to be a particular hot spot.

Some catches simply are underreported to authorities. This occurs when fishermen lie about the weight of fish caught or mislabel fish species to skirt enforcement. A study by Greenpeace found that Chinese vessels catch 60 percent more fish than they report to authorities. The problem is only getting worse. China's fleet of fishing vessels has grown rapidly, reaching 2,600 boats in 2016.

"The Chinese government is basically snatching fish out of the nets of poor fishermen in Africa in order to keep fish on plates in China," *The New York Times* wrote in an editorial. "Further, many Chinese ships don't hesitate to break the law to meet soaring demand."

Experts believe it is time for African countries to beef up enforcement or risk irreparable destruction of their ocean ecosystems.

In a paper published by the Africa Center for Strategic Studies, André Standing, an advisor at the Coalition for Fair Fisheries Arrangements, wrote that 10 times more fish are being pulled out of African waters today than in the 1960s. This overfishing is decimating formerly vibrant ecosystems. "African countries must substantially upgrade their capacity to monitor and prosecute illegal fishing in African waters," Standing wrote. "Weak accountability of the African fisheries sector enables the ongoing and unsustainable exploitation of this resource."

TECHNOLOGY

Although illegal fishing trawlers take advantage of countries with limited naval assets or enforcement tools, there is an opportunity to fight back. Data lets countries gain an edge in monitoring, control and surveillance.

The widespread availability of satellite imagery and the requirement that vessels over 300 tons use AIS gives observers huge amounts of information relating to ship activity. By analyzing this data, security forces can deploy resources where they're most needed.

For example, a high density of AIS signal hits in one area could indicate a boat is slowing down and conducting transshipment to conceal its catch. A boat turning off its AIS may indicate an attempt to conceal action. Officials also can examine a vessel's time at sea and areas where it fished and compare it to the reported catch to identify underreporting.

FishSpektrum is a tool tracking 1.7 million vessels from 185 nations. Its database includes more than 100 pieces of information on each boat, including current and former owners, flags, operators, insurers, photographs and addresses

HOW TRAWLERS AVOID DETECTION AND FISH ILLEGALLY

FALSIFYING PAPERWORK
Boats fishing illegally present forged paperwork to maritime security officers or port authorities when docking to offload fish. Often this forged paperwork is from a state with weak enforcement capabilities.

TURNING OFF AIS
Vessels greater than 300 tons are required to have an automatic identification system so they can be traced electronically. Illegal operators turn this off to evade authorities.

TRANSSHIPMENT
This is a vessel-to-vessel transfer of cargo, often done at sea. These transfers make the source of the catch more difficult to trace.

BOTTOM TRAWLING
Also known as "dragging," this is when ships pull a net along the ocean floor. The practice damages ocean ecosystems and captures many species not intended for human consumption. It is illegal in many areas.

UNDERREPORTING
Some criminal fishing operators underreport the weight of their catch to deceive authorities, skirt limits and avoid taxation. Connected to this practice is misidentifying species to surpass catch limits of valuable fish.

FLYING FLAGS OF CONVENIENCE
Some vessels purchase the rights to fly the national flag of a country they have no affiliation with. It can be done to avoid oversight of the ship and to obscure the history of the vessel and crew.
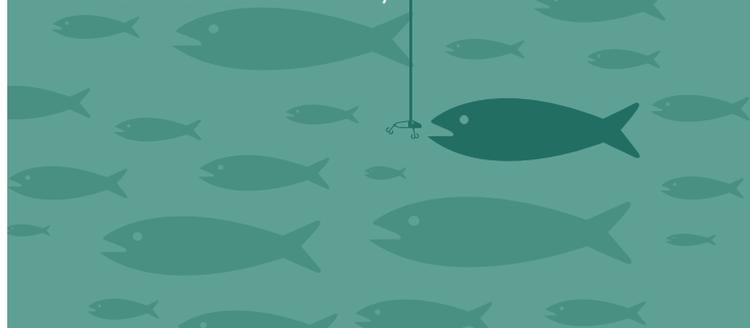
WHAT STATES CAN DO TO FIGHT BACK

SHARE INFORMATION
Partnerships allowing real-time information sharing between states cut down on fraud and help fisheries authorities identify bad actors.

USE TECHNOLOGY
Numerous systems have emerged to let countries track fishing in their waters. One system, FishSpektrum, includes a database tracking 1.7 million vessels from 185 nations with more than 100 pieces of information about each boat.

WORK WITH SEAFOOD INDUSTRY
Reputable seafood buyers understand that the long-term sustainability of their industry rests on healthy ocean ecosystems. Industry leaders do not want illegally obtained seafood to enter the market. By working with buyers to help spot illegal seafood and certify their products, bad actors are forced out.

REQUIRE UNIQUE I.D. NUMBERS
All vessels longer than 40 feet should have unique I.D. numbers in a global system preventing them from changing names, flags or other identifiers to avoid oversight.

TARGET HOT SPOTS
Although states are responsible for a wide expanse of ocean, it is possible to focus enforcement by examining where most illicit fishing activity takes place. Clues to illegal behavior can be irregular vessel movements, disabling AIS, ships idling next to one another, or a ship's time at sea not matching its reported catch.

Source: The Pew Charitable Trusts

of people associated with the vessel. Officials also can estimate the intensity of the fishing by tracking gear used and the size of vessels.

It's a valuable tool but one that must be used in concert with others. Although FishSpektrum does not offer real-time data, another tool called OceanMind does.

In a study by the Overseas Development Institute, authors argued that these private data collection efforts are filling the role that should be played by international organizations. The world needs a central database of vessels known or suspected to be involved in IUU fishing and a universal vessel identification system.

"Ultimately, big data solutions alone will not tackle overfishing or end IUU fishing," the report's authors wrote. "Greater political will, improved governance and policy action, anti-corruption efforts, enhanced port measures and improved international coordination are all necessary to tackle these crimes."

COOPERATION
Enforcement is only as good as the weakest regional member. If one country is unable to monitor and protect its exclusive economic zone, the entire region pays the price.

In East Africa, for example, officials found that fishing vessels were falsifying permits from certain

countries with weak enforcement and unloading stolen fish in other countries. Illegal fishing had become impossible to trace or stop across a huge 5 million-square-kilometer region.

In response to this, eight nations created a coalition called Fish-i Africa. Its centerpiece is an online platform that lets fisheries enforcement officers cooperate and share information in real time about vessels operating in their waters. The Fish-i system lets countries share identifying and historical data on vessels, whereas previously such requests went through foreign offices and were resolved slowly. Fish-i also offers investigative support, legal opinions and operational advice to members.

"It sends a strong signal to all the operators out there that there is cooperation that is happening amongst the countries of the region and the countries are working together to fight against IUU fishing," said Roy Clarisse, deputy chief executive of the Seychelles Fisheries Authority. "Now there is no port of convenience where a vessel can go and unload its catch. Because the network is helping to share this information all around."

An example of the strength of this partnership occurred in Mombasa, Kenya, where a ship called the Greko 1 arrived to unload its catch, as it had been doing for years. Although the ship claimed to have a Somali fishing license, Kenyan fishery authorities used Fish-i to communicate with their Somali counterparts and discovered the permit was fake. Additionally, Fish-i's technical team inspected the vessel and found that it was using illegal gear and, after photographing it, discovered that it was a salvaged vessel that previously had been scrapped and was illegally brought back into commission.

Other success stories include intercepting a vessel in the Seychelles that had illegally caught $2.5 million worth of fish in Liberia and attempted to present a forged license. By sharing the license with Liberian officials, Seychelles stopped the cross-continental theft.

Fish-i "is the cheapest but most effective method I ever saw anywhere," said Geofrey Nanyaro, chairman of the nonprofit organization Stop Illegal Fishing. "You know exactly where the illegal operator is, and you know the next move of the illegal operator. Before, it was hunting. You hunted without knowing where you were going to end up with meager resources. Lots of times millions of dollars were used without any results. Now we are getting results almost cost-free." ❑

Rotting fish lie on a beach in Guet Ndar, Senegal. The Senegalese fishing industry has suffered from overfishing by foreign trawlers.

EPA

Students in Dakar, Senegal, assemble in the shape of a fish to draw attention to problems in the fisheries sector.

AFP/GETTY IMAGES

SECURING

THE SHARED SEAS

U.S. Sailors and members of Ghanaian maritime forces approach a fishing vessel during a document verification operation as part of a U.S.-Ghana combined maritime operation. U.S. NAVY

REAR ADM. PETER KOFI FAIDOO OF GHANA
Sees Collaboration, Technology and Training as Keys to a Safer Gulf of Guinea

Rear Adm. Faidoo is Ghana's chief of naval staff. Before his appointment in 2016, he held a number of posts, including director of Naval Operations and National Maritime Security coordinator. In 2012, he was appointed director general of training at the General Headquarters, and, in 2015, he became flag officer commanding the Western Naval Command. In 1998, as commanding officer of the GNS Sebo, he took part in the Naval Task Force of the Economic Community of West African States Monitoring Group, and his vessel helped stop a rebel invasion of Freetown Harbour in Sierra Leone. For his actions he was awarded a medal for leadership and given honorary citizenship of Sierra Leone. He spoke to ADF *from Accra. This interview has been edited to fit this format.*

ADF: **Illegal, unreported and unregulated (IUU) fishing is a major problem in West Africa. According to one study, about 40 percent of the fish caught in the waters off the coast of West Africa are taken illegally. What is Ghana doing to address this issue?**

REAR ADM. FAIDOO: The fisheries sector in Ghana and its resources have long been a pillar of the national economy. It generates over $1 billion in revenue each year and accounts for at least 4.5 percent of Ghana's gross domestic product. The sector also provides the livelihood to an estimated 2.4 million people. There is a lot of IUU fishing in our waters, and not only here but in the whole Gulf of Guinea. This has been going on for a very long time. Ghana has adopted the United Nations Convention on the Law of the Sea, so we have signed up for 200 nautical miles of exclusive economic zone (EEZ). So, in Ghana for instance, we have over 64,000 square nautical miles, and that is a huge area compared to the land area of Ghana. We are, more or less, a Third World country. We do not have sufficient assets and resources to patrol the whole area and keep platform ships at sea. Still, we in Ghana are doing better than some of our neighboring countries because we have better resources. The fact remains that there are parts of the sea that are not regularly patrolled. It is true that the region loses about $2.3 billion annually through this IUU fishing.

What we do is we collaborate with other agencies in what is called the Fisheries Enforcement Unit (FEU). This is made up of personnel drawn from the Ghana Navy, Ghana Marine Police, Fisheries Commission and the Attorney General's department. The FEU conducts sea and land patrols to enforce the provisions in the Fisheries Act and Regulations. Among the tasks of the unit are enforcing a closed fishing season, reviewing regulations, capacity building and staffing an observer program aboard all industrial fishing vessels registered in Ghana.

ADF: How is technology helping you fight illegal fishing?

REAR ADM. FAIDOO: This is an area where we've made great progress. The importance of technology in combating illegal fishing cannot be overemphasized. All Ghanaian registered industrial fishing vessels must carry a vessel monitoring system as well as automatic identification system (AIS) transponders. This has enabled vessels to be tracked and monitored continuously from the Monitoring Control and Surveillance Center and the Navy's Maritime Operations Centers throughout the country. Additionally, all tuna vessels have an electronic monitoring system installed. This is a video system that records fishing activities on board. The video can then be downloaded and replayed. The technologies have gone a long way to ensure that vessels and the masters comply and follow responsible fishing practices.

We also have a partnership with the U.S. and AFRICOM (U.S. Africa Command). They have provided for us equipment to observe our sea from our maritime operations center. We have done this through the use of equipment such as TimeZero monitoring and AIS monitoring so that we can observe what goes on in our waters and, when necessary, go out there to prosecute illegal fishing.

ADF: How are you partnering with other countries in the Gulf of Guinea and beyond to share information about vessels fishing in your waters illegally?

REAR ADM. FAIDOO: Again, I have to take the chance to thank the U.S. government acting through the U.S. Navy. We in Ghana have very good relations with the countries in the Gulf of Guinea, particularly Côte d'Ivoire to our west and Togo to our east. Joint exercises such as Obangame Express help us to improve interoperability and engender trust amongst us. Indeed, even at the height of our maritime disputes with Côte d'Ivoire, we continued to provide ships for them as target ships in Obangame, and our maritime operations centers are constantly in touch. They are able to coordinate cross-border maritime security issues. Indeed, just last week a ship left Togolese anchorage without paying the necessary fees and sailed into Ghanaian waters. The Togolese authorities alerted us, and we immediately sailed a ship to accost them. The ship was detained in Ghana until it fulfilled the obligations with the Togolese authorities. With Nigeria, we have a special relationship in terms of training in each other's institutions. For two years running I personally have attended regional maritime symposia in Nigeria, and we also send ships to participate in international maritime exercises. So we do collaborate with our neighbors; we try to share resources, since many of the navies don't have the capacity to control or have a permanent presence at sea.

ADF: In early 2018, there were five pirate attacks recorded in Ghana's waters. This was unusual in what is typically a safe area, and some fishing vessels in the tuna industry temporarily halted operations due to safety concerns. One of the attacks was the hijacking of the fishing vessel Marine 711, where five people were kidnapped. What has been done since then to address piracy?

REAR ADM. FAIDOO: Piracy is not prevalent in Ghana and hasn't been for a long time. As I mentioned, we maintain very rigorous patrols in our waters. However, the issues recorded in Ghana in the early part of the last year were very unfortunate. Regarding the Marine 711 hijacking, the Ghana Navy did its best through all necessary means upon receipt of the information of the hijacking. A ship was put out to sea immediately. However, the vast nature of our sea and the limited assets at my Navy's disposal make it very difficult. One of the lessons is the need for the timely reporting and sharing of information. The information on the hijacking got to the Navy when the hijacked vessel was very close to the Togolese border. By the time the Navy got to that location, the vessel had crossed into Togolese waters. So, therefore, there is a need to report incidents as quickly as possible to enable a swift response. Intelligence sharing is also very important in preventing crime at sea. Fishing vessels have been sensitized on the need to report any suspicious vessels and illegal activities to the Navy. The Navy has also intensified patrols at sea and in the anchorages. We hold regular stakeholder meetings to share ideas on how best to ensure that the country's waters are safe and secure. In that respect, vessel operators and crews have also been sensitized to be security conscious whilst at the anchorages and at sea. Our Navy has trained and continues to train special forces to deal with piracy incidents.

ADF: How would you assess the current security situation in Ghana's coastal waters?

REAR ADM. FAIDOO: The security situation is very good. We do have the electronic means to monitor our waters all the way to the end of the EEZ, and we have, thankfully, sufficient assets, together with assistance from the Air Force maritime patrol aircraft, to be able to know exactly what goes on in our waters at any time. And, when necessary, we go out there and we have arrested several vessels engaged in illegal fishing, trawling, theft and things of that nature.

"THE COLLABORATION HAS ENABLED US TO SHARE INFORMATION SO THE BAD GUYS KNOW THAT THEY CANNOT ESCAPE FROM ONE NATION'S WATERS AND GO TO THE NEXT."

— REAR ADM. PETER KOFI FAIDOO

A member of the Ghanaian Maritime Police heads toward a suspected illicit fishing vessel. U.S. NAVY

A member of the Ghanaian Special Boat Service takes part in a search aboard a target vessel at exercise Obangame Express.
PETTY OFFICER 1ST CLASS THERON J. GODBOLD/U.S. NAVY

ADF: You called for new training of Ghana's Navy to meet new maritime threats. What type of training are you trying to introduce?

REAR ADM. FAIDOO: Within Ghana, we work very closely with other agencies to secure the maritime domain. We particularly work very closely with the Ghana Maritime Authority, which has the mandate to coordinate maritime security and safety issues. They are very supportive of us logistically, which has enhanced our capabilities. Going forward we need to complete and promulgate our national strategy for maritime security, which will clearly spell out the responsibilities of each agency and provide mechanisms for coordination. A lot of times when you have illegal activities at sea, you want to be able to go out there and accost those vessels. Sometimes there is a requirement for close boarding or what we call "noncompliant boarding." In line with this, we have developed Special Boat Squadrons that are trained and equipped to deal with asymmetric threats and law enforcement issues. These special forces can conduct potentially high-intensity operations as well as benign operations in the law enforcement category. They are also trained to work alongside civilian counterparts.

ADF: Does part of this training include the need for Sailors to be aware of maritime law?

REAR ADM. FAIDOO: That's an area we have issues with. Invariably, because we are a Navy and are not equipped to prosecute, what we do in Ghana is once we arrest someone, we have to hand them over to a prosecutor's service. We do not have sufficient legal knowledge to prosecute. Whenever we go on fisheries patrols, they go along with officers from the Ministry of Fisheries so they will be able to check for infractions and take documentary evidence. Then we hand them over, when we get to shore, to the Attorney General's Department for them to be prosecuted. So, yes, we do need to have the capacity for legal education, especially in order to understand the nature of the infraction and, more important, to be able to prosecute and set examples for other people to stop that.

ADF: You also have called for more collaboration between the Navy and other government agencies. How do you plan to make this happen?

REAR ADM. FAIDOO: We are collaborating very well. All of us are stakeholders in this venture; we have a lot of challenges with respect to

Ghanaian Sailors attend the inauguration of the Navy Headquarters Complex at Burma Camp.

resources and frequently call upon the Maritime Authority and Ghana Ports and Harbours Authority to assist us, sometimes with fuel to go to sea, sometime with equipment. The Fisheries Ministry of Ghana, for instance, has purchased two patrol vessels for us, which are run by the Navy. Currently, the Ghana National Petroleum Co. is in the process of negotiating with some of the oil companies so they can assist us to get more patrol vessels for the protection of our oil industry. So, yes, we do collaborate with a whole lot of agencies, and it is very helpful to keep our waters safe.

ADF: How would you describe the current maritime security partnerships between Ghana and other countries in the region?

REAR ADM. FAIDOO: With these maritime exercises, it helps us to conduct joint and combined operations. The Gulf of Guinea is made up of French-speaking and English-speaking countries. Until recently with the onset of these exercises, which are generally sponsored by the United States, we did not collaborate so much with each other. But with the support of the U.S. Navy and AFRICOM, we have a lot of collaboration. It has been really helpful, allowing the English-speaking and French-speaking nations to operate together. It has brought down the suspicions and rivalry. Now we all operate together as a joint force. There are areas that are a bit of a challenge. We have different doctrines. Ghana and Nigeria use the British doctrine and American doctrine, while the French-speaking countries' system is based on the French system. That is an area that we are working hard to try to fix. But the collaboration has enabled us to share information so the bad guys know that they cannot escape from one nation's waters and go to the next. For instance, if there is a vessel that has committed a crime in Togo and is running into Ghanaian waters, the Togolese authorities will inform us, we will go out there and accost it and hand them over to Togo. We also have a gentleman's agreement that we can do hot pursuit. If we are chasing a criminal and he arrives in Togolese waters, we merely inform the Togolese and we can go into their waters and make the arrest. It has been very helpful. In Ghana, our government officials and the general population are aware of the importance of keeping a powerful Navy to monitor our fisheries resources, prevent crime at sea and generally keep the sea lines of communication open for business. I think the Gulf of Guinea has an unjustified reputation as a dangerous area. We go out of our way to make it safe for crews and passengers of ships. ❑

HEALTH WORKERS USE EXPERIENCE, VACCINE TO COMBAT EBOLA

ADF STAFF
PHOTOS BY REUTERS

When the Ebola virus emerged in Guinea, Liberia and Sierra Leone in 2013-2014, West Africa — and the world — was caught unprepared. More than 11,300 people died in the outbreak, which spread into urban areas and popped up in other nations, including Mali, Nigeria and Senegal.

Even as the crisis ended in the spring of 2016, it was clear that Africa had not seen the last of Ebola. Nations across the continent would have to be ready for its eventual re-emergence. Steps were taken for the next outbreak, including the formation in January 2017 of the African Centres for Disease Control and Prevention (African CDC).

Then, an outbreak hit the Democratic Republic of the Congo (DRC) in the remote town of Bikoro on May 8, 2018. Within nine days, Ebola had spread to the port city of Mbandaka on the Congo River.

Ebola's presence on the banks of the Congo River posed a multinational threat. The disease had an easy route to three capitals — Bangui, Central African Republic; Brazzaville, Republic of the Congo; and Kinshasa, DRC. It had the potential to kill thousands.

This time, however, health workers were armed with a new vaccine. The African CDC sent 25 epidemiologists, laboratory experts and anthropologists to the DRC to combat the disease. Thousands of doses of an Ebola vaccine, tested successfully in limited use during the West Africa outbreak, arrived for use with health workers and those who had direct contact with confirmed cases.

The vaccine produced logistical challenges. It had to be kept at minus 60 to minus 80 degrees Celsius in a remote part of a nation with unforgiving weather and unreliable power supplies. Furthermore, medical officials had to get signed consent to administer the shots. Workers administered more than 3,300 doses.

The World Health Organization "moved quickly and efficiently," Matshidiso Moeti, WHO's regional director for Africa, told Reuters in July 2018. "Dozens of experts from Guinea spent weeks leading Ebola vaccination efforts here, transferring expertise which will enable the DRC to mount an effective response both within its borders and beyond."

Health officials declared that outbreak over in July 2018, but about a month later a separate outbreak started in the DRC's eastern provinces of North Kivu and Ituri, according to the U.S. Centers for Disease Control and Prevention.

Violence in the troubled North Kivu province has hampered responses there. As of September 2018, more than 11,000 doses of the experimental vaccine had been used, and more were arriving, Huffpost reported. It was clear that vigilance will have to continue in the fight against this dreaded disease.

Congolese Health Ministry officials unload the first batch of experimental Ebola vaccines in Kinshasa, Democratic Republic of the Congo, on May 16, 2018.

A World Health Organization worker administers an Ebola vaccine in the port city of Mbandaka, Democratic Republic of the Congo, on May 21, 2018.

EBOLA VIRUS

Ebola is most feared for the internal and external bleeding it can cause in victims owing to damage done to blood vessels.

SOURCE

According to WHO, it is thought that fruit bats are natural Ebola virus hosts.

TRANSMISSION

Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest.

DAMAGE

The incubation period is two to 21 days. Death from the disease is often caused by multiple organ failures and tissue death.

FRUIT BAT

FOREST ANTELOPE

GORILLA

SHREW

CHIMPANZEE

AREAS OF THE BODY AFFECTED BY EBOLA

Hepatocytes, functional cells of the liver

Endothelial cells, which form the lining of the blood vessels

Phagocytes, blood cells that absorb foreign particles
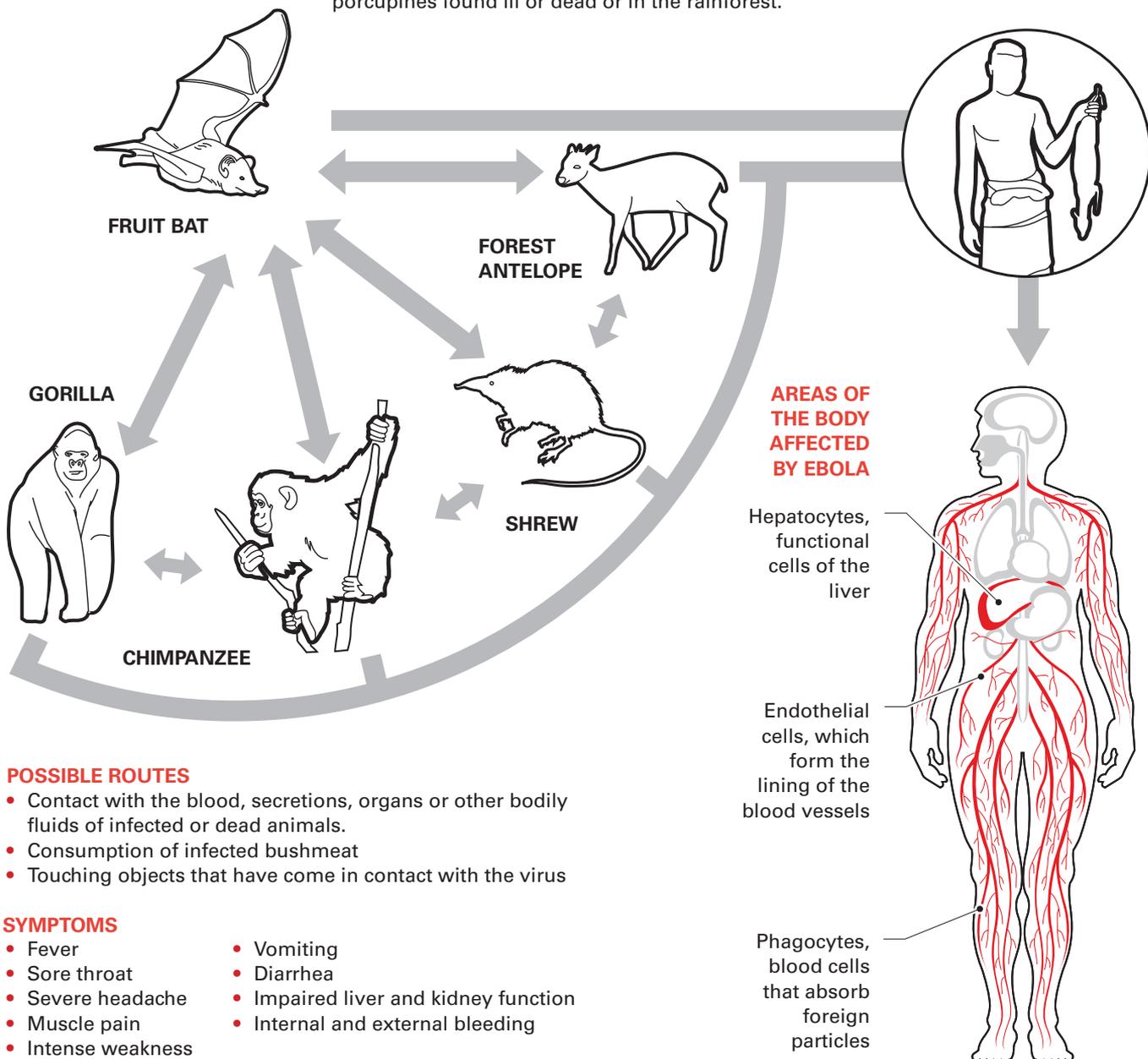
POSSIBLE ROUTES

- Contact with the blood, secretions, organs or other bodily fluids of infected or dead animals.
- Consumption of infected bushmeat
- Touching objects that have come in contact with the virus

SYMPTOMS

- Fever
- Sore throat
- Severe headache
- Muscle pain
- Intense weakness
- Vomiting
- Diarrhea
- Impaired liver and kidney function
- Internal and external bleeding

Security
the
SEYCHELLES WAY

Africa's Smallest Nation Is Setting a Standard for Safe, Sustainable Seas

ADF STAFF

As the six Seychellois crew members of the fishing boat Galate slept at sea southeast of Mahé Island, they should have had little more to fear than awakening to another busy day of hauling in tuna from the Indian Ocean.

Armed bandits, however, were stalking the waters. International naval patrols had pushed pirates hundreds of miles from the Somali coast and the Gulf of Aden. Now some of those pirates had their sights on the fishermen.

About 2 a.m. on March 30, 2010, nine Somali pirates, recently in possession of an Iranian fishing dhow and its 21 crew members, sought to add the Galate to their haul. The pirates had captured the Iranian craft four days earlier, according to a report in afrol News.

By the time the Somali pirates boarded the Galate, pirates already had attacked and captured crews of the Serenity, Indian Ocean Explorer and Alakrana. Then-President James Michel was determined that no more of his people were going to be bargaining chips for Somali-based pirates.

Baie Beau Vallon, Mahé Island, Seychelles

KENYA
SOMALIA
SEYCHELLES
TANZANIA
COMOROS
MOZAMBIQUE
MADAGASCAR
INDIAN OCEAN
MAURITIUS

Bird · Denis
Praslin
Victoria
Mahé
INNER ISLANDS
Bancs Africains
· Rémire
d'Arros · St-Joseph
Poivre · Desroches
Boudeuse · Marie-Louise
Desneufs
· Platte
AMIRANTE GROUP

INDIAN OCEAN

S E Y C H E L L E S

Bijoutier
Alphonse
St-François
Coëtivy

ALDABRA GROUP
Assomption
Astove

St-Pierre · Providence
Cerf
FARQUHAR GROUP
Farquhar Atoll

Agalega Islands (Mauritius)

Iles Glorieuses (France)

0 km   80   160   240 km

ADF ILLUSTRATION

Michel ordered the Seychelles Coast Guard vessel Topaz to intercept the dhow, which was towing the Galate, and prevent it from reaching Somalia. If the Topaz failed, another prolonged and dangerous ordeal to secure the crew members' release was almost sure to follow.

With help from European Union Maritime Patrol Aircraft, the Topaz found the dhow and fired warning shots. Then, the Topaz fired on the dhow's engine, disabling the boat and setting it ablaze. The pirates, Iranians and Seychellois fishermen jumped into the sea and were rescued. As it returned home, the Topaz had to repel another pirate attack, firing on and sinking a skiff and a mother ship. Another skiff escaped.

"We all remember the pain and uncertainty when our compatriots on board the Serenity, Indian Ocean Explorer and Alakrana were being held hostage by pirates last year," Michel said after the Galate incident, afrol News reported. "We were determined that such incidents do not repeat themselves, and it was important that the vessel not be allowed to reach Somalia."

In the years since the Galate incident, the Seychelles has been leading the way in the prosecution and imprisonment of East African pirates, bolstering its small Coast Guard, forging agreements and alliances with foreign powers, and ensuring the preservation and protection of its vast maritime domain. The work is paying off. Africa's smallest nation is setting a standard for the continent.

A VAST DOMAIN

The Seychelles is a 115-island archipelago with a combined land area of 455 square kilometers, but it must protect an exclusive economic zone at sea of 1,336,559 square kilometers — an area larger than South Africa. The Seychelles and its 90,000 residents have a stake in maritime concerns that greatly eclipses those of nations many times its size and population.

As piracy and other maritime threats increased in the Indian Ocean, the Seychelles benefited from forward-thinking leaders willing to engage with international partners. The nation's diminutive size and geography also helped, said Dr. Ian Ralby, adjunct professor of maritime law and security at the Africa Center for Strategic Studies.

"In some ways their size gives them the advantage of agility," Ralby told *ADF*. "It's a lot easier to change things and change approaches when you're 90,000 people than when you are 200 million people."

However, the Seychelles' size also magnifies the effects of piracy and other threats. Threats to the fishing industry or tourism are felt acutely nationwide. Ignoring the problem is not an option.

The Seychelles also benefits from another unique feature. Dr. Christian Bueger, in a paper co-authored

Map

Praslin

- Curieuse
- St-Pierre
- Grand'Anse
- Baie Ste-Anne
- Ile Ronde

Mahé

- Glacis
- Anse Etoile
- Beau Vallon
- Bel Ombre
- Ste-Anne
- Ile Sèche
- Ile Moyenne
- Ile Longue
- **VICTORIA**
- Mont Fleuri
- Plaisance
- Ile au Cerf
- Ile Conception
- Ile Anonyme
- Cascade
- Port Glaud
- Grand'Anse
- Ile Thérèse
- Pointe la Rue
- Ile aux Vaches
- Anse aux Pins
- Anse Boileau
- Anse Louis
- Ile Souris
- Anse Royale
- Baie Lazare
- Takamaka

0 km   2.5   5 km

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with Anders Wivel in May 2018, poses this question: "How can it be that a country with such limited human and financial resources becomes recognized as a major diplomatic facilitator and as one of the agenda setters in ocean governance?"

The secret, Bueger told *ADF*, is embedded in the nation's ethnic and cultural history.

A UNIQUE FORM OF DIPLOMACY

The Seychelles does not have an indigenous culture or population. In fact, it had no population at all until the 1770s, when French planters arrived, bringing East African slaves with them. The nation's modern population includes the descendants of French, African and British settlers, as well as African, Indian, Chinese and Middle Eastern traders who lived on three main islands — mostly on Mahé, and to a lesser extent on Praslin and La Digue.

Bueger and Wivel wrote that slaves were traded as individuals, not groups or families, so their cultures were not preserved. With the eventual influx of other nationalities from the East and West, the Seychelles became a Creole country. This mixture of cultures, without a strong devotion to any one of them, makes the Seychelles adept at what Bueger calls "Creole diplomacy."

"In Creole diplomacy, you have many friends, no enemies, and you speak with everyone, and you can be very pragmatic in terms of making things work rather than having a lot of ideological or historical problems involved," said Bueger, a professor of international relations at the University of Copenhagen. "So pragmatism, openness toward all sorts of cultures and other nations — this is a Creole principle; it's how Creole culture works."

The Seychellois government cooperates with a diverse range of nations and organizations on maritime issues. It has worked with international organizations to combat maritime crime, participated in international naval exercises and struck bilateral deals with foreign nations to bolster its training and interdiction capacity through the acquisition of sea and air assets. Some examples:

- In 2014, the European Union (EU) donated flight planning and imagery-analysis software to the Seychelles and taught officers to use it. The system helps the Air Force monitor the maritime domain and effectively analyze radar, video and infrared images, defenceWeb reported. This capacity helps provide admissible evidence in piracy prosecutions.
- In 2015, the Seychelles became the first regional nation to chair the Contact Group on Piracy off the Coast of Somalia, serving for two years. Participants coordinate political, military and nongovernmental efforts to combat East African piracy and ensure that pirates are brought to justice. Nearly 80 nations and several international organizations participate.
- German Sailors on the FGS Bayern, the nation's flagship vessel in the EU multinational Operation Atalanta patrol fleet, trained the Seychelles Marine Police Unit in 2016 on boarding, securing landing zones and fighting onboard fires, defenceWeb reported.
- In January 2018, the Seychelles was the host nation for Cutlass Express, U.S. Africa Command's East African naval exercise. Participating nations tested their capacity to combat trafficking, piracy, illegal fishing, and to conduct search-and-rescue operations. Participants came from Australia, Canada, **Comoros**, Denmark, **Djibouti**, France, **Kenya**, **Madagascar**, **Mauritius**, **Mozambique**, New Zealand, **the Seychelles**, **Somalia**, **South Africa**, the Netherlands, Turkey and the United States.
- The Seychelles People's Defence Forces (SPDF) and the Indian Army joined in February 2018 for an eight-day exercise called Lamitye, the Creole word for friendship. SPDF Lt. Col. Jean Attala told Seychelles News Agency that the biennial exercise, started in 2001, strengthens the two forces' counterinsurgency, counterterrorism and anti-piracy operations. It involved SPDF, Coast Guard and Air Force personnel.

The Seychelles Coast Guard vessel Topaz arrives at Port Victoria carrying six rescued Seychellois fishermen, 21 Iranians and nine Somali pirates. AFP/GETTY IMAGES

A LEADER IN PROSECUTIONS

One arena in which the Seychelles has excelled is in its willingness to prosecute pirates caught attacking ships off the coast of Somalia and beyond. As naval forces began to strike back against pirates in the Gulf of Aden and Indian Ocean, they engaged in "catch and release" because participating nations were not willing to prosecute pirates in their home countries.

"To address this, the international community worked towards a solution whereby international navies would arrest suspects, but then hand them over to regional countries for prosecution," Bueger and Wivel wrote.

Kenya stepped up first, and then the Seychelles agreed to prosecute pirates and soon became the primary regional state to handle the cases. They have tried dozens of cases representing more than 100 suspects and have handled several appeals cases as well. All along the way, the country remained steadfast in its devotion to the rule of law.

At first, Ralby said, the Seychelles didn't have sufficient jurisdiction to prosecute cases originating on the high seas or laws to address "attempted piracy." They also navigated a steep learning curve

An arrested Somali pirate arrives at Port Victoria, Seychelles, in connection with the attack on the Galate fishing vessel. AFP/GETTY IMAGES

on rules of evidence such as proving suspects are older than 18 or addressing questions of their citizenship. "As legal issues arose, they actually amended their laws in order to be able to handle the cases appropriately," Ralby said. "So they have some of the world's leading expertise at this point in terms of the mechanics of actually taking a piracy case from wherever — anywhere on the high seas — to trial and all the way through to prosecution, conviction, appeal and the eventual imprisonment."

The tiny nation, on islands in the middle of the Indian Ocean, saw the benefit of re-establishing the rule of law in the maritime domain. It also saw the benefit of making the sea sustainable, as well as safe.

"If the only incentive for maritime security is to protect the state against threats, you have a very depressing and unending problem, in that you are spending a lot of money on stopping something that will always be coming," Ralby said. "There will always be new threats; there will always be new maritime security challenges."

SEEING THE BIG MARITIME PICTURE

The Seychelles, perhaps more so than any other African nation, knows the value and fragility of its sea-based economy. Its revenues derive chiefly from the fishing and tourism industries, and crime at sea imperils that commerce. As nations strive to be more aware of the maritime domain, Ralby said the Seychelles works tirelessly to protect and cultivate it as a source of wealth and prosperity.

The Seychelles has a fishing traceability policy that allows global consumers to see the origination of tuna caught by Seychellois fishing boats. This market transparency adds value to legal catches and discourages illegal fishing.

The country also has embarked on a novel way of preserving its maritime domain while retiring sovereign debt. The financing arrangement, known as "debt for

Seychelles special forces and the Mauritius Coast Guard participate in boarding drills during exercise Cutlass Express 2018.
PETTY OFFICER 3RD CLASS FORD WILLIAMS/U.S. NAVY

dolphins," has the Seychelles setting aside vast swaths of its maritime domain for preservation in exchange for funding that retires national debt.

Early in 2018, The Nature Conservancy offered to buy about $22 million of Seychelles' debt. In exchange, the country would designate a third of its marine area as protected, Reuters reported. The first 210,000-square-kilometer conservation area would limit fishing, oil exploration and development in fragile habitats and allow them under certain conditions in the rest of the area. An additional 200,000-square-kilometer area was to have different restrictions.

The Seychelles has committed to protecting up to 30 percent of its marine domain through a comprehensive marine spatial plan. The plan will protect species and habitats, build coastal resilience against climate change, and preserve economic opportunities in tourism and fishing.

"The blue economy has become the focal point of the national economy, and more than probably any other state, Seychelles has come to terms with the reality of its geography and embraced it as a positive and not just a challenge," Ralby said. ❑
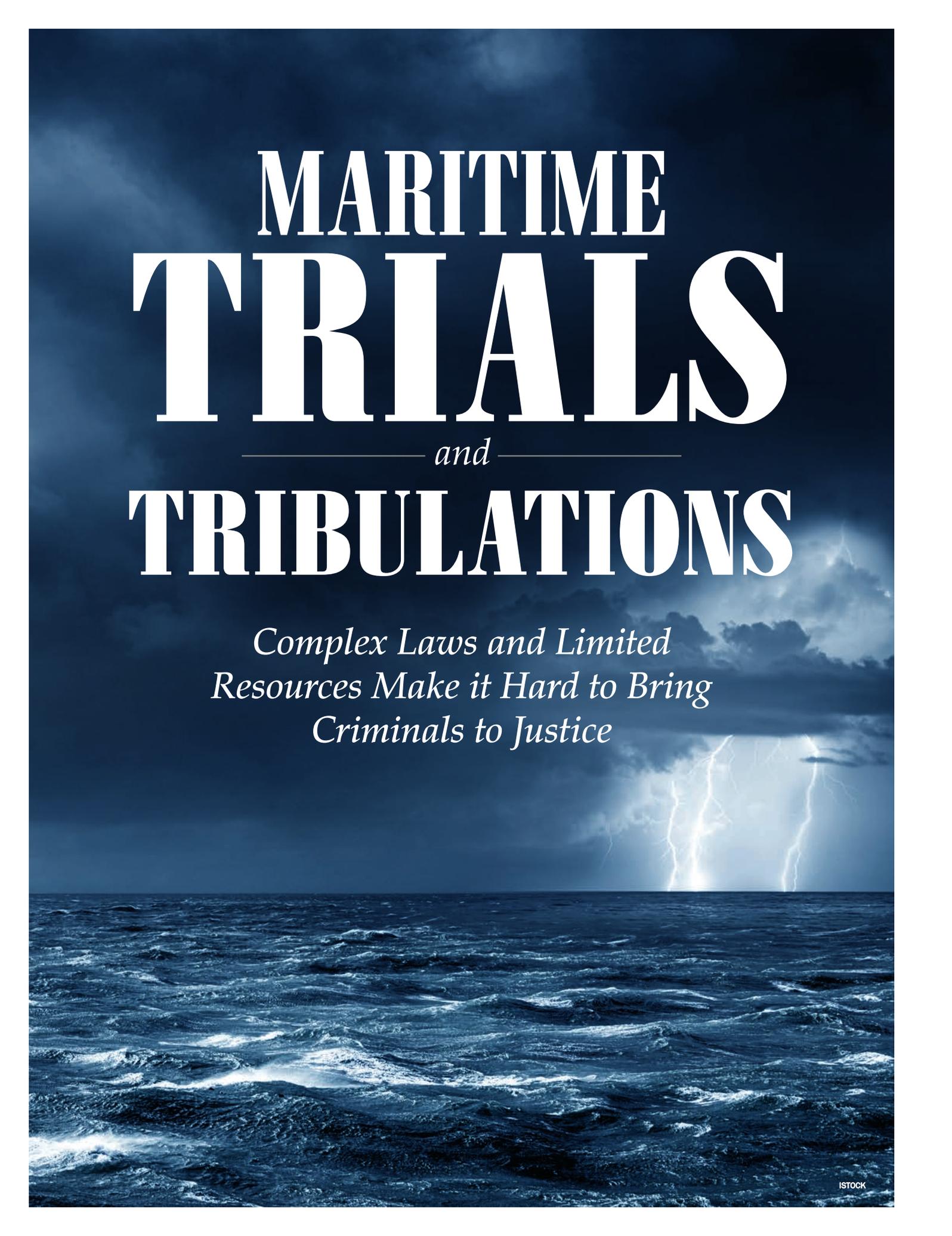
MARITIME
TRIALS
and
TRIBULATIONS

*Complex Laws and Limited
Resources Make it Hard to Bring
Criminals to Justice*

ADF STAFF

The guilty verdict handed down in a São Tomé and Príncipe courtroom echoed across the globe.

A Chilean captain and two Spanish crew members of the notorious fishing vessel the Thunder were sentenced to two to three years in prison and fined a total of $15 million.

For the tiny Gulf of Guinea island that relies heavily on the sea economy, it felt like a rare win in a losing battle against illegal fishing.

"This isn't just a victory for our country," said Frederique Samba Viegas D'Abreu, the attorney general of São Tomé and Príncipe in 2015. "It's a victory for the oceans and against these international crime syndicates that have operated for too long above the law."

The odyssey of the Thunder illustrates just how hard it is to bring maritime criminals to justice. The ship fished for years across the globe, gliding from Antarctica to the West African coast. It flew a Nigerian flag but was owned by a Spanish investor and operated through a shell company in Panama. It had changed hands many times over the years.

It was stopped after Interpol put out a worldwide alert and due to the persistence of an environmental activist vessel, the Sea Shepherd, which chased it for 10,000 miles. When the Thunder's crew intentionally scuttled it off the coast of São Tomé, activists boarded the boat to collect and preserve evidence.

Still, the court conviction was based on what prosecutors could prove. The charges had to do with forged documents, recklessness and pollution, not illegal fishing. The punishment didn't fit the crime, and the

Fishing boats set out near Pemba, Mozambique. Illegal trawlers are harming the livelihoods of artisanal fishermen. REUTERS

crime was profitable for a long time. Interpol estimates that, as of 2013, the Thunder had made $60 million by illegally fishing for toothfish.

Allistair McDonnell, a criminal intelligence officer at Interpol's fisheries unit, said global enforcement officials are scrambling to use the law in any way they can to stop criminal vessels.

"We are cutting away at the model," McDonnell told Reuters. "We'll attack the insurance, the availability of supplies and crew, attack the landing ports and the markets they use. It is death by a thousand cuts."

The Thunder shows that justice at sea is rarely straightforward. Catching criminals in the vast ocean is difficult, but convicting them in a courtroom can be

Suspected pirates appear in a Mombasa, Kenya, courtroom as they await trial. AFP/GETTY IMAGES

even harder. Crimes such as piracy, illegal fishing, oil bunkering, dumping waste and trafficking at sea have become widespread, but perpetrators rarely go to prison. A patchwork of jurisdictions, complex and outdated laws, and a lack of law enforcement capacity make maritime justice among the most elusive in the world.

Here's an overview of the legal challenges posed in fighting maritime crime and what is being done to fight back.

SEA BOUNDARIES

Figuring out who should prosecute a crime at sea is never simple. A country's territorial waters extend 12 nautical miles from the coast. In this zone, the same laws apply as on land, but maritime boundaries between countries are sometimes ill-defined or contested. Beyond the territorial waters is the exclusive economic zone (EEZ), where the country has the right to extract natural resources and can set rules such as limits on fishing catches. This extends for 200 nautical miles from the coastline. About 42 percent of the world's oceans are within an EEZ.

Beyond the EEZ lies the high seas. Although the United Nations Convention on the Law of the Seas protects the high seas, the reality is there is little enforcement capability there, and no country or

institution has the primary duty to enforce laws. The Global Ocean Commission called the web of agencies, groups and nations that govern the high seas a "coordinated catastrophe."

"Few places on the planet are as lawless as the high seas."

— Ian Urbina, *The New York Times*

Criminals exploit these gaps and operate in areas with the least enforcement.

"Few places on the planet are as lawless as the high seas," wrote Ian Urbina in *The New York Times*, in a series documenting crime at sea. "Though the global economy is ever more dependent on a fleet of more than four million fishing and small cargo vessels and 100,000 large merchant ships that haul about 90 percent of the world's goods, today's maritime laws have hardly more teeth than they did centuries ago."

Prosecution at sea is further complicated by the international nature of the shipping industry. Boats are flagged in one country with crew members

typically from several countries. Since the "flag state" of a ship has the exclusive jurisdiction to regulate the ship's actions on the high seas, when that state is unwilling or unable to control its ships, there is no enforcement. This is called the "flag-state loophole."

"When governments are doing so much to make their borders and their citizens secure, it seems extraordinary that they've left a loophole big enough to sail a trawler full of explosives through," said former Costa Rican President José María Figueres, co-chair of the Global Ocean Commission.

> *"When governments are doing so much to make their borders and their citizens secure, it seems extraordinary that they've left a loophole big enough to sail a trawler full of explosives through."*
>
> — former Costa Rican President José María Figueres, co-chair of the Global Ocean Commission

LACK OF LAWS

In some cases the laws themselves are inadequate. This is particularly true with piracy, which was extremely rare until just over a decade ago. As a result, many nations have outdated piracy laws or none at all.

Justice Anthony Fernando of the Seychelles said that as recently as 2010 his country's laws had only vague references to piracy and no definition of what constituted the crime.

After the first act of piracy recorded in modern Seychellois history in 2009, the country set about updating its laws. It adopted a detailed description of the offense and made it punishable by up to 30 years in prison and a fine of nearly $75,000. It also included language stating that pirates who commit crimes outside Seychellois waters can be tried on the islands.

Since then, the tiny country has led the region by trying more than 150 pirates.

"In certain countries there aren't sufficient provisions or laws that deal with piracy," Fernando said at a conference held by the Africa Center for Strategic Studies. "Just because it exists in international law, you cannot bring it into your own land in a dualist system and enforce it. It has to be granted to the courts by statutes. You cannot directly apply international law."

Fernando said countries must adopt local statutes to fit their needs, and numerous African countries, including Nigeria, are modernizing their anti-piracy laws. Regional efforts such as the Yaoundé Code of

THE PATH TO PROSECUTION

Getting a guilty verdict in a maritime crime case requires navigating an array of complex laws, preserving evidence and finding the right jurisdiction in which to try the case.

ADF STAFF

EVIDENCE
Maritime security professionals boarding a vessel must treat it as a crime scene. This means collecting evidence, taking witness statements and inspecting the cargo hold for illicit goods. Since the ship and its crew may depart after the boarding, this initial period of evidence collection is crucial.

CHARGE
Charges brought against maritime criminals will be based on laws where the crime took place. Countries that have updated their laws to match emerging threats have the best chance of securing a conviction. For instance, a country with outdated or vague anti-piracy laws may find it difficult to prosecute a suspected pirate arrested in its waters.

JURISDICTION
The decision on which country's courts should hold the trial is based on a number of factors, including the location of the crime, the nationality of the offender and the flag state of the vessel. This is complicated by the fact that illegal vessels typically commit crimes in multiple locations. Maritime borders such as the one separating a country's exclusive economic zone from the high seas change the applicable law.

DETENTION
In many cases, suspected criminals must be held in detention facilities while awaiting trial. Humane detention conditions are essential for the integrity of the case and are required by international law. When foreign suspects are held, detention can be complicated by diplomatic pressure from the offender's home country, which may demand an extradition or release. When crime occurs in one country's waters but it lacks the capacity to hold the offender, a second country sometimes will volunteer to hold him. Kenya and the Seychelles have agreed to detain Somali pirates in certain cases.

TRIAL
Maritime trials can involve special legal knowledge and capabilities. Some countries, including Kenya, have set up courts to deal specifically with piracy.

Conduct, signed by more than 20 West African countries in 2013, outline maritime crime and call for countries to strengthen national laws and harmonize them across the region.

Another nettlesome issue is so-called articles of crime laws. Since it is difficult to catch pirates in the act of committing a crime, these laws state that suspected pirates found with incriminating items such as weapons, explosives, grappling hooks or chains can be charged as criminals.

A related question is bringing charges against seafarers operating a mother vessel when pirates are attacking ships from skiffs.

"Articles of crime legislation is very important in the Gulf of Guinea because it will shift the burden of proof," said Dr. Kamal-Deen Ali, executive director of the Centre for Maritime Law and Security Africa in Ghana. "Where you are found, for example, with a speedboat loaded with AK-47s off the coast of Ghana or off the coast of Nigeria, the presumption is that you are going to commit piracy unless you can prove otherwise."

COLLECTING EVIDENCE

When members of a navy or coast guard board a vessel suspected of illegal activity, they are entering a crime scene. Like police in a big city, it often is their duty to collect and preserve evidence so that it can be used in court.

However, this skill set is not emphasized in many training programs. When Sailors aren't prepared to handle a crime scene, it can lead to lost evidence and missed convictions.

"Naval forces may embark on an operation and arrest a vessel, and you realize at the end of the day that some of the critical evidence was lost or not handled well," Kamal-Deen said. "It is essential that a crime scene should be protected so that a criminal investigation can be connected, especially so you can collect samples, and those samples can clearly link pirates or the suspects to the crime."

The skills necessary to gather evidence on board a vessel are cordoning off a scene, preserving forensic evidence, taking photos or video, reviewing logbooks or electronic devices, collecting samples of suspected illicit material in the cargo hold, and recording statements from crew members.

"These factors are very important when it comes to prosecution," Kamal-Deen said.

Members of national navies rightly say that such law enforcement actions are not their primary role, but the duty falls to them when they intercept vessels far from land and it is impossible for other authorities to access the scene. When possible, navy and coast guard vessels conduct joint patrols with other agencies or carry members of the fisheries service or maritime police on board to lead such investigations.

An illegal fishing vessel, the Thunder, sinks off the coast of São Tomé and Príncipe. The conviction of the Thunder's crew in local courts was a rare legal victory in the fight against illegal fishing.
SEA SHEPHERD

Prisoners sit behind bars in a facility in Puntland State, Somalia. AFP/GETTY IMAGES

Efforts are underway to improve this capacity. A program called FishFORCE is a collaboration between Nelson Mandela University and the government of Norway to train fisheries control officers, police and prosecutors across southern and East Africa to convict people fishing illegally. One of the collaborations will be to start an academy in Kenya, where fisheries crime costs the country nearly $100 million per year.

"For crime to be combated, we need trained officers who can collect, preserve and present in court evidence for someone to be prosecuted," said Professor Musili Wambua, who teaches at the University of Nairobi and has worked to set up the FishFORCE academy.

Another long-standing project is the African Maritime Law Enforcement Partnership (AMLEP) by U.S. Africa Command. It helps nations evaluate their legal framework and conducts joint patrols for training on how to board vessels, check paperwork, and, when necessary, arrest maritime criminals. During the operational phase of AMLEP in 2018, Cape Verdean, Senegalese and U.S. forces conducted 40 boardings, mostly of fishing vessels, and issued fines totaling $75,000.

Such efforts are showing that improving law and order on the seas can be achieved through international partnerships and capacity building. It also requires strong cooperation among the military, national and local maritime agencies, and the judicial sector.

"Well-networked actors threatening the security of African waters are growing at an alarming rate," wrote Francois Vreÿ, research coordinator at the Security Institute for Governance and Leadership in Africa at Stellenbosch University. "African countries could address this by, in the first instance, ensuring

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"For crime to be combated, we need trained officers who can collect, preserve and present in court evidence for someone to be prosecuted."

— Professor Musili Wambua, University of Nairobi

that their national laws are aligned with the United Nations' treaty aimed at ocean safety. Secondly, they need to start working together. It's clear that single countries can do very little on their own. They need to sign up to multilateral initiatives. A growing network of collective maritime security is key to harnessing the Blue Economy." ❑

ETHIOPIA EXPANDS

ADF STAFF

AIR FORCE CONTRIBUTES TO **PEACEKEEPING MISSION** IN SOMALIA

The residents of Bishoftu, Ethiopia, a lakeside town 25 kilometers south of the capital city, are accustomed to the rumble of jets taking off and landing at the Ethiopian Air Force's (ETAF) Central Air Base.

In June 2018, they heard the roar of a refurbished, C-130E Hercules cargo aircraft donated by the United States government. The intent of this donation was to further develop the ETAF's capacity to resupply peacekeeping forces in the region and to respond to humanitarian crises.

The delivery of the aircraft also was celebrated by honoring John Robinson, a determined African-American pilot who fought for Ethiopia and is buried there. Representatives of the American and Ethiopian air forces together laid a wreath at Robinson's grave on June 5, 2018.

The next day at Central Air Base, Gen. Adem Mohammed conducted a tour of simulator training facilities and the Ethiopian Air Force

Academy before escorting the delegation to the flight line to show off the new C-130E.

Ethiopia's Number 15 Squadron will make good use of its new plane. The Ethiopian National Defense Force contributes more personnel to United Nations peace-keeping operations than any other country. According to U.N. figures, as of June 2018, the East African nation was responsible for 8,508 personnel — about 1,400 more than the second contributor, Bangladesh.

Ethiopia's commitment to international peacekeeping operations dates to 1951, when Ethiopian Soldiers were an important part of the U.N. multinational force in the Korean War. In 1953, the U.S. government agreed to help Ethiopia's military enter the jet age. By 1961, Ethiopia operated F-86F fighters and T-33 and T-28 jet trainers.

The current Ethiopian fleet is estimated to consist of 24 fighter craft, seven transport planes, 25 helicopters and about 14 trainers.

The ETAF currently helps staff the African Union Mission in Somalia. In September 2018, the Shabelle Media Network reported, members of the ETAF carried out an airstrike against al-Shabaab after learning of plans by the extremist group to attack the Ethiopian contingent.

The contingent killed about 70 al-Shabaab militants and destroyed two vehicles packed with weapons. Brig. Gen. Yilma Merdassa, chief of ETAF, told Fana Broadcasting that the airstrike was conducted after an extensive study.

He said, "We achieved 100 percent of our plans." ❏

THE C-130: THE 100-YEAR AIRPLANE *ADF* STAFF

The U.S. Navy once analyzed data and concluded that, in theory, a C-130 Hercules transport plane could carry 25,000 pounds of freight, fly for 4,000 kilometers and eventually land on an aircraft carrier.

On October 30, 1963, that theory was put to the test. A C-130 made a successful landing on an American aircraft carrier. Its 40-meter wingspan cleared the control tower by just 4 meters.

Fifty-five years later, it retains the record for the largest, heaviest plane ever to land on a carrier.

It was hardly the most grueling test for a C-130. As reported by The Aviationist website, C-130s equipped with Teflon-coated skis are used in the Arctic and Antarctica. Ten of the planes, nicknamed "Ski-130s," routinely supply remote outposts with cargo loads in excess of 60 tons.

The Lockheed C-130 Hercules can be used, and has been used, for just about everything. The four-engine turboprop military transport plane has seen service as a troop carrier, a flying medical clinic, an airborne assault craft, a support craft for scientific research, a search-and-rescue plane, an aerial refueler, a maritime patroller and a firefighting craft. The list of uses could be much longer. There's even a civilian version called the LM-100J.

As of 2018, 16 countries in Africa were using C-130s.

A South African C-130 carrying five endangered East African black rhinos lands in Tanzania. REUTERS

Lockheed, an American company, says the impetus for the commissioning of the C-130 was the Korean War. In that conflict, the U.S. Air Force realized it lacked a versatile transport plane that could airlift troops over medium distances and land on short, basic airfields. The Air Force issued specifications for a new plane in 1951, and Lockheed won the contract.

The first production C-130 flew for the first time on April 7, 1955. Then as now, it was notable for its four turboprop engines, its range of 4,000 kilometers, and the ability to transport more than 70 combat troops.

"They obviously did its design right," Tom Wetherall, a director of business development for Lockheed Martin, told *Popular Mechanics* magazine. "It's been in production for 60 years. It's got a high wing. It's a turboprop. The engines and propellers are out of harm's way. The straight wing yields the efficiency to get in and out of dirt runways, to get the weight off the wheels as soon as possible. The fuselage is low to the ground at truck-bed height, which combines with the rear loading capability. It's a configuration that's second to none."

About 70 countries have acquired C-130s over the years. More than 2,500 of the planes have been produced. There are more than 40 variations on the standard C-130.

Forbes magazine has predicted that the C-130 likely will become the first military aircraft in history to stay in continuous service for 100 years.

"The C-130 … continues rolling out of the Lockheed Martin plant in Marietta, Georgia, at the rate of one every two weeks," the magazine reported. "Since the earlier 'E' variants of the C-130 that the latest version was conceived to replace stayed in service for nearly half a century, it's a safe bet that the planes being produced under the latest Pentagon contract will still be flying military missions when the centennial date of the first delivery rolls around."

Watch footage of a C-130 landing on an aircraft carrier in 1963 here: https://theaviationist.com/ 2014/07/16/c-130-land-on-carrier/

Troops board a South African C-130 to deploy to a security mission in the Comoros. AFP/GETTY IMAGES

'THE **BROWN CONDOR** OF ETHIOPIA'

MAJ. RYAN MCCAUGHAN

In 1910, in the American town of Gulfport, Mississippi, a young boy named John Robinson witnessed a seaplane landing in a bay near his home. As the boy saw the pilot perform an array of aerial acrobatics for the onlookers, he felt the course of his life alter.

Robinson made it his mission to learn to fly. His mother explained that this was not a common goal for an African-American boy in the early 20th century. That only made him more resolved.

Robinson demonstrated tremendous acumen for machines and eventually earned a place at the prestigious Tuskegee Institute, a college for black Americans, to get a degree in automotive mechanics. Undaunted by challenges he faced due to prejudice, he moved to Chicago and applied to the Curtiss-Wright School of Aviation, believing that opinions regarding a black pilot might be more liberal in the American North.

He was wrong. Repeatedly denied, he took a job at the school as a weekend janitor. A professor named Bill Henderson noticed Robinson's interest and became his mentor. Robinson eventually became the school's first black student. Robinson became associated with like-minded, black aviation enthusiasts and formed the Aero-Study Group.

After earning his wings, along with ally Cornelius Coffey, Robinson went on to organize the Challenger Air Pilots Association for African-Americans wanting to fly. He also opened the John Robinson School of Aviation in Robbins, Illinois. Perhaps his most famous contribution to the history of American aviation was persuading his alma mater, the Tuskegee Institute, to open a school of aviation for African-Americans, which eventually would train the famed Tuskegee Airmen of World War II. For this reason, John Robinson often is referred to as "The Father of the Tuskegee Airmen."

In 1935, frustrated by the lack of opportunities for black aviators in America and driven to support the last bastion of uncolonized Africa, Robinson declared his intent to volunteer to defend Ethiopia in its ongoing conflict with Italy. Emperor Haile Selassie, desperate for support against the powerful Italian military, offered Robinson a commission. Robinson accepted and traveled to Ethiopia where, as now-Col. John Robinson, he found an air force composed primarily of small, wooden, weaponless aircraft.

Robinson led the Ethiopian Air Force in an ultimately impossible war against a European invasion. He flew resupply, intelligence and emergency medical missions, managing to elude a superior adversary. During this time, he became known as "The Brown Condor of Ethiopia." He returned to the United States in 1936.
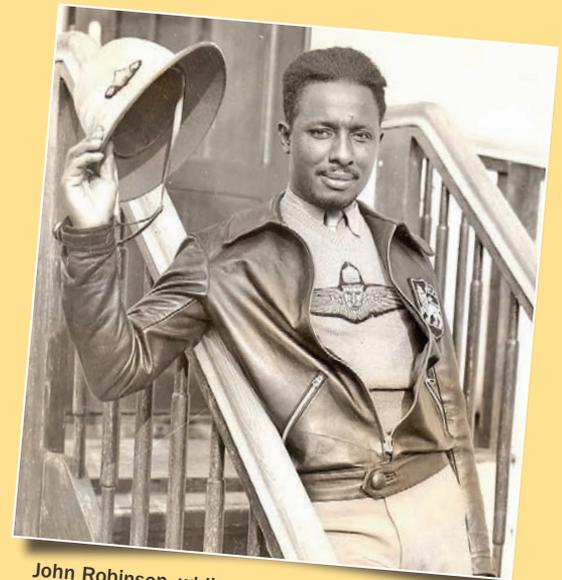
John Robinson, while serving as a pilot for the Ethiopian Air Force

After World War II, Robinson returned to the liberated Ethiopia. With a more willing international partner in Sweden, Selassie turned over command of the ETAF to that nation, and Robinson established a flying school near the capital. His school supplied the initial pilots to the newly established Ethiopian Airlines, one of Africa's commercial aviation giants today.

Robinson died in an aircraft crash in Addis Ababa in March 1954. He was 50.

U.S. Air Force Maj. Ryan McCaughan is a student at U.S. Air Force Air Command and Staff College at Maxwell Air Force Base, Alabama. Previously he was deputy chief of the Office of Security Cooperation at the U.S. Embassy, Addis Ababa.

Ethiopia's newly renovated C-130E, with aircrew and mechanics U.S. EMBASSY, ADDIS ABABA

SOMALIA RETURNS TO REGIONAL TRAINING

THE COUNTRY'S MILITARY WANTS TO PLAY A LARGER ROLE IN MAINTAINING SECURITY IN EAST AFRICA

A Somali Soldier uses a rocket-propelled grenade launcher at the military base in Sanguuni, where Somalis have partnered with American forces in counterterrorism operations. AFP/GETTY IMAGES

ADF STAFF

When military forces from Africa, Europe and the United States conducted the seventh Cutlass Express maritime exercise in 2018, they were joined by the Somali Maritime Police — the first time in nearly 30 years that Somalia had participated in any security exercise outside its own borders.

Participation in a military training exercise is a significant step for Somalia. The country has yet to fully defeat al-Shabaab extremists, and it relies on 22,000 African Union Mission in Somalia peacekeepers from six other African countries. In August 2018, the United Nations Security Council extended the mission until May 2019.

Somali Minister of Internal Security Mohamed Moalin Hassan acknowledged his country's problems during the opening of the exercise in Djibouti.

"In a way, our participation here in Cutlass Express is a recognition of how far Somalia has developed over the past few years," he said. "But this must also be balanced by the equal recognition of how far we are yet to grow before our own rights and security architecture is fully recovered."

A stable Somalia is key to security in the region and beyond. The country has mainland Africa's longest coastline at 3,000 kilometers, and it connects East Africa to the Middle East. Despite threats of piracy, billions of dollars in cargo pass through its waters each year. The country's abundant resources, including iron, copper and uranium, have been largely untapped, and scientists believe it has huge amounts of offshore oil.

The country has a proud military past. In the first years after the British Somaliland protectorate and the U.N.-administered Italian Somaliland colony unified and became a country in 1960, Somalia was stable and relatively prosperous. Before the civil war broke out, it had one of the largest armies on the continent.

"As politicians stoked nationalist sentiment in the name of a Greater Somalia, the country

Somali forces secure the scene after two car bombs detonated in Mogadishu.
AFP/GETTY IMAGES

SOMALIS IMPRESS TRAINERS DURING CUTLASS EXPRESS

ADF STAFF

Somalia's participation in Cutlass Express 2018 in Djibouti and the Seychelles showed its commitment to improving East Africa's combined maritime law enforcement, and promoting national and regional security.

"Having Somalia be part of this is absolutely phenomenal," said U.S. Rear Adm. Shawn E. Duane. "It's the first time they've been able to participate outside their borders in a multinational exercise. ... It shows a lot of progress, and that's the kind of success that Cutlass Express fosters."

The U.S. Coast Guard and Turkish military in Djibouti provided Somali participants hands-on training for visit, board, search and seizure missions in addition to pier-side and at-sea vessel boarding. The exercise lasted eight days and included an in-port preparatory phase, five days of drills, and workshops in the Seychelles and Djibouti.

"We have learned these techniques in classes in Somalia, so Cutlass Express gives us the opportunity to learn tactical application from our partners," said Somali Military Police Capt. Abdulkadir Muktar. "Applying what we have learned will help us improve our goal of maritime security."

Instructors said the Somalis were quick learners and showed what they could do in the final boarding exercise.

Somalia had already announced that it would participate in Cutlass Express 2019.

Cutlass Express is one of three Africa-focused regional Express series exercises sponsored by U.S. Africa Command and facilitated by U.S. Naval Forces Europe-Africa/U.S. 6th Fleet. The exercise falls under Africa Partnership Station, the umbrella program for the Express series of exercises and other outreach and capacity-building initiatives throughout Africa.

Nations participating in Cutlass Express 2018 were Australia, Canada, Comoros, Denmark, Djibouti, France, Kenya, Madagascar, Mauritius, Mozambique, Netherlands, New Zealand, Seychelles, South Africa, Turkey and the United States.

"Criminal activities pose a big threat to the security of Africa's maritime environment," said Melanie Zimmerman of the U.S. Embassy in Mauritius and the Seychelles. "These are challenges that no single nation can overcome on its own, but, if we work together, overcoming those challenges becomes achievable."

STAFF SGT. ALLYSON MANNERS/U.S. AIR NATIONAL GUARD

Members of the Somali National Armed Forces practice tactical movements during exercise Cutlass Express 2018.
PETTY OFFICER 2ND CLASS ALYSSA WEEKS/U.S. NAVY

sought to build a formidable army, known locally as 'The Lions of Africa,'" wrote journalist Amanda Sperber for foreignpolicy.com. "At the time, military academies in the country were so well resourced, they had tanks to spare for practical training."

The country later lapsed into decades of military dictatorship, civil war and now, armed insurgency. In recent years, some Somalis have turned to piracy.

Oceans Beyond Piracy's "The State of Maritime Piracy 2017" report said that East Africa had the highest total economic loss from piracy in the world, at $1.4 billion, down from $1.7 billion in 2016. "The threat is posed by hijacked vessels, more than in the other regions where the nature of incidents is more related to kidnapping for ransom, or the kidnapping of cargos and yachts," the report said.

The United Nations said that Somalia's lack of a stable government has contributed to the piracy problem.

"Somalia continues to have a reputation as the launching point for terrorism, piracy, people trafficking and smuggling operations which obstructs efforts to commercialize Somali marine resources," the United Nations reported. "Meanwhile, the inability of Somalia to successfully do this is consistently seen as one of the underlying causes of instability."

WORLDWIDE ASSISTANCE

The Somali National Army now has about 12,000 active Soldiers, with another 24,000 in reserve. Its equipment includes 140 tanks and 430 armored fighting vehicles. Its Air Force has been slowly rebuilding since 2012. The current budget for the country's entire armed forces is $58 million. Somali leaders say they need to build an army of 28,000 professional Soldiers in addition to a police force of 12,000.

The country's Armed Forces are getting training and assistance from all over the world:

- Instructors from the United States have helped train a rapid-reaction force known as Gaashaan, which translates to "the shield." The force can operate under difficult circumstances, such as fighting inside enemy lines. U.S. forces help plan Somali military raids against al-Shabaab and provide helicopters that carry Somali troops to their targets.
- The United Nations has provided in-country maritime law enforcement, engineering and communications mentors who have trained Somali Maritime Police and Coast Guard units. Somali Maritime Police also have benefited from advanced training

in the Seychelles on visit, board, search and seizure operations. U.N. mentors routinely review security conditions at Somali prisons to reduce the risk of escape or mistreatment, especially for prisoners in the Piracy Prisoners Transfer Program.

- In 2010, the United Nations established a trust fund to support initiatives in countries fighting piracy off Somalia. In 2017, the United Nations Office on Drugs and Crime gave three new patrol boats to the Maritime Police Unit. The skiffs are better-suited to the rough seas off Mogadishu than the dhows they replaced, the U.N. said. The versatile boats now patrol around Mogadishu 365 days a year, after 20 years without regular patrols.
- In 2014, Somalia signed military cooperation agreements with Italy and the United Arab Emirates.
- In 2016, Turkey started building a new military camp in Mogadishu. The base will be used to train Somali Soldiers. About 200 Turkish Soldiers will train Somalis. Turkey also plans to build a military school.
- In March 2018, the European Union Training Mission Somalia conducted a live-fire training exercise with the Somali Maritime Police Unit to help the unit patrol. Somali officers learned rifle handling and shooting range procedures. The Maritime Police Unit also trained with the European Union in September 2017, working on patrolling and boarding vessels. Trainers said the goal was to help Somalia protect its principal port in Mogadishu, along with its approaches.

In his book, *Modern Maritime Piracy: Genesis, Evolution and Responses*, author Robert C. McCabe wrote that a European Union aid program, mandated until the end of 2018, "reflects the evolution beyond piracy to a more holistic effort to reconstruct and develop indigenous Somali security capacity."

"The expanded mission prioritizes the development of civilian maritime law enforcement capacity to carry out fisheries inspections and counter narcotic smuggling and piracy," wrote McCabe. "In addition, it aims to clarify legislation for the Somali Maritime Police Unit and Coast Guard through training and mentoring programs in the 'criminal justice chain' — arrest, investigation and prosecution — alongside the procurement of light equipment. This work is supported through training workshops, mock trials and the development of a regional network of law drafters and prosecutors." ❏

ADDING DEPTH
TO MARITIME DEFENSE

SECURITY AT SEA MUST CONSIDER AN ARRAY OF ISSUES, FROM THE ENVIRONMENT TO ECONOMICS

Angolan Marines take part in a building-clearing exercise during training in the Gulf of Guinea.
U.S. MARINE CORPS

ADF STAFF

There was a time when a country's maritime strategy consisted of its navy or coast guard protecting its waters, defending citizens from enemies and pirates, and going after people fishing illegally.

That's a shallow view of maritime security in the 21st century. Groups such as the United Nations and the African Union say that a modern-day maritime strategy must protect assets, ensure sustainable economic growth, guard the environment, manage energy use, and build the ability to work with neighboring countries and regions.

Africa's nations historically have been slow to protect and regulate their coasts. As they gained independence in the 20th century, the new nations had to have armies to preserve their sometimes-arbitrary borders, prevent and suppress rebellions, and protect citizens. Navies were not an economic priority.

"Coastal, island or archipelagic states around the world face varying degrees of challenges in securing their maritime territories," according to the Africa Center for Strategic Studies' (ACSS) 2016 report on maritime strategies. "Similarly, most of these states have yet to fully realize the development potential associated with exploiting the maritime domain in a sustainable fashion. These two pursuits — security and development — are at the heart of why states and international organizations around the world are constantly developing, implementing, assessing and revising maritime strategies."

ECOWAS DOMAIN

The Gulf of Guinea offers a good case study. From Senegal in the north to Angola in the south, the Gulf of Guinea's coastline stretches more than 6,000 kilometers. The countries have an estimated 24 billion barrels of crude oil reserves — 5 percent of the world's total. The region has vast stores of natural gas, valuable minerals and rainforests. The 4,700-kilometer Congo River is the second-most-powerful river in the world after the Amazon, and it is the main commercial artery for equatorial Africa. The Gulf's impact on trade far exceeds its geographical boundaries.

But like the rest of the continent, it faces many threats. Africa's coast is threatened by piracy, kidnapping, robbery, oil bunkering, illegal fishing and all kinds of smuggling, including drugs, weapons and people. Parts of the coast are plagued with widespread pollution. In 1975, Gulf of Guinea nations organized the Economic Community of West African States (ECOWAS) to achieve "collective self-sufficiency" for member states by creating a single trade bloc. ECOWAS also serves as a peacekeeping force and in recent years has focused on its role in policing the Gulf. The group's maritime domain consists of 11 of the 15 member states. In working on a regional maritime strategy, the organization has long concluded that "all of ECOWAS is affected by or dependent upon the maritime domain."

"Our economies are unfortunately tied to the prospects of the ocean," said Dr. Dakuku Peterside of the Nigerian

"YOU NEED A STABLE OPERATING ENVIRONMENT BASED ON SECURITY, THE RULE OF LAW AND A SET OF POLICIES THAT ARE IN PLACE AND ENFORCED AS A FUNDAMENTAL FRAMEWORK."

— World Ocean Council President Paul Holthus

A Sailor in Côte d'Ivoire's Navy takes part in a multinational exercise off the coast of Abidjan. REUTERS

Maritime Administration and Safety Agency. "The ocean is the medium for which most of our trade and transactions are conducted, the ocean also provides a unique opportunity for us to optimize the benefits of the blue economy and a special opportunity for us to tap into the benefits of nature," he added, as reported by *The Guardian* of Nigeria.

In 2008, ECOWAS adopted ECOWAS Vision 2020, which laid out the strategic objectives for "a borderless region, sustainable development, peace and good governance, and integration into the global market." The African Union has followed suit, concluding the negotiations on its 2050 Africa's Integrated Maritime Strategy in 2014, following up with a Charter on Maritime Security, Safety and Development in 2016.

ECOWAS has drafted its Integrated Maritime Strategy based on four principles:

- The maritime domain is critical for economic development and affects coastal and noncoastal member states.
- Maritime challenges are transnational, transregional and interrelated, so they cannot be overcome by a single nation. Each nation must coordinate and cooperate with neighbors and global counterparts.
- Effective maritime domain governance based on democratic principles and human rights is key to regional success.
- Countering maritime problems facing the region requires security and nonsecurity strategies. Criminal justice responses based on the rule of law are a critical element of the strategy.

THREE ESSENTIAL STEPS

Policymakers now say that the blue economy and maritime security go hand in hand.

"You need a stable operating environment based on security, the rule of law and a set of policies that are in place and enforced as a fundamental framework," said World Ocean Council President Paul Holthus, as reported by *African Business Journal*. "There's clearly some significant challenges with regard to illegal and unregulated fisheries, piracy in relation to shipping, and oil and gas issues. Tapping these problems is really at the front end of having that stable environment, and solving them in themselves creates opportunities."

The ACSS says that to build workable national and international maritime strategies, nations must begin with three essential steps: a self-assessment, a domain assessment and a threat assessment.

A SELF-ASSESSMENT

The self-assessment means examining what a country or region already has on its books as a starting point for establishing a strategy. The ACSS recommends this 10-step self-assessment:

- What national agencies have maritime responsibilities?
- What processes and mechanisms exist for interagency cooperation and coordination on maritime matters?
- What nonmaritime agencies are most affected by the maritime domain?
- What international maritime laws have been signed, and have they been incorporated into domestic law?
- Can an outsider reasonably access existing maritime rules and laws?
- What do existing maritime laws and policies cover, and are there known gaps?
- How is maritime law enforcement intended to work?
- What institutions have naval or maritime law enforcement authority? What is their manpower? What equipment do they have? How have they been trained?
- What joint, regional or international obligations exist?
- What resources are available for use in the maritime domain?

LOOKING AT THE DOMAIN

The domain assessment includes extensive research and explores areas that defense-minded planners might gloss over or even miss. Good research at this point could be the starting point for future economic strategies. The ACSS says that this stage requires a country or region to "be aware of its actual, not assumed, maritime economic potential" — the maximum level at which resources can be exploited in a sustainable way. The domain assessment includes:

- What is the maximum sustainable exploitation of the region's fish and seafood, from the smallest village operations to industrial levels? And what is the economic value of the fish at each of those levels?
- What potential does the country or region have for offshore mineral, gas and oil extraction? Where are these resources, and is it cost-effective to extract them? The 2016 ACSS report did not address the topic of offshore diamond mining, but a relatively new operation off the coast of Namibia already has altered the world diamond market.
- What potential does the region have for sustainable energy, such as solar, wind, hydroelectric and wave power?
- How could the region's ports and coastal infrastructure best be used?
- What maritime transportation does the region's agriculture and manufacturing need, and how can it be improved? What are the transportation needs of the region's mining and oil and natural gas extraction operations?
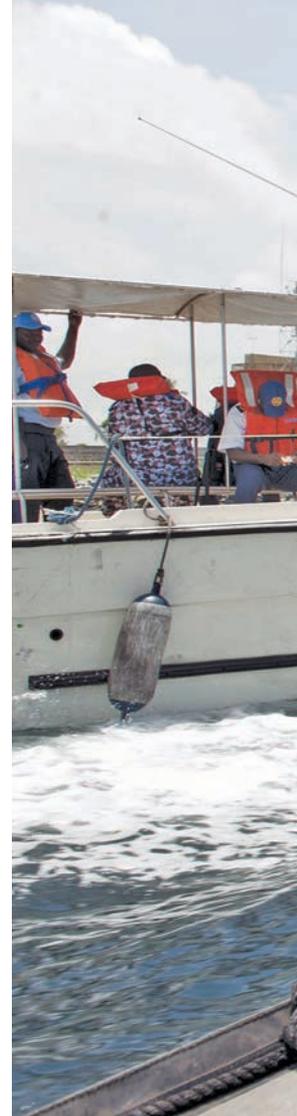
Maritime police train off the coast of Côte d'Ivoire. UNITED NATIONS

- What shoreside storage facilities does the region have, and are more needed?
- What shoreside fish processing and packing infrastructure does the region have?
- What maritime-related tourism infrastructure could be developed or improved? What recreational and luxury activities could be marketed?

THREAT ASSESSMENT

Africa has been particularly affected by maritime threats and challenges, in part because many nations were late in developing navies and coast guards. The ACSS says a successful maritime strategy must assess and prioritize threats and challenges. These can be broken down into three groups:

- **Threats that can be measured and prioritized** by the extent of property loss and opportunity costs. These threats include illegal fishing of all kinds; resource theft, such as oil bunkering; trafficking of humans, weapons, drugs, stolen goods and antiquities; piracy; money laundering; and insecurity of navigation routes.

- **Threats to the health of the region**, including climate change, coastal erosion and environmental degradation, which includes illegal dumping, toxic waste, pollution, and oil and chemical spills.
- **Institutional threats**, including long-term poverty and regional poverty, high unemployment, food insecurity, political insecurity, conflicts, and corruption.

GETTING THE MESSAGE

Chairman Jonathan Garba of the Nigerian Maritime Administration and Safety Agency spoke at African Day of the Seas and Oceans on July 25, 2018. He and others warned of the consequences if Africa's nations don't work together to preserve their resources:

"With growing dependence on natural resources, we have to ask ourselves a question," he said, as reported by Nigeria's *The Nation*. "How can we forge an economically viable, environmentally sound and socially responsible vision for the use of the seas and oceans' natural resources without compromising those of future generations?" ❑

DAKAR RALLY
May Return to Africa

BBC NEWS AT BBC.CO.UK/NEWS

THE ASSOCIATED PRESS

Plans are underway to return the famous Dakar Rally to Africa in 2020, a decade after the last race was held on the continent.

"We already have some avenues open, notably in Algeria, Angola and Namibia, where we've had very high-level talks for several months," said Etienne Lavigne, director of Amaury Sport Organisation, which manages the competition.

Since the 2008 cancellation, the car and motorcycle rally has been held in South America with the 2019 edition set to be held in Peru — the first time it has been confined to one country in its 41-year history. Worsening economic conditions in Argentina and Chile, coupled with general difficulties hosting the rally, are behind the push to return the race to Africa.

"If we can no longer host it in South America, we must find countries that have a topography that can offer up 10 to 12 days of competition," Lavigne said. "This can be found elsewhere provided you have a little bit of time to anticipate it."

The rally's first edition was in 1978 with competitors racing from Paris to Senegal's capital, Dakar. It is the longest and most dangerous motor rally in the world.

When it was in Africa, drivers and motorcyclists followed a 6,000-mile route through the remote deserts, scrubland and mountainous dunes of Algeria, Guinea, Mali, Mauritania, Niger and Senegal. It was moved to South America after al-Qaida-linked terrorists murdered a French family in Mauritania.

Organizers said that they spoke to North and West African governments about how to bring the race back in 2020 to parts of the continent where security had improved.

Frenchman Thierry Sabine founded the 22-day rally in 1978 after he got lost in a race in the Libyan desert and decided it would make a challenging place for a competition. He died in a helicopter crash in Mali in 1986 while looking for lost competitors.

Football Derbies
PRESERVE OLD RIVALRIES
ADF STAFF

Great football derbies are not only found in Europe and the Americas. Africa has its share of derbies — annual games among traditional rivals sharing a geographic region.

South Africa has the Soweto Derby, a clash between the Orlando Pirates and the Kaizer Chiefs. The Soweto Derby was first played in 1970 and is the result of Orlando Pirates star Kaizer Motaung leaving Orlando to play football in America in 1968. When he returned to South Africa two years later, instead of rejoining Orlando, he formed a team called Kaizer XI, which eventually became the Kaizer Chiefs — and a rivalry was born.

Tanzania has the Dar es Salaam Derby, the biggest derby in East Africa. Africa.com reports that football fans from Burundi, Kenya, Rwanda, Sudan, Tanzania and Uganda closely follow the game between Tanzania's biggest teams, Young Africans Sports Club and Simba Sports Club. The two teams share the national stadium, Benjamin Mkapa, a 60,000-seat sporting venue. Fans attending the derby must wear the jerseys of their favorite team, so the stadium is naturally divided into two sides — one yellow and the other red.

The Nairobi Derby, in the capital of Kenya, is also known as the Mashemeji Derby and the Ingo-Dala Derby. It is believed to be the oldest football rivalry in the country, with the derby beginning in 1968. It features the AFC Leopards, known as Ingwe, and Gor Mahia, known as K'Ogalo. It is perhaps the

The Soweto Derby AFP/GETTY IMAGES

most-intense derby on the continent, with tribal roots — the Gor Mahia fan base is predominantly Luo, while the fans of the Leopards are mostly Luhya. The derby is more than a football match — it is also a feast and a holiday.

The Democratic Republic of the Congo has the Tout Puissant (T.P.) Mazembe versus Football Club Saint-Éloi Lupopo derby. It is Lubumbashi's most popular sporting event. Originally, Football Club Lupopo was made up of workers from the National Railway Company of the Congo, while the T.P. Mazembe team traced its roots to 1939 when Benedictine monks organized matches as recreation for young Congolese men. T.P. Mazembe's nickname is Les corbeaux (the ravens) despite having a crocodile with a ball in its mouth on the team crest.

AFP/GETTY IMAGES

Former South African Prisoner
HONORED AT CANNES

Half a century after the historic trial at which Nelson Mandela escaped the gallows, one of his fellow former prisoners walked the Cannes red carpet on the French Riviera for the premiere of a documentary about those with him in the dock.

Andrew Mlangeni is one of the last surviving defendants of the 1963-1964 Rivonia trial of Mandela and nine others who faced the death sentence on charges of plotting guerrilla warfare and acts of sabotage against South Africa's apartheid regime.

"I knew that one day I would come out of prison," said the 92-year-old, who spent 27 years behind bars. "But I never thought in my life I would ever come to France, never mind appearing in a film which is seen by the entire world."

Mandela's impassioned three-hour address to the court, during which he declared that a democratic South Africa was an ideal "for which I am prepared to die," was the most significant of his career.

The State Against Mandela and the Others, a French-funded documentary based on the recently released audio recordings of the proceedings, attempts to redress the balance by putting his comrades at center stage.

"Mandela was not expressing his view alone; he was expressing the view of all the accused," Mlangeni said. "We were almost certain that we were going to hang. But we were prepared. We were prepared for anything."

The film uses animation, interviews and archival footage to show how the defendants turned a trial aimed at dealing a knockout blow to the anti-apartheid movement into an indictment of white supremacist rule.

"We decided we had to conduct this not as a criminal trial but a political trial," said Ahmed Kathrada, one of three former

Former political prisoner Andrew Mlangeni, carrying a cane, attends the Cannes Film Festival in France. AFP/GETTY IMAGES

prisoners — one black (Mlangeni), one white (Denis Goldberg) and one of Asian origin (Kathrada) — interviewed for the feature.

Kathrada, who died in 2017, is one of the heroes of the documentary by journalist Nicolas Champeaux and filmmaker Gilles Porte.

Born into a family of Indian Muslim immigrants, he refused, like his comrades, to appeal his sabotage conviction to avoid the indignity of being seen to beg for clemency.

At the end of the eight-month trial, the men were spared the noose. Mandela and seven others were sentenced instead to life in prison, a verdict they greeted with relief.

"It's life! And life is wonderful!" Goldberg recalls shouting across the courtroom to his mother.

Seychelles President Calls for Action to Save Seas

AFP/GETTY IMAGES

President Danny Faure of the Seychelles spoke for island nations around the world by calling for action to clean up the ocean. He spoke at the Group of Seven (G7) meeting in Quebec, Canada, and displayed photographs of plastic waste piling up on the nation's beaches.

"Islands can no longer afford to see ourselves as dots lost in a sea of blue," Faure said in June 2018. "We are sentinels, the guardians of two-thirds of our blue planet's surface. We must act accordingly."

To make his point, Faure showed photos of Aldabra, a coral atoll and UNESCO World Heritage Site in the Seychelles. Mounds of waste floating in from all over the world are choking this ecologically rich marine habitat.

Faure said all island nations need help "handling the vast and increasing amounts of marine litter washing up on and polluting their beaches and coasts from way beyond their shores."

Faure was invited to a special session on oceans at the G7 summit by Canadian Prime Minister Justin Trudeau since Canada held the G7 presidency for 2018. The session was given the theme "healthy, productive and resilient oceans and seas, coasts and communities."

Canadian Prime Minister Justin Trudeau, right, greets Seychelles President Danny Faure as he arrives at the G7 Summit.
AFP/GETTY IMAGES

In his address, Faure spoke about the Seychelles' innovative financing for its blue economy and ocean sustainability.

When the Seychelles was designated as a high-income country in 2015, it lost access to certain grant funding. Faure said that instead of complaining, the nation turned to innovative sources of financing. This included a first-of-its-kind debt swap for ocean conservation and climate adaptation and forthcoming "blue bonds." Supported by the World Bank, blue bonds will seek to attract public and private investment to support the nation's fisheries and protect marine resources.

Google
to Open AI Research Center in Ghana

ADF STAFF

Google plans to open its first artificial intelligence (AI) center on the African continent. The center, which was slated to open in 2018 in Accra, Ghana, will bring together top machine learning researchers and engineers and address challenges in health care, agriculture and education, Google said in a blog. Moustapha Cisse, a staff research scientist from Senegal, will lead the center.

"AI has great potential to positively impact the world, and more so if the world is well-represented in the development of new AI technologies," wrote Cisse and Google AI senior fellow Jeff Dean in a blog post announcing the project. "So it makes sense to us that the world should be well-represented in the development of AI."

Google has had offices in Africa for 10 years and says 2 million people have benefited from its digital skills training program. Google also offers a program called Launchpad Accelerator Africa that has helped 100,000 developers and 60 tech startups advance various digital projects.

Other African cities are positioning themselves as tech hubs, CNBC, the cable business network, reported. Ethiopian capital Addis Ababa and Rwandan capital Kigali have burgeoning tech sectors. Recently, Microsoft co-founder Bill Gates praised Kenya for creating the digital payment platform M-Pesa, which he called "pioneering."

CNBC said Ghana likely appealed to Google because of the quality of its education system and other feeder institutions. Lucy James, associate consultant with Control Risks' Africa team, said that Google is focused on "drawing in local talent, and there's no shortage of that in Ghana."

Tourists Return to Tunisia
After Terror Attacks

AGENCE FRANCE-PRESSE

Tunisia's tourism industry, hard hit by terror attacks in 2015, is rebounding, with revenues up nearly a third in the beginning of 2018, the sector's minister said.

"There is a significant improvement," Tourism Minister Selma Elloumi Rekik told AFP, as visitor numbers surpassed the first five months of 2014, largely due to rising Russian and Chinese arrivals.

The 2015 attacks devastated Tunisia's tourism industry. An attack at the National Bardo museum in Tunis and another targeting a beach resort in Sousse together killed 59 foreign tourists and a Tunisian guard.

Visitor arrivals surpassed 2.3 million through May 20, 2018, up 21.8 percent from the same period in 2017 and 5.7 percent higher than the same period in 2010.

"This is the year of real recovery," said Elloumi, adding that all hotels in key tourist hot spots Djerba, Hammamet and Mahdia were full for the summer season.

Before the attacks, tourists had flocked to the ancient ruins of Carthage, filled the country's pristine beaches and enjoyed the food and cultural attractions of the capital city, Tunis.

The recovery is driven in part by the "traditional market," including France and Germany, up 45 percent and 42 percent, respectively, the minister said. Visitors from China and Russia surged 57 percent and 46 percent, respectively.

"People are coming back to Tunisia because there is security … we are at the same level as any European city," Elloumi said.

U.S. Supports Peacekeeping With Vehicle Donations to Uganda

DEFENCEWEB

As part of a push to support counterinsurgency and peacekeeping efforts, the United States donated equipment and vehicles to the Uganda People's Defence Force (UPDF).

The equipment donated on June 7, 2018, included 30 Mercedes-Benz trucks, six boom lifts, a rough terrain container handler, three Oshkosh armored trucks, a bulldozer, 10 generators and spares.

The equipment was donated at a ceremony attended by U.S. Ambassador to Uganda Deborah Malac and received by Ugandan Chief of Defence Forces Gen. David Muhoozi at the Uganda Rapid Deployment Capability Centre in Jinja district. The center is a unit of the East African Standby Forces that deploys peacekeeping troops.

"I commend countries that have demonstrated high levels of peacekeeping, especially the UPDF, who have been in Somalia where there is insurgency," Malac said. She added that the donation is part of the African Peace Rapid Response Partnership to support countries involved in stabilization efforts.

Uganda was the first country to send troops to the African Union Mission in Somalia (AMISOM) in 2007, and it remains the largest troop-contributing country, with more than 6,000 Soldiers deployed.

"This better equipment will enhance our preparedness and readiness to respond to threats in security across the region," Muhoozi said. "The U.S. has provided $270 million under the African Peace Rapid Response Partnership," he said, adding that Uganda has been allocated another $51 million for logistics and engineering training.

The United States has previously donated vehicles and equipment to Uganda, including six Cougar mine-resistant, ambush-protected vehicles, according to the U.S. Excess Defense Articles database.

In September 2017, the UPDF received 19 Acmat/Mack Bastion armored personnel carriers from the United States for its AMISOM contingent. On the aerial side, the U.S. donated two Cessna 208B Caravan light aircraft to the UPDF Air Wing in March 2015, and planned to deliver five refurbished UH-1H Huey helicopters to Uganda in 2018.

Uganda's contingent in the African Union Mission in Somalia receives combat vehicles donated by the U.S. in 2017.
AMISOM

SADC Shows United Front in Poaching Fight

DEFENCEWEB

Six Southern African Development Community (SADC) states agreed to strengthen cooperation to battle the scourge of poaching, particularly that of rhinos and elephants.

The countries — Botswana, Mozambique, Namibia, South Africa, Zambia and Zimbabwe — met in Mpumalanga, South Africa, for the fourth multilateral meeting of defense and security chiefs on anti-poaching. During the meeting, Gen. Solly Shoke, chief of the South Africa National Defence Force (SANDF), said they were "close-knit member states" and must collectively deal with poaching to find a common long-term solution.

Workers at a South African farm hold a tranquilized rhino after it was dehorned in an effort to deter poaching of one of the world's endangered species.
REUTERS

After years of increases, South Africa saw a slight decline in the number of rhinos poached in 2017, from 1,054 down to 1,028. Still, that amounts to three rhinos killed per day.

South African Environmental Affairs Minister Edna Molewa told the regional bloc's assembled leaders that collaboration in wildlife conservation and law enforcement is key.

"The SADC region is unique and rich with abundant wildlife," she said. "This makes it prone to daily threats of poaching. Therefore, collaboration and co-ordination of law enforcement efforts are the key to maintaining the ecological integrity of the region."

She added that transnational cooperation would include sharing technology, training, joint operations and joint operational centers, information sharing, and common communication systems.

Molewa said that it is important that "legal means be found to ensure the punishments meted out to convicted poachers in the region is standardized."

The SADC is examining cross-border pursuit of poachers and joint operations to arrest poachers and confiscate weapons.

Before the meeting, SANDF Joint Operations Division Chief Lt. Gen. Barney Hlatshwayo said criminals will find weak spots in Southern Africa if enforcement of wildlife crime is not uniform.

"This is because animals cross borders. They do not know boundaries that are created by people. Similarly, criminals active in wildlife crime will cross borders knowing, if caught, there is a possibility of a lesser sentence in one country than another," he said.

Ethiopia Plans to Rebuild Navy

REUTERS

Landlocked Ethiopia, which lost its access to the Red Sea nearly three decades ago, plans to build a Navy as part of military reforms.

The country disbanded its Navy in 1991 after its then-province Eritrea seceded in the wake of a three-decade war for independence. Ethiopia maintains a maritime institute that trains seafarers.

"Following the efforts made to build capacity of our national defense, we built one of the strongest ground and air forces in Africa," Ethiopian Prime Minister Abiy Ahmed said during a meeting with senior military officials. "We should build our naval force capacity in the future."

Abiy's remarks were made as Gulf states are stepping up investments in seaports along the Red Sea and East Africa's coast to vie for influence in a strategic corridor that is vital for shipping lanes and oil routes. Saudi Arabia, Qatar and Turkey are using some of the ports for military purposes.

In May 2018, Ethiopia and Sudan agreed on a deal that lets Ethiopia take a stake in Sudan's largest sea gateway, Port Sudan, to diversify outlets and reduce port fees. The deal was made two days after Ethiopia reached a similar arrangement over the Port of Djibouti, Djibouti's main gateway for trade.

Ethiopia signed a deal to take a stake in the port of Djibouti, which now handles roughly 95 percent of all its exports and imports, the BBC reported. It also completed a 759-kilometer railway line to Djibouti and its port.

Program Helps Guinean Farmers

Ousmane Diallo is a 35-year-old university graduate with a degree in sociology. He owns 8 hectares of farmland in Mandiana, one of the most remote places in Guinea, about 730 kilometers east of the capital, Conakry. Mining companies operate in the area, where artisanal mining provides an income to more than 80 percent of the local population.

Unlike his peers in the mining sector, Diallo decided to invest in agriculture when he could not find a job, because he "understood the agricultural potential of the region."

When he started farming in 2014, he focused on rice, maize and vegetables to meet the high demand. Initially he had poor results because the seeds he used yielded different varieties of the same crop. However, with support from the West Africa Agricultural Productivity Program, Diallo was able to produce 2 tons of rice per hectare in 2018, compared to less than half that four years earlier.

"My objective is to inspire and train other young people."

~ Ousmane Diallo

In Guinea, the program helped farmers plant new crop varieties, improve crop management practices and adopt small-scale food-processing technologies. It also strengthened the country's national seed production and distribution systems to ensure the availability and use of good quality, certified seeds.

The program is a regional project initiated by the Economic Community of West African States. The program has been implemented in 13 member countries.

Through revenue obtained in agriculture, Diallo diversified his activities and now owns a water packaging and distribution operation. He employs about a dozen workers full time and another dozen seasonally.

With an initial grant of $9 million, the program in Guinea has contributed to improving the living conditions of seed producers by creating a gross added value of 4 million Guinean francs (about $440), in income per hectare of rice a season.

"At first, I had no experience and resources," Diallo said. "People thought I was crazy for getting involved in agriculture, but now I am proving them wrong. I am currently working on expanding my operations to make them more industrial and include livestock breeding. My objective is to inspire and train other young people."

Ousmane Diallo, right, works in his field.

Two men work at Diallo's water packaging operation.

Repair Shop Gives Former Child Soldiers Fresh Start

THOMSON REUTERS FOUNDATION

As a young boy chasing chickens on his parents' farm in northern Uganda, Louis Lakor dreamed of becoming a teacher. But when he finally set foot in a local primary school at age 7, it was as an armed killer.

Louis Lakor, left, and Peter Owiny Mwa teach car repair to former LRA fighters in northern Uganda.
THOMSON REUTERS FOUNDATION

Abducted in a night raid, Lakor was forced to become a child soldier with the Lord's Resistance Army (LRA) rebel group, which terrorized northern Uganda for nearly two decades before being driven out of the country by a military offensive in 2005. Clutching a gun handed to him by his kidnappers, Lakor was ordered to "shoot everything you see." He did.

"Otherwise they would have killed me," he said 20 years later, looking out on the lush countryside near his home village of Awach, about 60 kilometers south of Uganda's border with South Sudan.

Lakor, now 27 years old, is helping other ex-child soldiers learn skills, from vehicle repair and carpentry to tailoring and hairdressing.

"When I train youths here, I tell them my story," he said, pacing around his noisy workshop where lanky teenagers welded, sawed and hammered. "I tell where I came from — that I'm like them, that I'm still an orphan looking for a way to survive."

Lakor escaped from the LRA after four years. He ended up on the streets of Gulu, the main town in the region, begging for money. He eventually met Peter Owiny Mwa, owner of Baka General Motors, who decided to give him a chance, at first employing him as a cleaner, and later training him as a mechanic. In 2013, Lakor asked Mwa to let him train and employ ex-LRA youths.

Today, the Baka Youth Training Centre, a cluttered open-air courtyard surrounded by dilapidated wooden buildings, helps about 60 boys and girls each year, with little external funding. Lakor drives a motorcycle taxi to keep up with the rent.

Ex-LRA youths, some with limbs scarred by machete and gun wounds, sleep two to a single, stained mattress on the floor of a filthy room with peeling paint and no mosquito nets or glass in the windows. Student Godfrey Oloya, 18, was born in LRA captivity and still has a bullet lodged in his arm, a "souvenir" of his escape under gunfire when he was 7.

"When I finish here, I want to drive a taxi or a lorry," he said, as budding mechanics trained on the rusting remains of a pea-green Volkswagen Beetle from the 1970s.

Southern White Rhino Could Save Nearly Extinct Relative

THE ASSOCIATED PRESS

A southern white rhino that became pregnant through artificial insemination increases hopes that a nearly extinct close relative, the northern white rhino, can be saved.

News that the female southern white rhino named Victoria was pregnant was seen as a breakthrough and a step toward saving the northern white rhino species. If Victoria is able to carry the calf to term, it will be born in mid-2019.

The world's last male northern white rhino, Sudan, died in March 2018 at Kenya's Ol Pejeta Conservancy, his home for 10 years after being transferred from a zoo in the Czech Republic. Sudan was 45 years old and had been in ailing health.

Sudan's death was seen as a tragedy, because it marked the possible end of a species. Reproductive options for producing a northern white rhino include artificial insemination, in vitro fertilization and embryo transfer, with the southern white rhinos possibly serving as surrogates for northern white rhino embryos.

Researchers think that a northern white rhino calf could be born from these procedures within 10 to 15 years.

Kenya is home to the last remaining northern white rhinos, Sudan's daughter, Najin, and granddaughter, Fatu. The second-to-last male northern white rhino, Suni, died in 2014. Suni also had been brought back to Africa from the Czech Republic. Sudan and Suni were too old to mate by the time they left Europe.

A team at Ol Pejeta also is working on a different project that seeks to save the northern white rhino from extinction. The plan is to harvest eggs from the two remaining northern white females. The animals cannot be artificially inseminated because they are infertile. Scientists intend to use an Ol Pejeta southern white rhino as a surrogate for northern white rhino eggs.

Najin, right, and her daughter, Fatu, the last two northern white rhino females, graze at the Ol Pejeta Conservancy in Kenya.

REUTERS

West Africa
Taps Solar Energy Potential

VOICE OF AMERICA

In Morocco, a giant solar power plant near the city of Ouarzazate soon will increase its capacity to 580 megawatts. Solar energy has been slower to arrive in West Africa than in some other parts of the continent, but growth is underway.

West Africa's largest solar power station officially opened in November 2017 in Zagtouli on the outskirts of Burkina Faso's capital, Ouagadougou. It cost $55 million to build with funding from France and the European Union. Zagtouli now delivers 30 megawatts to the national power grid.

Before Zagtouli, West Africa's largest solar station was in Bokhol, Senegal. It opened in 2016 and cost $30 million. Charlotte Aubin, founder and director of Greenwish, a renewable energy company, was closely involved. She helped create the first independent power producer (IPP) with money from Senegalese investors and an international fund backed by three European governments.

"The first project we did was in Senegal, and it was a milestone for the continent as well as

The Noor 3 solar power station in Morocco
THE ASSOCIATED PRESS

Greenwish," Aubin said. "It was the first solar IPP that came out of the ground in Sub-Saharan Africa. It's now providing electricity to 160,000 people in Senegal at a 40 percent discount to the cost of the grid at the time."

The greater the demand for a product, the cheaper it becomes, said Moussa Coulibaly, who runs Air Com, one of Mali's oldest solar power companies. Led by investment from the United States and China, the industry has been rapidly scaling up. Production costs have come down as a result. A solar panel that used to cost hundreds of dollars now sells for about $90, Coulibaly said.

Something else has changed in the region: the law. Until recently, IPPs such as Air Com and the Greenwish project were illegal. Senegal lifted the ban on nonstate power production in 1998; Mali did it in 2000, and Burkina Faso legalized them in 2017.

Senegal now has four solar power stations. Burkina Faso is building two more. South Africa and Morocco have dozens each. And the list is getting longer and includes Ethiopia, Ghana, Kenya, Mauritania and Mozambique.

IN A CLIMATE OF **UNCERTAINTY**,

KENYAN FARMERS
TURN TO PEPPERS

In this arid stretch of Kajiado County, Kenya, where worsening heat and drought have been tough on livestock farmers, Arnold Ole Kapurua is experimenting with a hot new crop: chilis.

Ole Kapurua, 29, a farmer and agronomist, now grows 2 acres of the fiery pods — and is training other farmers to do the same — as a way to protect their incomes in the face of harsher weather linked to climate change.

"With time we realized that we weren't making good money as our livestock income stagnated," he said. "During drought we lost our herds to hunger and diseases while during the rainy season we lost some to floods, making us live on a lean budget."

But after a bit of research, "I realized that chilis had climate-friendly features," he said.

Although some farmers still rely entirely on livestock in the region, a growing number are now concentrating their energy on farming chilis, which can be grown with limited amounts of water, said Samuel Ole Kangangi, another new chili farmer.

Over the past five years, more than 100 farmers in the region have begun growing chilis, most after trying other crops, including maize and beans, that didn't cope as well with drought and brought in little money. Well-managed chili farms can produce an ongoing harvest over six months, with an acre producing up to 2 tons of peppers a week, Ole Kapurua said.

That level of harvest can bring as much as 80,000 Kenyan shillings ($800) a season, he said.

Solomon Simingor, another farmer in Kajiado County, said a farmer with at least 2 acres can earn as much as three times more with chilis than with cattle, in his experience. To provide enough water to keep their plants irrigated, farmers in the region are turning to building small dams to catch water in the rainy season. Mulch around the plants — usually grass or plastic — also helps hold onto limited water and keeps down weeds.

Paul Rangenga, who has been advising farmers on taking up the crop and who runs a produce company, said chilis can provide a workable alternative for herders dealing with worsening drought stress.

"Chili farming is a long-term form of investment, and the risks involved are minimal, as the crops are drought-resistant and well-adapted to arid regions," he said.

ETHIOPIAN AIRLINES
— *Looks to Expand* —

ADF STAFF

Ethiopian Airlines, Africa's largest carrier, has taken stakes in a number of other carriers across Africa and opened routes to new destinations. It's also expanding its fleet with the acquisition of its 100th plane.

The expansion is part of the state-owned airline's 2025 Vision to become the dominant aviation group in Africa and increase the share of the market occupied by African airlines. It has the largest fleet of any African airline, and the aviation intelligence group FlightGlobal says it now also has the most passengers each year, passing EgyptAir, South African Airways and Morocco's Royal Air Maroc.

The International Air Transportation Association says Ethiopian generated revenue of $2.71 billion in 2016-2017, with a net profit of $232 million. The news group AIN Publications says that as part of an effort to alleviate a foreign currency crunch, Ethiopia plans to partially privatize the airline in the future.

THE ASSOCIATED PRESS

Ethiopian is expanding into West Africa with Togolese airline ASKY Airlines. It also is partnering with Air Côte d'Ivoire and Congo Airways. It is working with the Zambian government to relaunch its national carrier with a 45 percent stake, and it plans to establish a wholly owned airline in Mozambique. It has a stake in an airline in Chad and has plans to start an airline in Guinea.

"Typically, they're taking a minority stake, or around 50 percent," Oliver Clark, a senior reporter at FlightGlobal, told CNN. "They tend to go into these joint ventures with local partners."

The airline acquired its 100th aircraft, a Boeing 787-900, in June 2018 and says that the average age of its planes is less than 5 years old. The airline has ordered five more Boeing planes, along with 16 Airbus A350 planes.

The airline continues to add countries to its routes, the latest being Spain and Indonesia.

Sundiata Keita,
the Lion King of Mali

ADF STAFF

I teach kings the history of their ancestors, so that the lives of the ancients might serve them as an example, for the world is old, but the future springs from the past.

Those are the words of griot, or storyteller, Djeli Mamadou Kouyaté, in the opening part of a spoken history of Sundiata Keita, the first ruler of the Mali Empire. The spoken history, passed down by Mandinka griots for 800 years, is called Epic of Sundiata.

No oral history is completely accurate, but the epic is supported in part by the writings of Muslim travelers who visited the empire, in what is now Mali and Senegal.

The epic begins about 1200 A.D., with a prophecy that greatness would come to a descendant of a chief named Maghan Kon Fatta. But the prophecy could only be fulfilled if the chief married a particularly ugly woman. When two hunters presented a hunchbacked woman with "monstrous" eyes to Maghan Kon Fatta's court, he remembered the prophecy and took the "buffalo woman" as his second wife. In 1217, she bore him a son, Sundiata Keita, who was unable to walk as a child and was described as dull and stupid.

Maghan died when Sundiata was 7, and Sundiata's half-brother became the chief. Most renditions of the epic say that Sundiata and his mother feared how they would be treated by the new chief, so they went into exile. By this time, Sundiata had begun to thrive. The epic says that at the age of 10, Sundiata "was a lad full of strength; his arms had the strength of 10 and his biceps inspired fear in his companions."

Sundiata and his mother moved to the court of the chief of Mema, a small kingdom to the east. Sundiata quickly became a favorite of the chief, who appointed him his second in command.

When Sundiata learned that his home tribe had been conquered by a neighboring king, he went to war, using half of Mema's army and forming a coalition of neighboring kingdoms.

In battle, Sundiata is said to have killed the invading king with a poisoned arrow. The victory marked Sundiata's first step in establishing what was to become the Mali Empire, a prosperous region of West Africa.

By this time, he was known as "the Lion King."

The griot's epic describes Sundiata as smart and strong. The many leaders who had come before him had been better at conquering than governing, and Sundiata wanted something more enduring. He knew that his empire needed to be self-sustaining, so he made sure his farmers grew crops that included beans, rice, and later, cotton. He ran his empire like a legislature, with each tribe having a representative in his court. He combined his Muslim faith with the local religions and became known as a man possessed of powerful magic.

He died about 1255, with the oral tradition of his story already taking root. His successors continued to build his kingdom, from the Atlantic Ocean to the Niger River, north to the Sahara and south to the Gulf of Guinea. The kingdom began to decline about 1400.

Today, the Epic of Sundiata is part of the culture of the republics of Mali, The Gambia, Guinea and Senegal. It is taught to children in history classes. Griot Djeli Mamadou Kouyaté concluded his telling of the epic by saying that even a great leader like Sundiata could not know all the secrets and wisdom the griots themselves possessed:

Everywhere I was able to see and understand what my masters were teaching me, but between their hands I took an oath to teach only what is to be taught and to conceal what is to be kept concealed.

CLUES

1 The national park that surrounds this formation includes Kirstenbosch National Botanical Garden.

2 It is on the northern end of the Cape Fold Mountain range.

3 It has a 3-kilometer plateau on top.

4 Legend says that the clouds blowing over the mountain are from a smoking contest between the devil and Dutch pirate Jan van Hunks.

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