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**African Air Forces in 2021**

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# African Air Forces in 2021

Flush with oil cash, many African states are investing heavily in modern multirole jet fighters, deadly helicopter gunship and even sophisticated air-defense systems with radars and surface-to-air missiles.

North African states including Algeria, Egypt, Tunisia and Morocco represent prospective markets for all global helicopter manufacturers. Key players operating in the African helicopter market include Airbus Helicopters Inc., Bell Helicopter Textron Inc., Russian Helicopters JSC, Leonardo S.p.A., Lockheed Martin Corporation - Sikorsky, Kawasaki Heavy Industries, Ltd., Columbia Helicopters, Inc., The Boeing Company, MD Helicopters, Inc., and Korea Aerospace Industries, Ltd. Russian helicopters and fighters exports to the African continent, which remains an important market for its arms industry. Last years, Russia delivered six Su-30MKA fighters and six Mi-28NE attack helicopters to Algeria. Angola also began taking delivery of Su-30s, while Egypt is receiving large numbers of MiG-29M2 fighters and Kamov Ka-52 attack helicopters. Elsewhere on the continent, small numbers of Mi-17/171 and Mi-24/35 helicopters have been delivered to Burkina Faso, Kenya, Nigeria and Mali.

As of early 2018, Airbus aircraft are in service in 12 African nations, with Airbus securing 90 orders for light and medium transport aircraft (C212, CN235 and C295) from 18 customers, of which 86 aircraft have been delivered. In addition, Airbus A400M military transporters in service with the French and German air forces are regularly deployed on peace support and related missions in Africa.

### \* Ghana

Negotiations with the manufacturers EMPBAER in Brazil are not closed totally. Ghana still need it and, while there are also looking for alternatives, the Super Tucano remains the key in its new acquisitions."

A few years ago, negotiations were held with Rosoboronexport in Russia about the possible sale of Mi-35s. Due to budget constrains the acquisition of additional Mi-171s is considered most possible.

The Ghanaian Government has under consideration to go ahead for an agreement to purchase six L-39 next-generation aircraft worth €111 million for the Ghana Armed Forces. The agreement was laid in the House of Assembly by the

Minister for Parliamentary Affairs, Osei Kyei-Mensah-Bonsu on behalf of his colleague, Dominic Nitiwul.

The deal involves AERO Vodochody AIROSPACE A.S. of the Czech Republic as the supplier of support services which will see the company supplying six (6) L-39 Next Generation (L-39NG) aircraft and the provision of support in terms of products, services, and ground-based training systems associated with the aircraft operation.

Currently Ghana's Government is in the process of acquiring a bigger aircraft for presidential travels, Mr Eugene Arhin, Director of Communications at the Presidency, has disclosed.

"Government is already in the process of acquiring a bigger jet for use," he said at a press briefing at the Jubilee when he was answering a question on whether the government intended buying a bigger aircraft to accommodate the President and his entourage on official foreign trips as the current presidential jet had proven inadequate for the purpose.

He explained that the move to get a bigger fit-for-purpose aircraft was part of a cost saving measure on the travels of the President and other key state functionaries. He did not give the specifics of the aircraft deal, but said the Defence Minister would shed light on the development at the appropriate time.

### \* Nigeria

Nigeria purchased the A-29s through the Foreign Military Sales program, which follows the Department of Defense's "Total Package Approach" model and includes spare parts for several years of operation, contract logistics support, munitions, and a multi-year construction project to improve Kainji Air Base infrastructure. The total sale is valued at almost \$500 million, making it the largest FMS program in sub-Saharan Africa. The A-29 Super Tucano induction ceremony, hosted by Nigerian Minister of Defence Bashir Salihu Magashi and the Nigerian Air Force, here Aug. 31. A total of 64 pilots and maintainers from the Nigerian Air Force trained to U.S. standards with the U.S. Air Force's 81st Fighter Squadron at Moody Air Base in Georgia, USA. Training also emphasized the Law of Armed Conflict and civilian casualty mitigation, which are fundamental principles of the Nigerian military's professional education and training.

As part of the program, the U.S. Army Corps of Engineers is providing \$36.1M in infrastructure support to the A-29s' home base, Kainji Air Base, including earth-covered magazines and aircraft sunshades, a new airfield hot cargo pad, perimeter and security fencing, airfield lights, and various airfield apron, parking, hangar, and entry control point enhancements. The infrastructure package also includes a flight annex wing building for



## Mi-35M

Mi-35M transport-combat helicopter provides mission accomplishment both day and night in any weather conditions.



simulator training as well as munitions assembly and storage and small arms storage. USACE has also stationed a project engineer at Kainji to provide ongoing maintenance and assistance.

Nigerian Air Force has recently been reinforced with four AW109 Power gunships and a Mi-171E as well as 12 Super Tucano light bomber aircraft. Embraer Defence & Security and Sierra Nevada Corporation (SNC) has announced the first of 12 A-29 Super Tucano light attack, combat and reconnaissance aircraft for the Nigerian Air Force (NAF) successfully completed its inaugural flight at the production facility in Jacksonville, Florida.

In October 2016, the NAF signed a deal with the PAF/Pakistan Aeronautical Complex for 10 new Super Mushshaks to help with their primary flying training. Initially, they were loaned four in December 2016.

The new aircraft were delivered in two batches, in July 2017 and January 2018.

### \* **South Africa**

The South African Air Force will be getting new medium and light transport aircraft in the next decade, according to the Department of Defence. The South African Department of Defence is facing

more bad news in terms of its budget allocation. Although it has been granted an additional R2.8 billion for 2020/21, R1.2 billion has been suspended due to the coronavirus pandemic and R4 billion of the defence budget has been allocated to coronavirus relief purposes.

This is according to the Supplementary Budget Review 2020 published by National Treasury on 24 June. It states that additional money has been prioritized for the COVID-19 response, with government reprioritizing R3.3 billion to support these interventions, primarily in the departments of Police and Defence. "Additional funding of R6.7 billion is provided to support the COVID-19 response and increased deployment of the police service and national defence force during the lockdown. These funds are provided mainly for the procurement of personal protective equipment, and operational costs associated with roadblocks and air support."

The total proposed allocation for defence for the 2020/21 period is R55.3 billion, up from R52.4 billion in the 2020/21 main budget, but R4.092 billion of the defence budget has been allocated to COVID-19 response measures. This includes R1.8 billion for general support, R682 million for military health support and R875 million for force employment.

Other money has been taken away from the defence budget, with R1.2 billion in funds suspended due to the coronavirus pandemic, mostly from general support (R507 million), landward defence (R174 million), administration (R193 million) and maritime defence (R104 million).

The 2020/21 proposed budget sees R17.4 billion allocated to landward defence, R7.6 billion to air defence, R4.9 billion to maritime defence and R6.3 billion to military health support. R31.9 billion will be spent on the compensation of employees.

### \* **Kenya**

Kenya is by far one of the biggest military spenders in Africa and commands one of the best equipped and trained military forces in Africa. U.S. Congress within the last years has approved the acquisition of new aircrafts and helicopters for the Kenyan Air Force. Amongst these included 12 MD530F Cayuse Warrior helicopters for the Kenya Air Force to replace its legacy MD500 aircraft. These were in addition to an acquisition of six Bell UH-1Y helicopters that the KDF had acquired from the U.S. military.

Kenya has also decided to acquire 12 Air Tractor AT-802L aircraft from the U.S. to provide intelligence, surveillance and reconnaissance (ISR) capabilities. Ongoing talks between Kenya and the U.S. should result in the Kenya Air Force buying and fielding new F-16 fighters, which would make Kenya the first country in sub-Saharan Africa to own and operate jet.

### \* **Senegal**

According to local media Senegal's Air Force has taken delivery of two Epsilon trainer aircraft from France and will use them to train pilots at its Air Force School.

The Senegal Air Force has also taken delivery of its first two KAI KT-1 turboprop trainers, giving the Korean manufacturer its first African customer. Senegal is currently using Daher TB-30 for its training operations for its fleet of four new-generation Aero Vodochody L-39NG fighters.

### \* **Ivory Coast**

Last January the Ministry of Defence of Ivory Coast has signed a firm order for one C295 medium transport aircraft. Bernhard Brenner, Airbus Defence and Space head of marketing & sales, said: "The C295 has proven its outstanding capabilities in the exceptionally harsh sub-Saharan Africa operating environment. The aircraft will be a game changer for Ivory Coast and we feel very proud to welcome a new operator into our C295 family."

### \* **Botswana**

The Botswana Defence Force Air Wing has acquired a second-hand Airbus CAS C-212 light turboprop transport aircraft to replace one similar that crashed in 2017.

### \* **Morocco**

Morocco has under consideration the acquisition of four MQ-9B Sea Guardian drones. That deal was to be followed by the purchase of 12 Bayraktar TB2 medium-altitude, long-endurance UAVs from Turkish company Baykar under a \$70 million agreement.

The U.S. and Turkey are working together on bolstering Morocco's stealth capabilities, as 12 Bayraktar TB2 drones will soon arrive in Morocco. In March 2019 the US Department of State approved a possible Foreign Military Sale (FMS) to Morocco to upgrade of its existing fleet of 23 Lockheed Martin F-16C/ to F-16V configuration for an estimated cost \$1 billion.

In October 2019 the US State Department of State approved a possible FMS of 12 Beechcraft T-6C Texan II training aircraft plus spare engines, flight trainer, spares, ground handling equipment, and other support worth an estimated \$234 million.

In November 2019, the US State Department of State also approved another possible FMS to Morocco of 36 Boeing AH-64E Apache attack helicopters and related equipment for an estimated cost of \$4.25 billion to replace its current fleet of 22 HOT-armed Aérospatiale SA.342K Gazelles.

### \* **Togo**

Togo has acquired two second-hand Mi-17-1Vs, likely from the Ukraine, both aircraft having been delivered in 2019 while additional two SA342s are expected to get delivered.

### \* **Algeria**

In September 2019 Algeria ordered an additional 16 Sukhoi Su-30MKAs, joining the 58 already in service, and 14 Mikoyan MiG-29M/M2s from Russia. Both purchases are worth some \$1.8 billion, but the value could exceed \$2 billion if weapons and equipment are added.

Sixteen Yakovlev Yak-130 advanced training aircraft have been delivered out of a reported requirement for 36 of the type

Algeria has also established a naval air force equipped with six Leonardo AW101s and 10 AW Super Lynx 300 series.

### \* **Tunisia**

Delivery of 16 Sikorsky UH-60M Blackhawk helicopters began in 2019 which are being modified for a combat role with Battle hawk kits.

In October 2019 the US State Department approved a possible FMS of 12 Beechcraft T-6C Texan II training aircraft plus spare engines, flight trainer, spares, ground handling equipment, and other support worth an estimated \$234 million.

In 2017 it received a total of 24 surplus US Army Bell OH-58D Kiowa Warrior light attack helicopters.

In September 2018 three Bell 429 Global Rangers were officially inducted into service with the Unité Spéciale de la Garde Nationale (USGN), Tunisia's elite paramilitary counter-terrorism unit.

### \* **Egypt**

The EAF is taking delivery of 24 Dassault Rafale Cs and 8 Rafale Ds from France, to become the first export customer for the type. Egypt has also ordered 46 MiG-29M/M2s from Russia and in late 2018 it was announced that it had placed \$2 billion order for Su-35SK fighters for delivery in 2020-2021.

Egypt has also ordered 46 Kamov Ka-52 Alligator attack helicopters from Russia. Burkina Faso's air force conducted its first joint air operation with France, when an Embraer EMB 314 Super Tucano worked alongside French Mirage 2000D fighter jets near Arbinda in December 2019, the French Armed Forces Ministry said in a release. In November 2018 the US Department of Defense (DoD) notified Congress of a major \$1 billion sale of defence equipment to Egypt, including 10 Boeing AH-64E Apache attack helicopters to supplement the EAF's fleet of 35 AH-64Ds. Egypt is the largest single customer worldwide for the C295, emphasising the aircraft's suitability for the region due to its exceptional reliability in hot and dusty conditions. In addition, Airbus A400M military transporters in service with the French and German air forces are regularly deployed on peace support and related missions in Africa.

### \* **Ethiopia**

In March 2019 Ethiopia and France agreed their first military cooperation accord on Tuesday, a deal that includes helping the landlocked nation build a navy, as Paris seeks to boost economic ties in Africa's second-most populous country.

Ethiopian Prime Minister Abiy Ahmed wants to modernize his old air force and for this, according to French media he has sent an official letter to the French president.

Abiy Ahmed asked France to help "reinforce the Ethiopian Air Force including 12 combat aircraft (Rafale and Mirage 2000), 18 helicopters and 2

military transport aircraft manufactured by Airbus, 10 Dassault UAVs and electronic jamming systems.

### \* **Chad**

On May 2, 2018, the U.S. Ambassador to Chad, Geeta Pasi, presented the Chadian Air Force with two new aircraft and two maintenance hangars worth \$43 million. The ceremony took place in the presence of Mr. Bichara Issa Djadallah, Minister of State for National Defense. The aircrafts will be used to strengthen Chad's defense capability. These aircrafts "will enable Chad to better protect its territory and its population," Ambassador Pasi declared.

### \* **Burkina Faso**

Airbus Defence & Space has added Burkina Faso as a customer for its C295 medium transport, with the west African nation to receive a single example.

Disclosing the deal on 11 December 2019, the airframer says the procurement for the nation's air force will "reinforce its military transport capabilities". The order has been concluded under the terms of Ouagadougou's 2018-2022 military acquisition law; it adds.

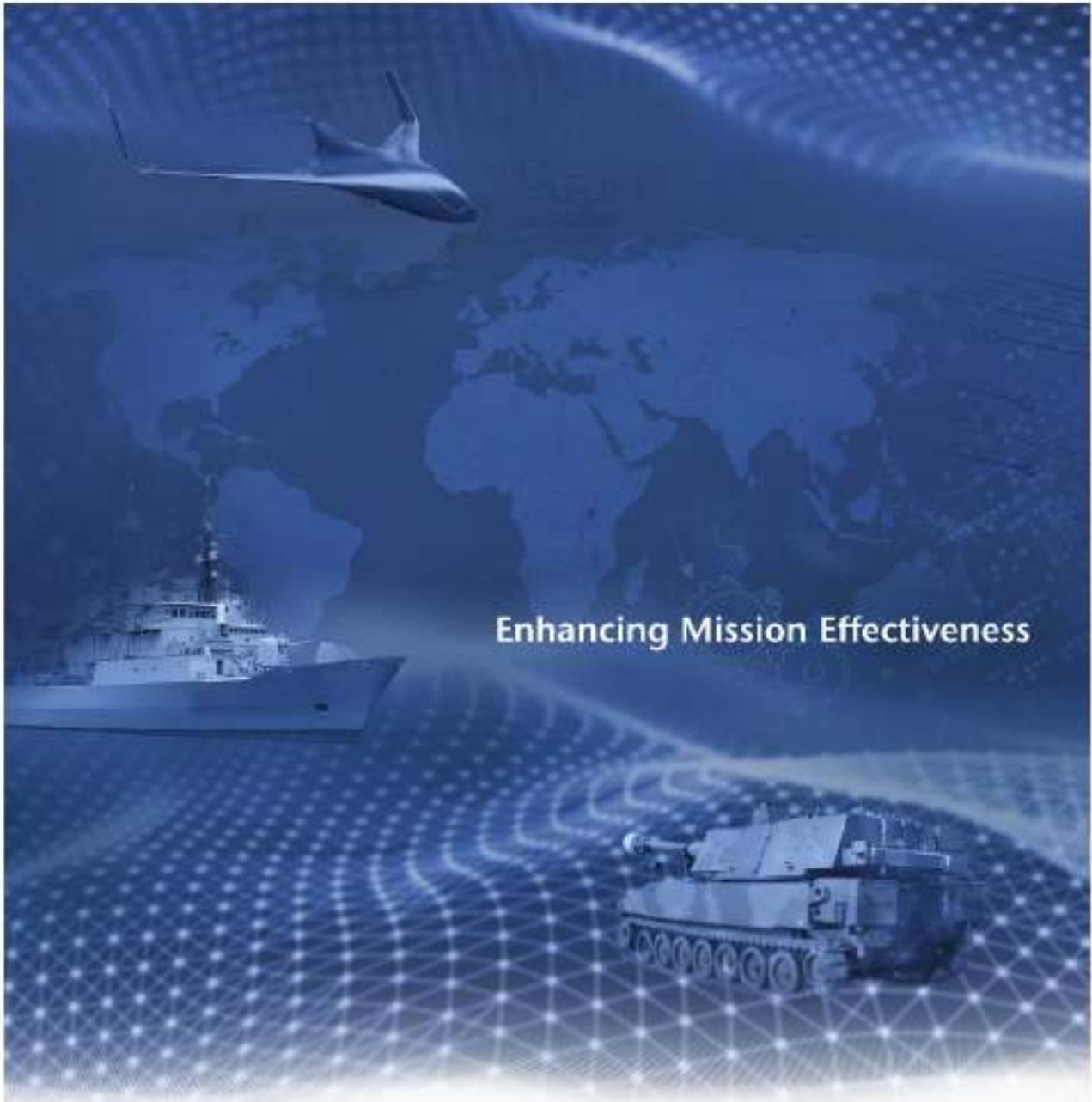
Burkina Faso's air force conducted its first joint air operation with France, when an Embraer EMB 314 Super Tucano worked alongside French Mirage 2000D fighter jets near Arbinda in December 2019, the French Armed Forces Ministry said in a release.

### \* **Cameroon**

Cameroon's Air Force has received a second Bell 412EP helicopter from the stocks of US Army, increased its fleet to four. In May 2018, the United States has given Cameroon two military aircraft to assist in the fight against Boko Haram militants. The two planes are capable to carry out intelligence, surveillance and reconnaissance operations. Each of the C208 aircraft possess inbuilt cameras that could capture images from the ground for up to 10 kilometers away.

### \* **Angola**

An estimated number of 25 to 30 MiG-23 fighters remains in service, alongside one MiG-21BiS and one Su-22 squadron, providing three units of modernized third generation aircraft. The Angolan Air Force inventory includes 12 Su-30 fighters which have recently been upgraded in Belarus to a '4+ generation' standard. These are backed by approximately half a dozen Su-27 heavyweight air superiority fighters. Angola has under consideration the acquisition of Su-30 fighters and possibly Su-27s with R-77 active radar guided missiles. It also includes a number of Su-24 strike fighters, a single squadron of Su-25 attack jets, and two squadrons of Mi-24/Mi-35 attack helicopters.



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## Patrol Boats for Low Enforcement Enhancing Maritime Security in Africa

### Maritime Security Challenges

The global impact of piracy on the world is growing as the economic and social struggle turn to extreme measures to feed their families and make a stand against the vast wealth that is being gained from the oil and other resources in these seas. Also the impact of Illegal, Unreported and Unregulated fishing (IUU) is uncontrolled leading to fears that this will largely affect the African economy and populations on the coast line that are dependent on the fish food. The current economic situation in Africa restricts individual states from being able to effectively tackle the problem. Unclear definitions over territorial laws and a lack of better coordination between African nations has enabled piracy to escalate with ambiguities and ways to avoid conviction or capture.

Maritime security operations entail routine patrols to determine pattern of life in the maritime domain, enhance mariner-to-mariner relations and disrupt the transport of illicit cargo. Through persistent maritime security operations, coastal nations show its commitment to enabling the free flow of commerce for legitimate traffic as well as to contest the battle space in all areas where the transport of illicit cargo is used to fund and/or arm terrorism and other unlawful activities is paramount.

The piracy problem in East and West Africa received global attention in 2007 and stimulated interest in African maritime security challenges. Following a dramatic increase in the number of hijackings, international and regional actors established a large and focused framework for cooperation.

The African states are already working to come to grips with the maritime security challenges. Together, they have developed maritime strategies that serve as platforms for the employment of military, political, and economic measures. More can be done to minimize the risks against international and African maritime interests.

### Global Patrol Boat Market

Global patrol boat market is primarily driven by high adoption of various types of patrol boats across the globe. A patrol boat is referred to as patrol ship, patrol craft, or patrol vessel is a relatively small naval vessel. This boat generally designed for coastal defense duties and the patrol

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boat may be operated by the police force, coast guard, nation's navy. In addition, the various types of patrol boat such as large patrol boats, medium patrol boats, and small patrol boats intended for river or marine environments. The patrol boats engaged in several border protection roles such as fisheries patrols, anti-smuggling, immigration law enforcement, and anti-piracy.

The current shipbuilding market ask for a fast patrol able to enhance maritime security in the African continent and to combat piracy, illegal fishing, human and drugs trafficking.

Around the world, patrol boats are critical assets for providing coastal security and surveillance. The coastal patrol boats are designed to enhance maritime surveillance capabilities of the naval forces. In addition to supporting private security efforts, many different types of patrol boats are used within the government and military programs of nearly every nation.

The increasing popularity of large patrol boats and small patrol boats across the globe due to a wide variety of duties performed by these boats in coastal waters, high seas, and rivers across the

globe resulting in rising demand for patrol boats in various regions of the globe. In addition, growing demand for advanced patrol boats especially in emerging economies and increasing penetration of technologically advanced patrol boats across the globe. These are some important reasons for the high growth of the patrol boat market across the globe.

The challenges for the design of reliable patrol boats consist in developing an optimized hull form and integrating state of the art vessel components such as propulsion, power units, and mission equipment in order to offer a highly efficient and flexible platform, improving operability at sea. Patrol vessel designs are answering the operational requirements of surveillance and protection missions.

### **Patrol Boat Operational Requirements**

Large endurance with fuel efficiency, good seakeeping performances by high speed and high sea states, flexibility of the lay-out allowing integrating fast ribs and, autonomous marine vehicles efficient integration of weapon, communication and surveillance systems are the key features of various designs. International shipbuilders can provide many different solutions with tailor-made characteristics for you to protect strategic places. Considering that client's main asset is the crew, ahoulds designers pay special attention to the crew comfort and safety by delivering ergonomic lay-out design and high-quality accommodation and mission facilities.

- The patrol boat can be operated and controlled from a flying bridge with large windows, offering a wide-angle view of the horizon on all sides.
- A small caliber canon can be fitted on the fore deck can be fired against speed boats, helicopters and small aircrafts. The patrol boat should be armed with 12.7mm machine guns for defence against lightly armoured targets.
- The onboard HF and VHF radio equipment provides communication over short and long distances, while a stabilized video camera with a laser spotlight is used to detect and identify possible or confirmed targets.
- The boat should be equipped with high-definition marine radar, antenna mast, and searchlights atop of the surveillance bridge. Patrol boat can sail at high speeds and operate over a distance of 1,500nm, when sailing at a speed of 15kt. The hull should be designed to offer high sea-keeping performance.



• © Israel Shipyards

- The boat should have the ability to endure for seven days without refueling. It should incorporate two electric generators systems and can be offered with two fixed-pitch propellers or waterjets.

International Shipbuilders R&D teams are continuously improving its patrol vessels – making them faster, quieter, more economical and more environmentally friendly. Designed for ultra-high-speed patrol duties in all waters interceptors patrol boats can outpace most other vessels. From maximizing operations and lowering risk to reducing operational costs. It's clear and obvious that patrol vessel operations can benefit greatly from autonomous vessel technology as well.

**NVL** (former Lurssen Defence) Fast Patrol Boats are optimised for ensuring the safety of littoral seas, waterways and coastal infrastructure. Combining high speed with exceptional seakeeping abilities, our patrol boats can deploy rapidly to the point of danger and swiftly neutralise any threat. They are built to complete demanding missions with absolute reliability. The integration of lightweight steel and aluminium construction with carefully designed hull forms facilitates fast and stable performance across a range of sea states. Precise levels of performance are customised to your particular needs, with speeds from 28 to as much as 45 knots being achievable. Operations can be sustained for between three and 14 days whilst range can extend up to an impressive 5,000 nautical miles. With patrol boat designs displacing from 50 to 700 tonnes and measuring up to 65 metres in length, NVL Group can readily supply vessels adapted to meet your exact requirements. Whether your mission is the rapid interception of smugglers and pirates or less overt intelligence gathering, we have a patrol boat that will satisfy your needs. Our naval variants are particularly

well-suited for conducting surface warfare operations but are also equipped for defence against aerial threats. They also have the optional ability of being configured for anti-submarine warfare. All our fast patrol boats are sufficiently flexible to conduct a broad spectrum of naval and coast guard duties in territorial waters throughout the world, including operations in confined and shallow waters.

One of the **Israel Shipyards** vessels currently in highest demand, the SHALDAG FPC was designed in the late 1990s, integrating valuable improvements created by Israeli defense experts in response to real-life security challenges. The SHALDAG is most valued for security tasks where high intercept speeds and easy maneuverability are required. In addition, the vessel is equipped with highly advanced weapons systems, produced by world-recognized Israeli designers.

The combat-proven success of this unique ISL craft was quickly established with the Israeli Navy, attracting the attention of many other Naval forces. Drawing on extensive operational experience in different environments, the craft continued to be improved, including the addition of newer lightweight weapons systems. To date, three types of SHALDAG have been introduced, in addition to several upgrades, Shaldag MK II, Shaldag MK III and Shaldag MK.

**Paramount Group** serves as a proud partner to numerous African navies, offering a wide range of advanced, multi-role naval vessels; from interceptor, light strike vessels to off-shore patrol vessels. In addition, the company has provided a myriad of systems installation and integration programmes, offering lifetime support in a local capacity, often accomplished through equipment upgrades installation and high-skills training. The company today leverages its 27 years of experience and expertise to develop and upgrade shore facilities in order for each of Paramount Group's partners to operate more efficiently, economically and sustainably.

**Damen Shipyards Cape Town** (DSCT) has constructed and delivered many vessels to the African continent over the years. Countries that the yard has delivered to include South Africa, Zanzibar, Angola, Kenya, Nigeria and Tanzania. Vessel type constructed and delivered have included inshore and offshore patrol vessels, dredgers, tugs, naval craft, research vessels, pontoons, and supply vessels. DSCT is a recognised supplier to South African Government bodies such as Transnet National Ports Authority (TNPA), Department of Agriculture, Forestry & Fisheries (DAFF), The Robben Island Museum



© paramount group

(RIM) and the South African Navy (SAN). The company also builds and supplies vessels to private companies such as Smit Amandla Marine and De Beers Marine.

### Recent Patrol Boat Deliveries in African Navies

- AIS data showed a second batch of three vessels arrived at the port of Alexandria aboard the heavy-lift ship Rolldock Sun on 14 February, Jane's reports. The vessel left Germany on 28 January carrying a 60-metre patrol boat bearing the pennant 710 and two 40 metre OPB 41 (previously marketed as the CSB 40) coastal patrol craft bearing the pennant numbers 705 and 706. In November 2020 it emerged that Egypt would be receiving nine Lurssen patrol boats and a single coastal defence boat from Germany under a 130 million euro deal after the contract with the original customer, Saudi Arabia, fell through.
- On February 12th, the first of the three new Multi Mission Inshore Patrol Vessels (MMIPV) of the South African Navy (SAN) was christened. According to information from the shipyard, Damen Shipyards Cape Town (DSCT), the 62 x 11-meter ship is the first Sea Ax ship to operate in South Africa. Sea Ax is a design patented by Damen, which is characterized by a straight, ax-shaped bow.
- In July 2020, Israel Shipyards announces an agreement with an African navy for the supply of two OPV 45 offshore patrol vessels. The vessels were designed for a wide range of missions, including protection against the increasing threat of piracy in the region.
- The OPV 45 is designed for a wide range of naval, paramilitary and HLS missions. It enables open sea patrol and surveillance and supports a wide variety of offshore missions such as the protection of facilities

and EEZs, anti-terror/smuggling/illegal activity interdiction, intervention force boarding/landing, close-range naval combat operations, and enhanced search and rescue missions. The OPV 45 can also be equipped for minimizing illegal immigration transits, fishing protection and control, and anti-pollution activities.

- In early November 2020 Israel Shipyards announced the delivery of the last two of four Shaldag fast patrol boats to fulfil an order from the Senegalese Navy.
- Four Defender patrol boats arrived in port at Djibouti City, Djibouti, in two shipments in late February as part of a train-and-equip partnership between the U.S. Department of State and the Djiboutian military. The 27-foot boats were delivered to the Armed Forces of Djibouti (FAD) on 22 February 2020 for use by the Djiboutian Navy. Defender patrol boats combine an unmatched ability to conduct high-speed maneuvers in a compact deployable package.
- South Africa's Paramount Maritime Holdings, through subsidiary Nautic Africa, has delivered a new aluminium patrol and escort vessel to an unnamed Gulf of Guinea maritime security customer.
- The newbuild has a length of 35 metres, a beam of 7.5 metres, a ballistic-protected wheelhouse and deckhouse, facilities for launching and recovering one 8.5-metre boat, X- and S-band radar, and space for six crew and up to 50 passengers. Three Caterpillar C32 1,093kW engines driving fixed-pitch propellers give the vessel a maximum speed of 28 knots and a range of 1,150 nautical miles at 20 knots.
- Rohde & Schwarz has been chosen by the Senegalese Navy to install combat communication systems on the three OPV 58S patrol vessels Dakar ordered at the end of 2019 from the French shipyard Piriou-Kership.
- On 13 July 2018 the United Nations Office on Drugs and Crime (UNODC) Ghana Programme Office, in partnership with the Japanese Government, donated two alligator patrol boats to the Ghana Marine Police to enhance their operations in combating maritime crime.

**Dimitrios Angelopoulos M.Sc.**

**Captain (Rtd)HN**

**Advisor on Defence and Maritime Security issues**



2022

# EUROSATORY

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and 4 organisations  
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**690**  
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from 44 countries

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2018 key figures

## Development and Security Challenges in the Sahel Region

The Sahel countries—Mauritania, Mali, Niger, Burkina Faso and Chad—face many challenges, including chronic insecurity, rising extremism, a lack of economic prospects, and poor access to education, employment and essential services such as water and electricity. Climate change is weakening the region even more.

Armed conflicts, dramatic climate change and little opportunity to receive an education or find a job, are an everyday reality for many in Africa's Sahel region. With the region's rapidly expanding population compounding these challenges, the hope of a future is vanishing for millions of young people.

Insecurity has spread across porous borders with dramatic repercussions for the region's inhabitants. Conflict, in turn, is further impoverishing a region already burdened with endemic poverty, inequality and social and political exclusion. The conflict has also triggered a massive IDP and refugee crisis with thousands seeking sanctuary in neighbouring countries or further afield in the Maghreb and Europe.

The Joint Force of the Group of Five for the Sahel (also known as G5 Sahel joint force, FC-G5S), including Burkina Faso, Mali, Mauritania, Niger and Chad. Launched in February 2017, this regional partnership, which consists of 5,000 troops from the G5 Sahel states, was authorized by the Peace and Security Council (PSC) of the African Union (AU) (April 2017) and strengthened by the adoption of United Nations Security Council (UNSC) Resolution 2359 (June 2017) (Cooke, Toucas, & Heger, 2017). G5 Sahel joint force aims at fighting terrorism, organized crime and smuggling through enhanced cooperation among national armed forces and surveillance of rural areas. On their side, France and other European countries (especially Germany, the United Kingdom and Italy) have pledged broader support for security and stabilization in the Sahel during the G5 Sahel summit in Celle-Saint-Cloud (13 December 2017).

The G5 Sahel countries will have 83.7 million inhabitants in 2019, of which about 50% are under 15 years old, and 196 million in 2050. There is a real urgency to draw the consequences to avoid what always happens in history in case of overpopulation, such as immigration, wars, famines, epidemics, because there will not be enough space and resources for everyone.

Moreover, the difficult situation in the Sahel has also been shaped by political, social, and economic developments in North Africa and terrorist organizations fed by the instability and proxy wars in the Middle East more broadly. A consequential shift occurred in the Sahel region in 2012 when a Tuareg-dominated separatist armed group, the National Movement for the Liberation of Azawad (MNLA), fuelled by the return from Libya of several thousand fighters, almost entirely occupied northern Mali and declared Gao the capital of their self-declared state. In response to violence perpetrated by the Tuareg militia and its allies, the Movement for Oneness and Jihad in West Africa (MUJAO), linked to Al Qaeda, emerged.



MUJAO cleverly exploited both the aspirations and anxieties of the local population while drawing support from powerful criminal organisations operating in the region. MUJAO attracted substantial numbers of recruits from central and northern Mali and Niger, including the Fulani community's self-defence militias. MUJAO expelled MNLA fighters from Gao in July 2012 allowing it to extend its influence along the length of the Malian belt of the central Sahel. Only the French military operation Serval, launched in January 2013 at the request of Malian authorities, managed to stop MUJAO's advance toward Bamako.

In July 2014, France expanded its presence throughout the region with the launch of operation Barkhane. Barkhane mission has been more ambitious and includes: fighting terrorism in a territory the size of Europe, bringing out the G5 Sahel Joint Force, and supporting the Malian armed forces and MINUSMA. Consisting of 4,500 French soldiers with operational headquarters in Chad's capital, N'Djamena and operating with a yearly budget of EUR 600 million, according to French Senate, Barkhane is operating in Burkina Faso, Chad, Mali, Mauritania, and Niger. Small units composed of special forces elements capable of intervening very quickly have been deployed in the field to take on extremist fighters with the support of fighter aircraft, drones, and a range of intelligence assets. In December 2019, France carried out the first armed drone airstrike during an assault against armed terrorist group fighters in Mali's Mopti region. Since the beginning of its operations Serval and Barkhane in 2013 and 2014, 44 French soldiers have died in combat in the Sahel.

France has consistently advocated stronger international engagement, and its MoD announced the creation of the international special operations task force Takuba in November 2019. Takuba's objective, in addition to freeing up Barkhane personnel and enabling them to focus on pursuing insurgents and preventing attacks, is to advise, assist and accompany Malian Armed Forces, in coordination with G5-Sahel partners and other international actors on the ground, including the UN mission MINUSMA, as well as the EU missions EUTM Mali, EUCAP Sahel Mali and EUCAP Sahel Niger. Takuba will ultimately consist of a French contingent and special operations element and military observers from numerous European nations including Ireland, Estonia, Latvia, Denmark, Spain, Belgium, Sweden, Norway, the Netherlands, Greece and Italy. The plan is ultimately to have 16 500 operators in the task force. The first 100 troops, comprised of French and Estonian special operations forces, were deployed in Summer 2020. In response to manifestations of hostility in West Africa towards the French and international military presence, President Macron asked G5 Sahel leaders to offer public support for France's military presence. During the Summit organized in Pau in January 2020, the city where most French soldiers who died in November 2019 were stationed, the G5 leaders "expressed the wish for the continuation of France's military engagement in the Sahel". The increasing number of terrorist attacks and casualties has served as a catalyst to unite French Barkhane and G5 Sahel Joint Force under a new command structure: announced at the Pau summit at the request of Sahel states.



The impetus given in Pau has materialised with the creation of the Coalition for the Sahel, which the G5 Sahel countries – celebrating the 60th anniversary of their independence this year – and the European Union officially launched on 28 March 2020.

The Coalition for the Sahel aims to provide a collective response to the challenges in the region. In February 2020, French Defence Minister Florence Parly announced the deployment of additional soldiers, primarily in the three borders areas. The reinforcement of Barkhane decided at the beginning of the year – with the deployment of 600 additional soldiers-, increased coordination with the Sahelian forces, the concentration of joint efforts towards the “three borders” zone, on the borders of Mali, Niger and Burkina Faso, and the creation of the Takuba Task Force, have made it possible to weaken the ISGS.

At the Pau Summit on 13 January 2020, the International Coalition for the Sahel was launched by the Heads of State of France, Burkina Faso, Chad, Mali, Mauritania and Niger, in the presence of the United Nations Secretary-General, the President of the European Council, the European Union High Representative, the Chairperson of the African Union Commission and the Secretary General of La Francophonie.

The gravity of the crisis in the Sahel, the sense of urgency, and the volume of the needs require stronger, more inclusive action. The International Coalition for the Sahel aims to provide a collective response to the challenges of the Sahel region by pooling the work undertaken by the G5 Sahel States and their international partners. The goal is to take coherent action across the Sahel by including all relevant levers and stakeholders, whether dealing with the issues of security, politics or development.

Terrorism and irregular migration remain the primary reason for the international involvement in the Sahel. As the violent extremist threat and terrorist attacks expand and with civilians dying in inter-ethnic conflicts, the presence of foreign forces has become increasingly difficult for local populations to fathom or accept.

The security situation in the Sahel continues to deteriorate, with terrorist groups operating in the Sahel expanding their presence southward, increasingly threatening coastal West African states. Recent months also witnessed political instability in Chad following the death of President Idriss Déby while fighting rebels invading from Libya and in Mali when the perpetrators of last year’s coup d’état carried out a second coup against Mali’s transitional authorities.

Following a recent mandate renewal of MINUSMA, France proposed an approximate 2,000-person increase in the mission’s troop ceiling, which

currently stands at 13,289 military and 1,920 police personnel, to improve its ability to protect civilians from terrorist groups and inter-communal violence in Mali’s central region. While the proposal was not accepted, Council members may take up this issue again in July as the new MINUSMA resolution requests the Secretary-General to produce a report by 15 July with recommendations on the mission’s force level.

Maghreb security challenges are intrinsically intertwined with Sahel instability. Both the Sahel and the Maghreb face significant security concerns, magnified by the regions’ indelible interconnection. Maghreb geopolitical hostilities and power relations are echoed in the Sahel, while the hybrid security crises erupting throughout the Sahel become push factors, ultimately weighing heavily on the policy agendas of North African countries and the EU as well.

Since 2011, the European Union (EU) strategy for the Sahel has focused on both security and development to address these numerous and interconnected challenges. However, EU efforts have remained dominated by a military approach to tackle rising terrorist activity, achieving concrete results but ultimately falling short of long-term regional stability. The new EU integrated strategy in the Sahel aims to strengthen action at the political level, focusing on governance mechanisms, human rights, and collaboration with civil society and local authorities, while maintaining security cooperation with states in the region.

EU must maintain a military presence in the Sahel region if it wants to help prevent future terror attacks. Europe faces two serious risks. The first is to have terrorists who will arrive in Europe under cover of refugees, as we had in 2013-2014 from Syria and who made the attacks in Paris and Brussels and the second is a victory for the global jihad. The capture of Kabul by the Taliban was considered a victory and it could give a new boost to the jihad movement.





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## AFRICOM Commander concludes visit to Libya, Algeria, Tunisia

**U.S. Army Gen. Stephen Townsend, commander, U.S. Africa Command, wrapped up a two-day visit to Libya, Algeria, and Tunisia, Sept. 27-28.**

Townsend travelled to Libya with U.S. Special Envoy and Ambassador to Libya Richard Norland where they met with interim Government of National Unity Prime Minister and Defense Minister, Abdulhamid Dabaiba, in advance of the December 24 elections and to support the country's stabilization and national reconciliation. Townsend and Norland also received the 5+5 Joint Military Commission in Tripoli, the first time this group has met in the Libyan capital.

"U.S. Africa Command continues to support Ambassador Norland's diplomatic efforts to ensure Libya holds presidential and parliamentary elections this December. We also support the UN-facilitated political reconciliation process and the withdrawal of all foreign forces from Libya," said Townsend.

"We saw another piece of Libyan history today. Receiving the 5+5 Joint Military Commission in Tripoli together with Gen. Townsend was another step towards national reconciliation and an end to years of conflict," said Norland. "As we discussed, the elections on Dec. 24 will also mark a key step towards a stable, unified national government with a mandate from Libyan voters. The United States will continue working to support full implementation of the ceasefire agreement including the withdrawal of all foreign forces and fighters in accordance with the wishes of the Libyan public."

In Algeria, Townsend, accompanied by U.S. Chargé d'Affaires a.i. Gautam Rana, met with President Abdelmadjid Tebboune, and the Chief of Staff of the People's National Army, Lt. Gen. Said Chanegriha.

"The United States appreciates the role Algeria plays in promoting peace, security, and prosperity in the region and beyond. We hope to continue building on our strong bilateral relationship in areas of mutual interests," said Townsend.

In Tunisia, Townsend and U.S. Ambassador Donald Blome met with the Tunisian military Chiefs of Staff, to discuss U.S. security efforts on building the capacity of the Tunisian military to counter threats.

U.S. Africa Command is committed to a mutually beneficial partnership with the countries in North Africa in order to enhance efforts and contributions to regional security and stability.

© Us Embassy in Libya



## Minister of Defense and Military Production, Meets with the Minister of Defense of the Republic of Yemen

General Muhammad Zaki, Commander-in-Chief of the Armed Forces, Minister of Defense and Military Production, met with Lieutenant General Mohammed Ali Al-Maqdashi, Minister of Defense of the Republic of Yemen, and his accompanying delegation, which is currently visiting Egypt, where an official reception ceremony was held at the headquarters of the General Secretariat of the Ministry of Defense and military music played the national anthem of both countries.

The meeting dealt with the latest developments on the regional and international arenas, and a number of issues of common interest, which included the transfer of expertise and military cooperation between the two countries.

The Commander-in-Chief of the Armed Forces and Minister of Defense and Military Production affirmed his pride in the solid historical relations between the Egyptian and Yemeni Armed Forces, pointing to the consensus of the political leadership's visions of both countries towards supporting security and stability efforts in the region, and Egypt's continuous quest for the stability of the brotherly country of Yemen.

For his part, the Yemeni Minister of Defense expressed his aspiration that the future phase would witness more cooperation in a manner that meets the common interests of both sides, stressing his deep appreciation for the efforts of the Egyptian Armed Forces in all fields and his country's keenness to support prospects for military cooperation with Egypt during the next stage, praising Egypt's influential and effective role in its regional and international environment and to achieve security and stability in the Middle East.

Lieutenant-General Mohamed Farid, Chief of Staff of the Armed Forces attended the meeting. A number of senior commanders of the Armed Forces of both countries, and the Yemeni ambassador in Cairo and the Yemeni military attaché also attended the meeting.

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### **CAS ON OPERATIONAL VISIT TO GUSAU, CAUTIONS TROOPS TO BE FOCUSED AND VIGILANT**

The Nigerian Air Force (NAF) component of Operation Hadarin Daji have been charged to remain focused and vigilant as they make concerted efforts towards ridding the entire Northwest of bandits and other criminal elements. The Chief of Air Staff (CAS), Air Marshal Oladayo Amao stated this today, 14 September 2021, while on operational tour of Air Component under Operation Hadarin Daji (OPHD) in Zamfara State.

According to the CAS, the current onslaught against bandits and their activities has continued to yield the expected outcome hence the need to remain focused disciplined and extra- vigilant until the security situation improves. According to the CAS, 'This is not the time for you to be complacent or assume that we have overcome the enemy. Rather times like this calls for utmost discipline, alertness and extra focus on the task ahead.' Air Marshal Amao went on to commend them for their gallantry, dedication to duty and resolve towards ensuring that the fight against banditry in the Northwest is brought to a conclusive end.

<https://airforce.mil.ng/>

Earlier, the Joint Task Force Commander of OPHD who also doubles as the General Officer Commanding 8 Division of the Nigerian Army, Major General UU Bassey, briefed the CAS on ongoing operations in Zamfara State and the entire North Western area. He informed the CAS that the operations have continued to yield the requisite results with bandits hideouts being destroyed and decimated. Maj Gen Bassey also thanked the CAS for ensuring that the Air Component as well as the NAF Special Forces are well trained and equipped for deployment to operational areas in the Region. According to Maj Gen Bassey, the renewed vigour exhibited by both Air and ground troops will no doubt be instrumental towards bringing the security situation in Zamfara State and environs to an end.

The CAS also took time to visit wounded airmen at the Federal Medical Centre and 207 Quick Response Group, Gusau where he assured them of NAF's commitment towards their medical attention and complete recovery. It is important to note that the NAF Special Forces as well as its air element have continued to be key enablers and deciders in the fight against banditry in the Northwest. Indeed, in the last 2 months, several bandits have been neutralised through coordinated efforts between the air component, NAF Special Forces and other security elements in the theatre of operations. The joint operations, which is in its critical moments, has so far seen to the dislodging of key bandits' leaders and their followers as well as the destruction of their strongholds.

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### **NIGERIA SIGNS MILITARY-TECHNICAL COOPERATION AGREEMENT WITH RUSSIA**



Nigeria has signed a Military-Technical Cooperation Agreement with the Russian Federation. The Honourable Minister of Defence, Major General Bashir Salihi MAGASHI (Rtd), who is on an official visit to Russia, signed on behalf of the Federal Republic of Nigeria, while the Director of the Federal Service for Military-Technical Cooperation, Dmitry Shugaev, signed for the Russian Federation.

The signing ceremony, which took place on 23 August 2021, was witnessed by the Nigerian Ambassador to the Russian Federation, His Excellency (Prof.) Abdullahi Y. SHEHU, the Chief of the Naval Staff, Vice Admiral Auwal Zubairu GAMBO, the Defence Attache in the Embassy of Nigeria in Moscow, Air Vice Marshal Olatokunbo ADESANYA, representatives of the Nigerian Army

and the Nigerian Air Force, other senior Military officers, and officials of the Nigerian Ministry of Defence. This Agreement terminates the earlier Agreement between the two countries signed on 6 March 2001.

In a brief statement after the signing ceremony, Ambassador SHEHU expressed appreciation to the Russian authorities and reiterated that Nigeria is not looking for alternative but for complementarity and mutual benefits.

In a related development, declaring open the 7th International Military- Technical Forum -Army 2021 on 23 August 2021, President Vladimir PUTIN of Russia stated that "Massive mutually beneficial portfolios of contracts for the supply of Russian military goods are concluded on the forum's sidelines every year". According to President PUTIN, "The forum has on display over 28,000 units of modern military arms and equipment ranging from small firearms to artillery, tanks, and military combat aircraft. Our army and navy are being modernized at a fast pace as they receive the latest generation military assets. For example, the share of modern weapons

The Agreement on Military-Technical Cooperation between both countries provides a legal framework for the supply of military equipment, provision of after sales services, training of personnel in respective educational establishments and technology transfer, among others. The signing of the Military-Technical Cooperation Agreement is a landmark development in the bilateral relations between Nigeria and the Russian Federation.

**Source: Embassy of the Federal Republic of Nigeria, Moscow, The Russian Federation,**



## Russian Export Grows Steadily



© Rosoboronexport CEO Alexander Mikheev is confident in the company positions at the world arms market

The summer exhibition period 2021 has demonstrated strong demand for Russian weapons and military equipment. At the ARMY-2021 Military-Technical Forum, MAKS-2021 Air Show and IMDS-

2021 Maritime Defense Show, Rosoboronexport (Rostec Corporation subsidiary) signed over 30 international contracts with international partners worth over Euro 3 billion.

Rosoboronexport has leveraged the full potential of Russian summer defense exhibitions, thereby replenishing its order portfolio and increasing the workload of the domestic defense enterprises: the export plan now includes Su-30-type aircraft, Mi-35M / P, Mi-171Sh and Mi -17V-5 helicopters, aircraft weapons, Pantsir-S1 / S1M self-propelled anti-aircraft gun / missile (SPAAGM) system, Verba MANPADS, Protivnik-GE radar, Krasukha electronic warfare system, Repellent-Patrol mobile anti-drone EW system, Kornet-EM ATGM system, remote controlled weapon stations, weapons for surface combatants and submarines, small arms, ammunition. An agreement was reached on integrating Russia's Palma shipborne gun / missile close-in weapon system (CIWS) into a ship's foreign-made weapons system.

Russia's successes in military-technical cooperation prove that the domestic industry is capable of developing new unique products and solutions that are in demand in the market. At the same time, a qualitative renewal of the plants and design bureaus' fixed assets, their timely retrofitting and upgrading at the expense of funds received from the implementation of state defense orders and export contracts, launches the processes of positive

© Orion-E has been proven in combat in anti-terrorist operations



transformation of infrastructure in regions, from household facilities to science schools, technology parks and experimental laboratories accessible to youth.

Among new Russian products presented at Russian exhibitions this summer, foreign partners paid special attention to the T-14 Armata tank, combat vehicles based on the Boomerang platform, Orion-E reconnaissance / strike UAV, Antey-4000 battlefield air defense missile system, Pantsir -S1M SPAAGM system, the fifth-generation Su-57 fighter, BMP-3 with the Berezhok combat module, other equipment. More than 80% of Rosoboronexport annual deliveries fall on products manufactured by the Russian Engineering Union (REU) enterprises including the Rostec subsidiaries such as United Aircraft Corporation, Russian Helicopters, High-Precision Weapons, as well as other national leaders.

The companies being associated in the REU make a strong contribution in the military-technical cooperation delivering their high-tech products to more than 100 countries, in the most challenging climatic and combat conditions. Rosoboronexport has been constantly extending defense technology cooperation with the African nations which have a substantial share within the company current order portfolio of US\$ 52 billion



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## Namibian Defence Force



***Defence Minister, Hon. Fran Kapofi***

The Namibian Defence Force was established in 1990 by the Namibian Constitution, Chapter 15, Article 115, and the Defence Act 20 of 1990 as amended. The President is the Commander-in-Chief of the Namibian Defence Force. It was created when South West Africa gained full independence from South Africa in 1990. The constitution of Namibia defines the role of the military as "defending the territory and national interests."

Namibia's military was born from the integration of the formerly belligerent People's Liberation Army of Namibia (PLAN), military wing of the South West African People's Organization, and the South West African Territorial Force (SWATF) – a security arm of the former South African administration. The British formulated the force integration plan and began training the NDF, which consists of five battalions and a small headquarters element. The United Nations Transitional Assistance Group (UNTAG)'s Kenyan infantry battalion remained in

Namibia for three months after independence to assist in training the NDF and stabilize the north. Martin Shalli and Charles 'Ho Chi Minh' Namoloh

were involved in the negotiations that allowed the Kenyan infantry battalion to remain for that period.

The Defence Amendment Act (Act 20 of 1990) sets out a variety of legal requirements for the composition and organisation of the NDF. The Defence Policy Paper approved by the National Assembly in March 1992 presents policy guidelines for the development of the MOD and the NDF.

The British Military Advisory Training Team (BMATT) effort in Namibia has been directed towards developing a programme for creating and training the army prior to its assuming deployment tasks. The programme timings have been generated by the need to deploy formed units to Namibian Navy

The People's Liberation Army of Namibia (PLAN) was an armed wing of the South West Africa People's Organization (SWAPO) of Namibia which had waged a protracted liberation war to free the Namibian people from colonial oppression by the then, South African Racist Regime. During the liberation struggle, SWAPO had been waging the struggle on three fronts, namely, Political, Diplomatic and Military front.

The main roles of the Namibian Defence Force are to ensure the sovereignty and territorial integrity of the country by guarding against external aggression, both conventional and unconventional; prevent violation of Namibia's territorial integrity; and provide assistance to civil authorities in guarding and protecting government buildings and key installations as provided in the Defence Act.

The Chief of Defence Force is the highest-ranking officer and exercises overall executive command of the force. Service Chiefs are two-star General Officers, Air Officers and Flag Officers in command of their respective arms of service. NDF directorates are led by one-star General Officers, Air Officers and Flag Officers. The exception however is the Joint Operations Directorate whose head is a Major General, who also doubles up as the GOC Special Forces. The Joint Operations Directorate is responsible for Force deployment in the Military.

The central priorities for the MOD is to develop the management plan and strategy to implement and monitor the policy presented in the defence policy and to provide the equipment and resources necessary to its implementation. The structure and organisation of MOD will be kept under review.

In addition, the MOD will actively participate in defence and security aspects, including contribution

to Government crisis management and contingency planning (including co-operation with other interested ministries).

Apart from these central issues, specific management priorities are also identifiable. These include the determination of force levels, equipment requirements, training, recruitment and deployment policy; career planning, the refinement and review of the concept of operations; the effective management of resource allocation and distribution; and the articulation of the defence programme into a detailed long-term financial plan (a long-term costing).

An overriding policy objective will be to align accountability with responsibility and authority as closely as is practicable. The MOD is prepared to share its experiences with other countries whose Defence Forces are developing or restructuring.

### **Namibian Army**

The Namibian Army was established on the 3rd of September 1990. The Namibian Army has experienced a systematic growth and development. Over the years, the force has successfully and effectively conducted missions through Mandume ya Ndemufayo Operation, Operation Atlantic in the Democratic Republic of Congo and UN Peacekeeping Missions in Cambodia, Angola and Liberia. The mission of the Namibia Army is to defend the territorial integrity of the Republic of Namibia, its people, their properties and National Interests. Vision// To be well trained, motivated, discipline, equipped, highly mobile and effective in command and control over its formations and units.

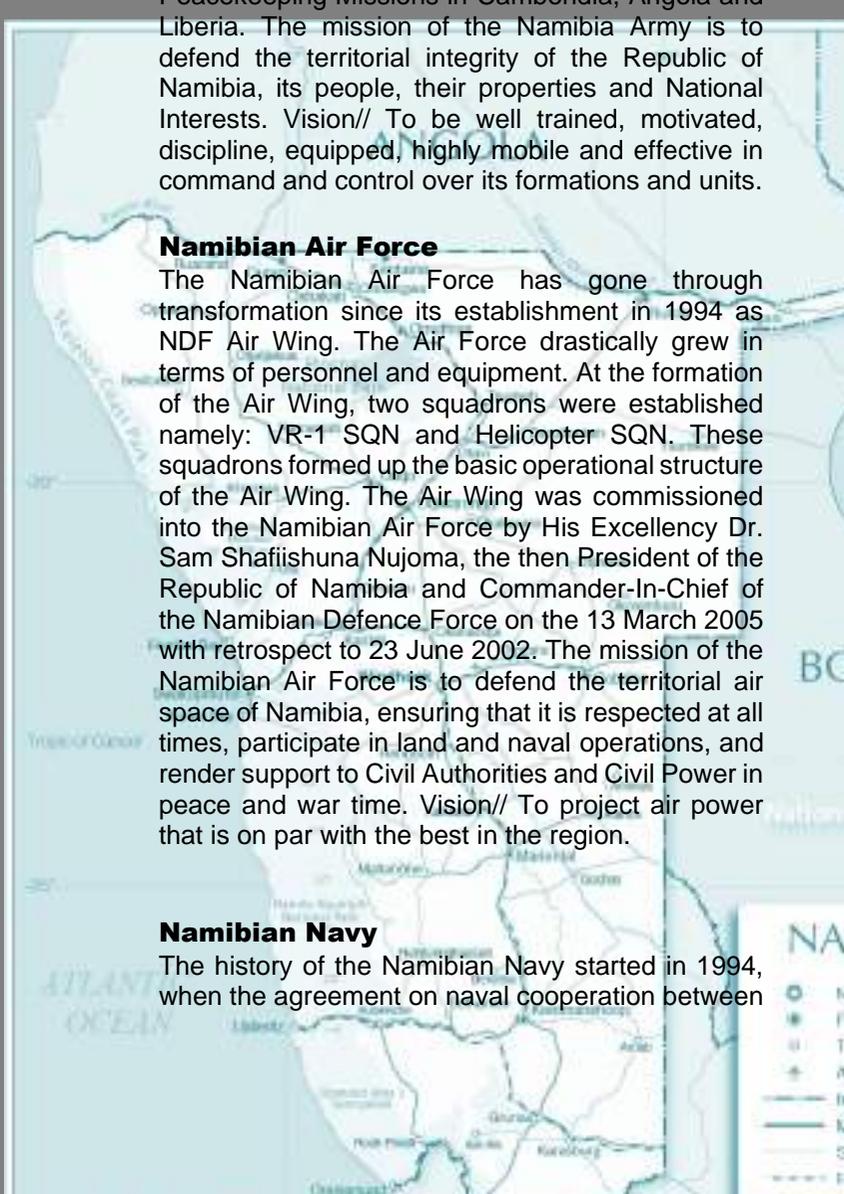
### **Namibian Air Force**

The Namibian Air Force has gone through transformation since its establishment in 1994 as NDF Air Wing. The Air Force drastically grew in terms of personnel and equipment. At the formation of the Air Wing, two squadrons were established namely: VR-1 SQN and Helicopter SQN. These squadrons formed up the basic operational structure of the Air Wing. The Air Wing was commissioned into the Namibian Air Force by His Excellency Dr. Sam Shafiishuna Nujoma, the then President of the Republic of Namibia and Commander-In-Chief of the Namibian Defence Force on the 13 March 2005 with retrospect to 23 June 2002. The mission of the Namibian Air Force is to defend the territorial air space of Namibia, ensuring that it is respected at all times, participate in land and naval operations, and render support to Civil Authorities and Civil Power in peace and war time. Vision// To project air power that is on par with the best in the region.

### **Namibian Navy**

The history of the Namibian Navy started in 1994, when the agreement on naval cooperation between

the Federative Republic of Brazil and the Republic of Namibia was signed. This agreement provides for the training of both officers and ratings in different fields. As a result, the group of Headquarters Staff and Ship Captains graduated at the 'Admiral Wandenkolk Instruction Centre' (CIAW) in Rio de Janeiro. The Maritime Wing was established on the 11th September 1998 and commissioned on the 7th October 2004 as the Namibian Navy by Hon. Eriky Nghimtina, the then Minister of Defence. The mission of the Namibian Navy is to defend Namibia's territorial water, conduct naval operations in defence of the Republic of Namibia, and conduct operations other than war in support of the national interests.



### Armed Forces of Liberia



Maj Gen. Daniel D. Ziankahn, Jr., (Rtd) is currently the Minister of Defense.

The mission of the Ministry of National Defense is to ensure the protection of Liberia's national interest and territorial integrity, and to protect the citizens and residents within the borders of Liberia from internal and external aggression and in extremist, to respond to natural disaster.

The Minister of National Defense is the principal administrator of the Ministry. He is assisted by two deputy ministers, administration and operations, respectively. The Chief of Staff is the one who is responsible for all units of the Armed Forces of Liberia. There are three assistant ministers within the Ministry of National Defense. They are Assistant Ministers for Public Affairs, Coast Guard Affairs and Civil Works.

Tracing its origins to a militia that was formed by the first black colonists in what is now Liberia, it was founded as the Liberian Frontier Force in 1908, and retitled in 1956. For almost all of its history, the AFL has received considerable materiel and training assistance from the United States. For most of the 1941–89 period, training was largely provided by U.S. advisers, though this assistance has not prevented the same generally low levels of effectiveness common to most of the armed forces in the developing world.

For most of the Cold War, the AFL saw little action, apart from a reinforced company group which was sent to ONUC in the Democratic Republic of the Congo in the 1960s. This changed with the advent of the First Liberian Civil War in 1989. The AFL became entangled in the conflict, which lasted

from 1989 to 1996–97, and then the Second Liberian Civil War, which lasted from 1999 to 2003.

As of 2014, the AFL consists of two infantry battalions, a Service Support Company, a Military Police Company, a Logistics Command, and the Liberian National Coast Guard.

The Liberian ground forces currently consist of two infantry battalions and supporting units. The 1st Battalion, 23rd Infantry Brigade, was formed on August 29, 2008, at the Barclay Training Center in Monrovia, and the 2nd Battalion, 23rd Infantry Brigade in December that year. Both battalions are currently based at the former Camp Schiefflin, which has now been renamed the Edward Binyah Kesselly Barracks, often known simply as 'EBK Barracks.'

As a result of the concentration of troops at EBK, the camp is overcrowded, and disturbances among the soldiers have occurred. As of mid-2009, the Ministry of Defense is attempting to alleviate the problem by relocating some personnel to Camp Tubman in Gbarnga.

The two battalions and supporting units went through training and preparation for an assessment exercise, a modified US Army Readiness Training Evaluation Program (ARTEP), which was held in late 2009. When declared operational, the 23rd Infantry Brigade was planned to be commanded by a colonel with a headquarters of 113 personnel. Supporting units were to include a band platoon (40 members), engineer company (220 strong), Brigade Training Unit (162 strong, now retitled the Armed Forces Training Command, located at Camp Ware under Major Wleh), and a military police company (105 strong). The force operates according to slightly modified United States Army practices and uses U.S. doctrine.



Peace keeping unit returns home



**Maj/ Gen. Prince C. Johnson, III.**  
Chief of Staff  
Armed Forces of Liberia

The Coast Guard was reactivated on the 53rd Armed Forces Day on February 11, 2010, with an initial strength of 40 personnel who had been trained in the United States. A United States Coast Guard officer is now serving at the U.S. Embassy in Monrovia supporting efforts to reestablish the Liberian Coast Guard.

A detachment from SeaBee Naval Mobile Construction Battalion 7, based at Naval Station Rota, Spain, constructed a United States Africa Command-funded boat ramp and concrete perimeter wall for the Coast Guard, which was handed over in December 2010.] In February 2011, the United States turned over two donated USCG Defender class boats to the Coast Guard.

The Liberian Air Force was formally dissolved in 2005 as part of the armed forces demobilization program, though it had effectively ceased to exist during the civil war. For many years only the United Nations Mission in Liberia (UNMIL) operated military aircraft in Liberia - Mi-8 transport and Mi-24 attack helicopters from Roberts International Airport with several subsidiary locations. Ahead of its anticipated closure of UNMIL operations in March 2018, these aircraft are leaving the country. There was also a Paramilitary Justice Air Wing operating some Mil Mi-2s. This was the Liberian Air Force inventory for its entire existence.



## Tanzania People's Defence Force



Tanzania Peoples Defence Forces are the armed forces of the United Republic of Tanzania comprising of multidisciplinary forces as-

- Land Forces Command
- Air Forces Command
- Navy Forces Command

The Tanzania Peoples Defence Force (TPDF) was established On September 1, 1964 Under National Defence Act for the purpose of defending the territorial integrity, state sovereignty and safeguard National interests of the United Republic of Tanzania. Aims at maintaining a small armed force composed of highly skilled officers and men equipped with modern equipment necessary for national defence.

TPDF Mission is to defend the state sovereignty, safeguard National interests of the United Republic of Tanzania, and Aid to civil authority.

Tanzanian citizens are able to volunteer for military service from 18 years of age upon graduation from secondary school. Conscript service obligation was 2 years as of 2004.

By the late 1970s reasonable estimates placed army strength at about 17,000 out of the total TPDF of 18,600 men and women.

The country is one of the few African countries that maintains large and functioning Reserves. The estimated strength of the reserves is in the region of 80 000 personnel but many of these are no longer active due to the change from one-party to multi-party rule.

### Tanzanian Army

As of 2015, the army is gradually modernizing and restructuring. Much of the inventory is in storage or unreliable.

Included in the army inventory in are PRC T-59 medium tanks, PRC T-62 light tanks, RTR-40 and

BTR-152 armored personnel carriers that were of Soviet design, 76-mm guns, eighteen 122-mm howitzers, 120-mm mortars, and several 37-mm anti-aircraft guns and 145-mm anti-aircraft machine guns.

The army does not operate in its command but consists of infantry brigades directly under the command of the Chief of Defense Forces (CDF). The Army is organized into a number of different brigades and battalions

throughout the country. These are constituted as follows:

- 5 x infantry brigade
- 1 x tank brigade
- 3 x artillery battalion
- 2 x air defence artillery battalion
- 1 x mortar battalion
- 2 x anti-tank battalion
- 121st Engineer Regiment
- 1 x central logistic/support group

### Naval Command

As of 2016, the assets of the Tanzania Naval Command included:

- Four Huchuan class torpedo boats
- Two Ngunguri class vessels
- Two Shanghai II class patrol craft
- Two 27-foot Defender-type patrol boats
- Two Yuch'in class landing craft.





In 2015 Tanzania replaced the two-landing craft with similar Chinese Type 068 vessels. The new 28-metre vessels, Mbono and Sehewa, took part in an amphibious operation demonstration on 30 September 2016. They unloaded infantry and Type 63A amphibious light tanks as part of the exercise. The landing craft were delivered to the naval base in Dar es Salaam by January 2016.

On 1<sup>st</sup> October 2018, in a bid to support community efforts in marine ecosystem management The European Union Delegation to Tanzania and the EAC, the Ministry of Livestock and Fisheries and WWF Tanzania have handed over two patrol boats worth \$ 64,000 to the Collaborative Fisheries Management Areas (CFMAs) of Kilwa Kivinje and Mafia. The handing over was organized through the EU funded project implemented by WWF Tanzania named 'Building effective long-term fisheries co-management in five coastal districts in Tanzania, and promoting coast-wide learning on the same'.

### Air Force Command

Tanzania's air force command operates 40 aircraft in 4 different types. It is believed they are operating 14 fighters, 11 fixed-wing attack aircraft, 7 transport aircraft and 8 tra More than 2,600 Tanzanian military and police personnel currently serve in six UN operations, performing a range of vital tasks such as protecting civilians and community policing. Tanzania has contributed uniformed UN peacekeepers in various parts of the world since 1995. It currently contributes peacekeepers in six UN missions in Africa and UNIFIL in Lebanon. Tanzania's contributions are largely informed by its history of African liberation, conflict prevention and peace processes, especially in African countries. Regionally, Tanzania has shown willingness to participate and contribute both in terms of security and military cooperation. Under the African Peace and Security Architecture (APSA), Tanzania is part of its African Standby

Force's (ASF). Specifically, Tanzania, falls under the Southern African Development Community (SADC) and in 2007 signed the agreement to become part of the SADC Standby Brigade. iner aircraft.

Tanzania's air force command also operates 8 helicopters, 2 BELL 214, 2 H 155 as well as 2 H 215 and 2 H 225 which were delivered in September 2018.

More than 2,600 Tanzanian military and police personnel currently serve in six UN operations, performing a range of vital tasks such as protecting civilians and community policing. Tanzania has contributed uniformed UN peacekeepers in various parts of the world since 1995. It currently contributes peacekeepers in six UN missions in Africa and UNIFIL in Lebanon. Tanzania's contributions are largely informed by its history of African liberation, conflict prevention and peace processes, especially in African countries. Regionally, Tanzania has shown willingness to participate and contribute both in terms of security and military cooperation. Under the African Peace and Security Architecture (APSA), Tanzania is part of its African Standby Force's (ASF). Specifically, Tanzania, falls under the Southern African Development Community (SADC) and in 2007 signed the agreement to become part of the SADC Standby Brigade.



### Deputy Secretary General welcomes Ghanaian Defence Minister at NATO Headquarters



©NATO

On Monday (6 September 2021), NATO's Deputy Secretary General Mircea Geoană welcomed Defence Minister Nitiwul of Ghana at NATO Headquarters. During their meeting, Mr. Geoană and Mr. Nitiwul discussed potential opportunities for cooperation between Ghana and NATO. They also exchanged views on current security challenges.

At NATO's Brussels Summit on 14 June 2021, as part of NATO's 2030 agenda, NATO Allies agreed to seek new relationships with countries across the world, including in Africa. During the COVID-19 pandemic, NATO's Euro-Atlantic Disaster Response Coordination Centre (EADRCC) coordinated the delivery of a UK-funded field hospital to Accra. Since 1994, NATO has been cooperating with seven nations across the Middle East and North Africa as part of its Mediterranean Dialogue: Algeria, Egypt, Israel, Jordan, Mauritania, Morocco, and Tunisia. Since 2005, the Alliance has also been cooperating with the African Union, of which Ghana is a member.

### Ghana Air Force to acquire six L-39NG aircrafts

The Ghanaian Government has under consideration to go ahead for an agreement to purchase six L-39 next-generation aircraft worth €111 million for the Ghana Armed Forces. The agreement was laid in the House of Assembly by the Minister for Parliamentary Affairs, Osei Kyei-Mensah-Bonsu on behalf of his colleague, Dominic Nitiwul. The deal involves AERO Vodochody AEROSPACE A.S. of the Czech Republic as the supplier of support services which will see the company supplying six (6) L-39 Next Generation (L-39NG) aircraft and the provision of support in terms of products, services, and ground-based training systems associated with the aircraft operation.

### Ghana Army to acquire 6x6 armoured personnel carriers

Elbit Systems has announced the sale of an initial quantity of 11 Iveco Defense GUARANI 6x6 armoured personnel carriers to Ghana, under a government-to-government sales. The vehicles will be manufactured by Iveco Defense Vehicles at its Brazilian facility in Sete Lagoas and will feature a remotely controlled weapon station (RCWS) to be supplied by Ares Aeroespaciales Defesa.

### ZAMBIA DEFENCE SERVICES, COMMAND AND STAFF COLLEGE VISIT KENYA



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Officers from Zambia Defence Forces (ZDF) currently studying at Zambia Defence Services, Command and Staff College on 27th September 2021 visited the Defence Headquarters (DHQ) and at Defence Staff College (DSC) in Karen. The student officers who are on one week education expedition will visit several key Government organisations with the aim to appreciate the geo-political, geo-cultural, geo-strategic and socio-economic organisation of militaries in the region and Africa as a whole. Such cooperations are imperative towards enforcing bilateral relations and the sharing of knowledge that will enhance future joint operations.

### Two die in Libya helicopter collision

Two people died in Libya on Sunday after helicopters belonging to forces loyal to Khalifa Haftar collided in the country's east, a spokesman for the strongman's special forces said.

"The direct impact between two helicopters" caused the death of a general and a technician, General Miloud al-Zouay said. "The crew of the second aircraft were unharmed," he told AFP.

The incident occurred around 130 kilometres (80 miles) southeast of Libya's second city Benghazi "while the two aircraft were carrying out a military mission", Zouay added, without elaborating on the nature of the mission.

Images carried by local media and circulating on social networks showed the body of a helicopter in an uninhabited area. AFP was unable to immediately verify the images.

Media close to Haftar reported earlier this week that forces loyal to the eastern strongman had carried out an operation against a Chadian armed opposition group along Libya's southern border.

### **DSEI 2021: IAI Integrates Barak MX Interceptors on Sa'ar 6 Corvettes**

- **Barak MX is IAI's flagship Air & Missile Defense System and is a part of the Naval Combat Suite IAI is integrating on the Israeli Navy's Sa'ar 6 premier defense warship**
- **Chosen by the Israeli Navy to be SAAR 6 primary defense system**
- **The system will provide a layer of defensive and offensive capabilities from air and sea**

Israel Aerospace Industries (IAI) is integrating offensive and defensive systems, to enhance the 'Sa'ar 6' corvette's capabilities and usher the Israeli Navy into a new technological era, under the guidance of Israel's Ministry of Defense (IMoD) and the IDF.

IAI's Barak MX interceptors along with IAI's complete naval combat suite will provide advanced defense systems to the Israel Navy's Sa'ar 6 corvettes. The systems will be used to protect Israel's exclusive economic zone and strategic facilities that face diversified threats in the marine arena. The Barak MX system was chosen after it was demonstrated to meet the operational requirements and future challenges faced by the Israeli Navy.

IAI's naval solutions are battle-proven naval systems and technology, IAI sets new standards for Maritime Domain Awareness, Naval Combat Systems, Network Centric Operation, EEZ Protection, and Coastal Security. From sensors and weapon systems to integrated systems-of-systems,

IAI offers a broad portfolio of solutions to the requirements and challenges of today's naval forces. These combat systems are designed to maximize and optimize the individual systems' performance and capabilities in a manner that will enable them to operate synergistically with efficiency and full effectiveness.

The Barak MX Air & Missile Defense System developed by IAI's is one of the world's advanced operational air defense systems, used by IDF naval forces and the Indian Land, Navy and Air Force. The Barak MX Air & Missile Defense System provides both wide-area and targeted defense capabilities to an array of threats, including land, air and sea. The system aggregates several key cutting-edge systems: digital radar, weapon control system, launchers, and a range of interceptors for different ranges with advanced homing devices, data-link communication and system wide connectivity. Developed by IAI, the Barak family includes various range interceptors- 35 km, 70 km, and 150 km, and combines the capability to intercept various air defense threats from naval and land platforms.

**Boaz Levy, President and CEO of IAI**, said: "The combat and air defense systems installed on the Sa'ar corvettes represents the significant tier now being integrated on the rest of Israel's air defense array, an integral aspect of IAI's system wide naval solutions. With land and naval modules, the system provides a complete response to a wide range of threats and is developed to work with other systems. IAI's air defense systems boast successful, combat proven operational experience and we are proud to be the home of the Israeli Navy's systems".

Israel Aerospace Industries (IAI) is a world-leading aerospace and defense company innovating and delivering state-of-the-art technologies in space, air, land, naval, cyber & homeland security for defense and commercial markets.



© IAI - MFSTAR Installed on Sa'ar 6

## New missile for Russian Air Forces

By Yuri Laskin

The ARMY-2021 became a premier for the light multipurpose guided missile for helicopters which got designation 305E (with E showing that it is certified for export).

The missile was developed by the Kolomna-based KBM Design bureau of the High Precision Weapons Holding.

It was showcased at the exposition of Holding. Besides, being positioned as one of the main types of guided weapons for the modernized Mi-28NM and Ka-52M helicopters the missile was demonstrated to Russia's Defense Minister Sergei Shoigu on board these combat helicopters

During ARMY-2021 the Ministry of Defense signed a contract for the supply of a batch of 30 modernized Ka-52M helicopters within 2022 and 2033.

Earlier, at ARMY-2019 the Russian military contracted Rostvertol plant for delivery of 98 Mi-28NM helicopters by 2027.

The 305E missile is designed for round-the-clock engagement of single/group, moving/stationary, ground/surface heat-contrast objects and sheltered/openly deployed manpower.

The light multipurpose guided missile 305E is built according to the aerodynamic "duck" scheme, the rudders are in the head of the rocket, and the wings, which also serve as a stabilizer, are located in the tail part of the rocket body. They are foldable.

According to the official data distributed by the manufacturer at the Army-2021 forum, the 305E missile has weight of 105 kg, length of 1945 mm, and body diameter of 200 mm.

The weight of the blast-fragmentation warhead is 25 kg. The solid-propellant engine provides missile's speed of up to 250 m / s, a guaranteed (as said in official booklet) flight range of up to 14,500 m, and a flight altitude of 100 to 600 m.



The missile features modular design and can be armed with different warheads.

The missile's guidance system is combined: inertial guidance with correction from satellite navigation equipment and self-guidance under control of seeker with ability to involve operator at the terminal part of trajectory.

The missile is fired from the APU-305 launchers, designed for one or two missiles.

According to the KBM Chief designer, the missile is produced serially. In addition to integration with Ka-52M and Mi-28NM, the missile can be adapted to other helicopters, on customer's request, Chief designer added.

According to the information of Russian media, Ministry of Defense is working out the issue of equipping not only helicopters, but also combat aircraft with the new guided missiles.

It is also considered as a promising weapon for attack UAVs.

According to experts, in terms of weight and dimensions, it is well suited for arming attack aircrafts, like Su-25 and Orion drones.



© Photos - Yury Laskin



## Mi-35P Phoenix

### Upgraded combat-transport helicopter

Designed on a base of the Mi-24 (Mi-24P) series helicopter inheriting the advantages of that model, including excellent speed, transport-combat capabilities and means of combat survivability improvement. It is one of the best helicopters in its class in terms of cost-effectiveness.

The Mi-35P helicopter is designed for increase of Ground Forces units' mobility and fire support of Army units on the battlefield. It can provide aerial reconnaissance, search and engagement of armored and unarmored vehicles, enemy's helicopters in the air day-and-night in various weather conditions.

Mi-35P Modernized combat-transport helicopter can be optionally equipped with guided armament as well as with President-S self-protection suite.

### Main characteristics:

- **Maximum takeoff weight, kg: 11,500**
- **Maximum payload, kg: 2,400**
- **Maximum speed, km/h: 320**
- **Service ceiling, m: 4,500**
- **Flight range (internal fuel tanks), km: 450**
- **Number of transported troops: 8**



### New Suit for the Night Hunter



The Mi-28NE helicopter was displayed along with other up-to-date aircraft materiel during MAKS-2021 International Air Show and the ARMY Forum in Moscow region. The Mi-28N has been nicknamed a Night Hunter by the Russian troops thanks to its ability to perform combat missions at any time in simple and adverse weather condition. The same nickname has been inherited by its export version – Mi-28NE. The Mi-28NE is designed for fire support of the forward land troops and when deployed as a part of anti-mechanized defence, for destruction of armored vehicles, striking low flying and low-speed air targets, and air reconnaissance. The Night Hunter is heavily armored and features high combat survivability.

The Mi-28NE with dual control system being operated both by the Russian Army and internationally possesses all the functions of the attack helicopter and yet significantly simplifies the training process for military pilots who need flying practice with Night Hunters. Besides in combat operations in case of emergency the aircraft control can be taken by the second crew member.

The Night Hunter has already happened to take part in full-scale combat operations. Apart from destruction of armored vehicles and militants' manpower the Mi-28NE provided fire support in combat operations in urban terrain and traced insurgents' group and individual vehicles. The experience of military conflicts of the recent years has proved that attack helicopters are deployed in a close contact with the enemy. Anti-terrorist operations have vividly demonstrated that the armed forces of many countries are in burning need for such helicopters featuring high maneuverability, lethal power and being up-to-date and highly-effective.

The extensive application of the helicopter in local conflicts made it possible for the customers to develop new requirements for the Night Hunter. The most valuable advantages of the Mi-28NE include not only all-weather and round-the-clock combat application capability but also a fire power.

A subsequent upgrade of the helicopter manufactured by Rostvertol PJSC (the leading company of the Russian Helicopters Holding) is primarily focused on the extension of the armament variety. It will incorporate upgraded Ataka anti-tank guided missiles with laser guidance system and Khrizantema missiles with a dual-control system featuring both radio and laser-beam channels. Deployment of the missiles has enabled the increase of target destruction range up to 10 km. Besides the upgraded helicopter can be equipped with air bombs which efficiency has been proved in local conflicts of the last decade. The upgraded day-and-night surveillance-sighting system has enabled target designation to combat helicopters and fixed-wing aircraft.

The upgraded Mi-28 has been outfitted with MR blades of a new design enhancing its performance in high-mountainous and hot-climate areas and expanding helicopter capabilities in terms of performing aerobatics. The stabilizer of the enlarged surface area will make it possible to improve the helicopter controllability. The aircraft is also equipped with more powerful engines and a new Russian-made auxiliary power plant. The engines are provided with new multicyclone dust protection devices featuring new air purification principle. Meeting the nowadays requirement the rotorcraft has UAV-link capability.

Today Mi-28NE is becoming more and more widespread. The main customers of the Mi-28NE are foreign MODs. The Russian-made helicopters are traditionally of the greatest demand in Africa and Middle East, Asia-Pacific, Latin America and in the CIS countries. The helicopter operators who have got these modern combat machines believe that this has led to a quantum leap in the development of the national army aviation.



### Otokar & Milrem Robotics Teaming to Develop Unmanned and Robotic Systems

Turkey's land systems manufacturer Otokar and the European leading robotics and autonomous systems developer Milrem Robotics signed a teaming agreement during the DSEI 2021 exhibition in London to merge know-how and resources for autonomy development and application for unmanned and robotic operations of military vehicles.

Otokar's and Milrem Robotics' cooperation will entail working with the existing fleet of vehicles of both companies and introducing new systems by developing intelligent functions, encryption, and safety features as well as environmental awareness and hybridization.

"We anticipate that the future battlefield will consist of a mix of unmanned and manned assets which are seamlessly connected into a well-functioning integrated system," said Kuldar Väarsi, CEO of Milrem Robotics. "Combining the know-how and expertise of Milrem Robotics, the leading technology provider and systems house for not only autonomous and robotic systems, but also for optionally manned ground systems and Otokar, a strong and innovative land systems provider, will allow us to deliver our customers new capabilities in the land systems segment," Väarsi added.

Regarding the agreement Otokar General Manager Serdar Görgüç said: "As the pioneer land systems company of Turkey, Otokar continues to introduce innovative solutions in land systems by taking into account the current and future requirements of modern armies and security forces.

We consider the different needs and expectations of our users and provide customer-oriented solutions. In this context we are delighted to announce our cooperation with Milrem Robotics. I'm confident the combination of Otokar's combat proven know-how and unique R&D, engineering and testing capabilities in armored vehicles and the Milrem Robotics' expertise and know-how in autonomy, artificial intelligence and remote control will lead to significant developments in unmanned and remote-controlled land systems. This collaboration will enable us to go one step further to generate Otokar's line of unmanned ground vehicles (UGV) in addition to our existing product range."

Milrem Robotics is the European leading robotics and autonomous systems developer and systems integrator with offices in Estonia, Sweden, Finland and shortly in the Netherlands. The company is the leader of the iMUGS Consortium that was awarded 30,6 MEUR from the European Commission's European Defence Industrial Development Programme (EDIDP) to develop a European standardized unmanned ground system (UGS).

Otokar is Turkey's most competent land systems company with 34 years of experience in military vehicles. The company strive to offer the best products and services to more than 55 end-users in more than 35 countries, including NATO states, and the Turkish army and police forces, against present and future threats. Nearly 33 thousand military vehicles of Otokar are actively used in NATO and United Nations missions in different climates and geographies around the world. Otokar offers products with owned intellectual property rights, using its own technology, design and applications to provide solutions tailored to the needs and expectations of its clients. Otokar designs and manufactures a wide range of defense industry products including 4x4, 6x6, 8x8 tactical wheeled armored vehicles and tracked armored vehicles as well as turret systems.

©OTOKAR- Otokar exhibited TULPAR and COBRA II MRAP at DSEI 2021



## Hornet displayed THeMIS Combat unmanned ground vehicle at DSEI 2021 in London

The French remote weapon systems manufacturer Hornet, which is part of Arquus and Europe's leading developer of robotics and autonomous systems Milrem Robotics display a new THeMIS Combat unmanned ground vehicle at DSEI 2021 in London.

The system features Milrem Robotics' THeMIS unmanned ground vehicle (UGV) with the Hornet Remote Controlled Weapon System (RCWS). The Hornet was developed for the new French 4x4 and 6x6 armoured vehicle program "Scorpion", however, it offers unique features for UGV applications.

RCWS are now at the heart of modern land combat. They offer protection and accuracy to the gunner, versatility, tactical overview, and collaborative combat capabilities to the commander. Having designed and engineered systems that deal with system stabilization, weapon adaptation and firing accuracy, Arquus has decided to take up the challenge of combining modern military vehicles and efficient weapon systems, built for accuracy, stability, lightness, compacity.

Since 2015, Arquus has been putting together all its on-field expertise and in-house technologies, providing with a complete range of high-performance RCWS: the Hornet family, now offered worldwide by the Hornet Business Unit.

"The Hornet includes a specific cleaning system for the optronics as well as the option to flip down the sensors to protect it from dirt and damage – crucial aspects for an unmanned vehicle operated from a distance. It's also equipped with a protected ammunition feed," explained Jean Boy, Managing Director of Hornet, adding that the Hornet was developed keeping in mind the French Army's high standards for firing accuracy.

THeMIS Combat UGVs provide direct fire support for manoeuvre forces acting as a force multiplier increasing stand-off distance, force protection and situational awareness. The THeMIS is equipped with intelligent functions such as waypoint navigation, follow-me, obstacle detection and avoidance. The intelligent functions are only used for mobility and the weapon system is controlled by a human operator. "Combat robotics is the future of warfare that will significantly increase the capabilities and survivability of units. Milrem Robotics' THeMIS is the preferred UGV for weapon systems integrations. With the future-oriented Hornet that has several innovative features, we have created an unmanned system that allows combat units to encounter today's challenges on the battlefield more effectively," said Captain (res) Jüri Pajuste, Director of Defence Research and Development at Milrem Robotics.

Milrem Robotics is the European leading robotics and autonomous systems developer and systems integrator with offices in Estonia, Sweden, Finland and shortly in the Netherlands.

© DBDC- THeMIS Combat unmanned ground vehicle at DSEI 2021 in London



Interna

## Czech Republic officially orders 52 CAESAR 8x8

On 30 September 2021, Czech Defense Minister Lubomír Metnar signed a contract for the acquisition of 52 CAESAR self-propelled artillery guns in an eight-wheel drive (8x8) version, in the presence of French Minister of the Armed Forces Florence Parly and Nicolas Chamussy, CEO of Nexter Group. With this major order, the Czech Republic becomes the third European customer and the seventh user of the CAESAR in the world. With more than 350 units ordered in France and abroad, the CAESAR is the benchmark in the wheeled artillery systems market.

### A consolidating partnership

After the sale of 19 CAESAR 8x8 to Denmark mounted on Tatra Trucks chassis and the supply of 6x6 TITUS armored vehicles to the Czech Army, produced under license with the Czechoslovak Group (CSG), cooperation between Nexter and the Czech defense industry is developing around a large-scale artillery program.

In addition to Tatra Trucks, who supplies the chassis, the contract provides for the involvement of several CSG Group companies: Excalibur Army is in charge of assembling the CAESARs intended for the Czech Republic, Tatra Defence Vehicles produces the armored cabin locally, and RETIA integrates the communication resources and equipment linked to the artillery fire control system.

The partnership also covers ammunition, mainly with the companies STV and Explosia, to enable local supply of conventional shells and modular charges. Special ammunition such as complex ammunition or ammunition with insensitive explosives will be supplied by Nexter's ammunition unit.

### A modern, proven and robust artillery system

CAESAR is a 155mm (52 caliber) self-propelled gun in service since 2008. This weapon system, designed by Nexter, is the main armament of the French army's artillery regiments as well as many foreign artilleries that have chosen this robust, high-performance gun. Designed for direct support of troops in contact or support in depth, it has proven its worth in numerous external operations. Its high performance makes Nexter an undisputed reference in the field of land artillery.

By selecting the CAESAR eight-wheel drive (8x8) version, the Czech Ministry of Defense has chosen a system that is perfectly suited to high-intensity combat. On the one hand, this version of the CAESAR carries 36 shells, which gives it a high ammunition autonomy. On the other hand, resupply is carried out at a high rate (three minutes compared with ten for its fully automated competitors). Thanks to its low mass, the CAESAR 8x8 has a lower fuel consumption than heavy tracked howitzers, which is a major advantage in high-intensity combat configurations where the fluidity of logistical supplies is threatened by long-range artillery. Lastly, the CAESAR is recognized for its excellent battery in and out of action performance.

Nicolas Chamussy, CEO of Nexter Group, praises the Czech Republic's decision to acquire an "innovative, proven artillery system known for its high reliability. Following the TITUS program launched in 2019, this additional acquisition is a testament to the quality of the partnership between Nexter and the Czech defense industry. Thanks to this new success, Nexter is once again contributing to the consolidation of the European defense industrial base"

© Nexter Group



### Raytheon UK to bring counter-drone high-energy laser technology to UK Ministry of Defence

Raytheon UK has been awarded a demonstrator contract to provide a High-Energy Laser Weapon System, or HELWS, to the UK Ministry of Defence. Raytheon UK will deliver the MOD's high-energy laser demonstrator to show the application of directed energy weapons technology to help protect the UK armed forces from unmanned aerial vehicles (UAVs) in today's battlefield.

High-energy lasers are moving from the laboratory to the field," said Alex Rose-Parfitt, engineering director, Raytheon UK. "We are partnering with the MOD to accelerate this developing technology and make it available to the UK military. This demonstrator programme will show how the use of high-energy laser weapons could help protect soldiers against UAVs."

A high-energy laser demonstrator will be installed by the Raytheon UK team on one of the MOD's Wolfhound land vehicles for a period of comprehensive user experimentation. The experimentation provides an opportunity to see how HELWS could enhance UK capabilities and understanding in high-energy laser weapons, supporting UK's ambitions to remain an as innovative leader science and technology.

HELWS, a modular counter-UAV system, uses an electro-optical/infrared sensor that prosecutes highly maneuverable threats with precision and relative ease. The system can be installed on a variety of platforms and has been fielded in several real-world environments; it can also be integrated with many modern air defence systems, offering a robust layered defence capability as needed.

"We are investing £6.6 billion in research and development across Defence over the next four years, reaffirming our commitment to provide the Armed Forces with truly advanced capabilities," said Minister for Defence Procurement, Jeremy Quin. "Directed Energy Weapons are a key element of our future equipment programmes and we intend to become a world-leader in the research, manufacture and implementation of this next-generation technology." As the programme evolves, Raytheon UK will encourage new capabilities and expertise in the UK supply chain and place the country at the forefront of this emerging technology. The Raytheon UK team is collaborating with other British companies on the demonstrator including Frazer Nash, NP Aerospace, and Lumoptica across the UK, to bring high-energy laser technology to the British Army. The contract is part of a wider framework by the UK Ministry of Defence to sustain strategic advantage through science and technology.



### Subsea Craft begins sea trials of world's most advanced diver delivery unit VICTA

- Subsea has started sea trials of VICTA – the world's most advanced diver delivery unit.
- The trials, undertaken in Portsmouth Harbour, begin an extensive period of testing that will see underwater trials begin in 2022, with tests finishing at the end of Q1, 2022
- VICTA can travel at high speed over a long range on the surface, before transitioning rapidly to sub-surface



© Subsea Craft/ VICTA in the Portsmouth Camber Docks

Subsea Craft, the innovative British company developing advanced maritime technology, has officially begun sea trials on their flagship product VICTA, the world's most advanced diver delivery unit. VICTA is designed to operate at up to 40kts on the surface over a range of up to 250nm, before quickly transitioning to sub-surface operations to enable the discreet delivery and recovery of divers and other technologies. The extensive period of trials began in Portsmouth Harbour yesterday, initially testing the boat's buoyancy and equilibrium. Trials will then move on to testing the vessel's digital capabilities while in the water before more dynamic tests – including sub-surface tests – begin in 2022 and will end by Q1 of that year.

VICTA is at least a generation ahead of any similar product produced by competitors currently, developed with a sharp focus on the user, safety, and operational ergonomics. Its advanced fly-by-wire systems reduces the cognitive workload on the

pilot when manning the vessel, and its command-and-control system allows for a wide variety of data to provide heightened situational awareness while operating VICTA, including advanced navigation abilities both on and below the surface, incorporating navigation RADAR, GPS, inertial navigation systems, and advanced SONAR capabilities. Engineering advancements in the design of the boat also allow for VICTA to be cached on the seabed, to lie dormant while a crew conduct their task, before re-occupying the craft and commencing exfiltration from the target.

**Scott Verney, chief executive of Subsea Craft, said:**

"Today's sea trials are a significant milestone for VICTA and for Subsea on our journey to becoming a globally recognised and respected supplier of maritime technology to the UK and its allies. VICTA offers a several operational advantages over technology in service today, and it is a requirement of interest to many of the UK's allies as they assess new and evolving threats. The trials will provide us with vital information as we continue our development of VICTA and as we progress our discussions with potentially interested parties."

Following the successful beginning of trials, Subsea are continuing to work towards becoming a globally respected supplier of advanced maritime technology to partners throughout the globe, driving UK exports, and supporting the Government's 'Global Britain' campaign. A key element of Subsea's work is to develop long-term partnerships with best-in-class partners across the maritime, technology and defence sectors. These partnerships allow Subsea to be more agile than larger companies while retaining unrivalled understanding of user requirements.

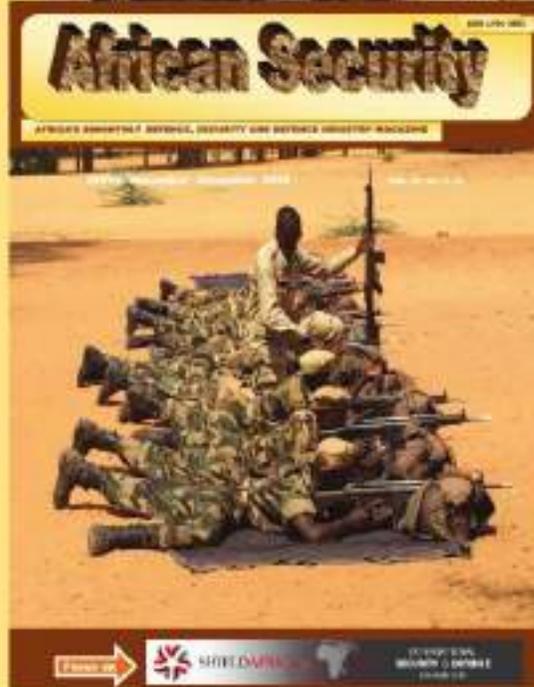
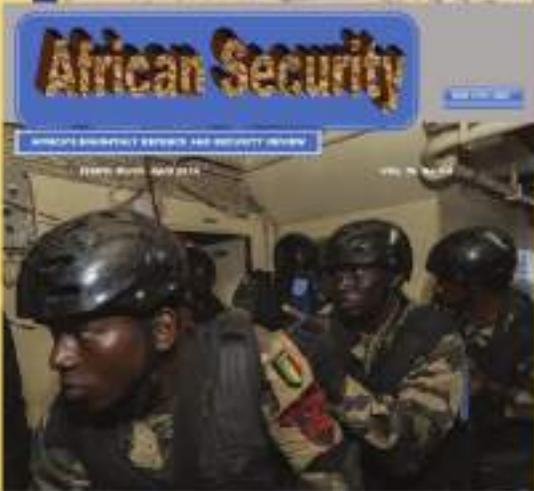
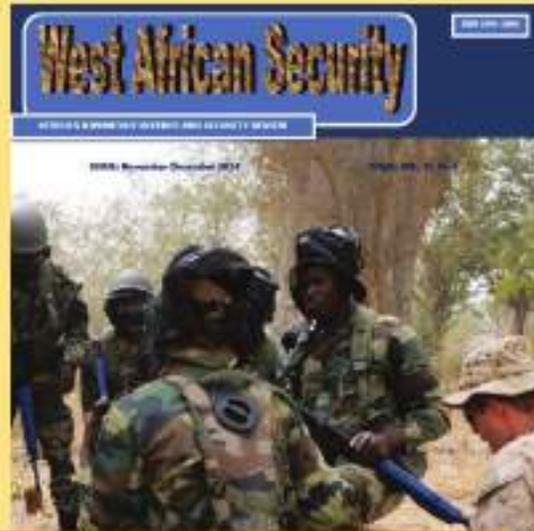
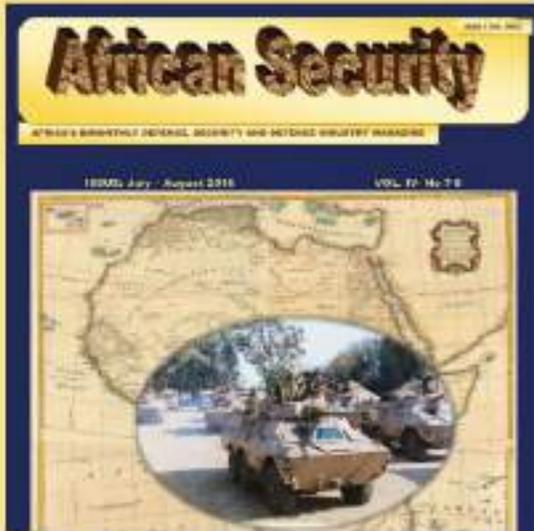


© Subsea Craft The team preparing to put VICTA in the water

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# African Security

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