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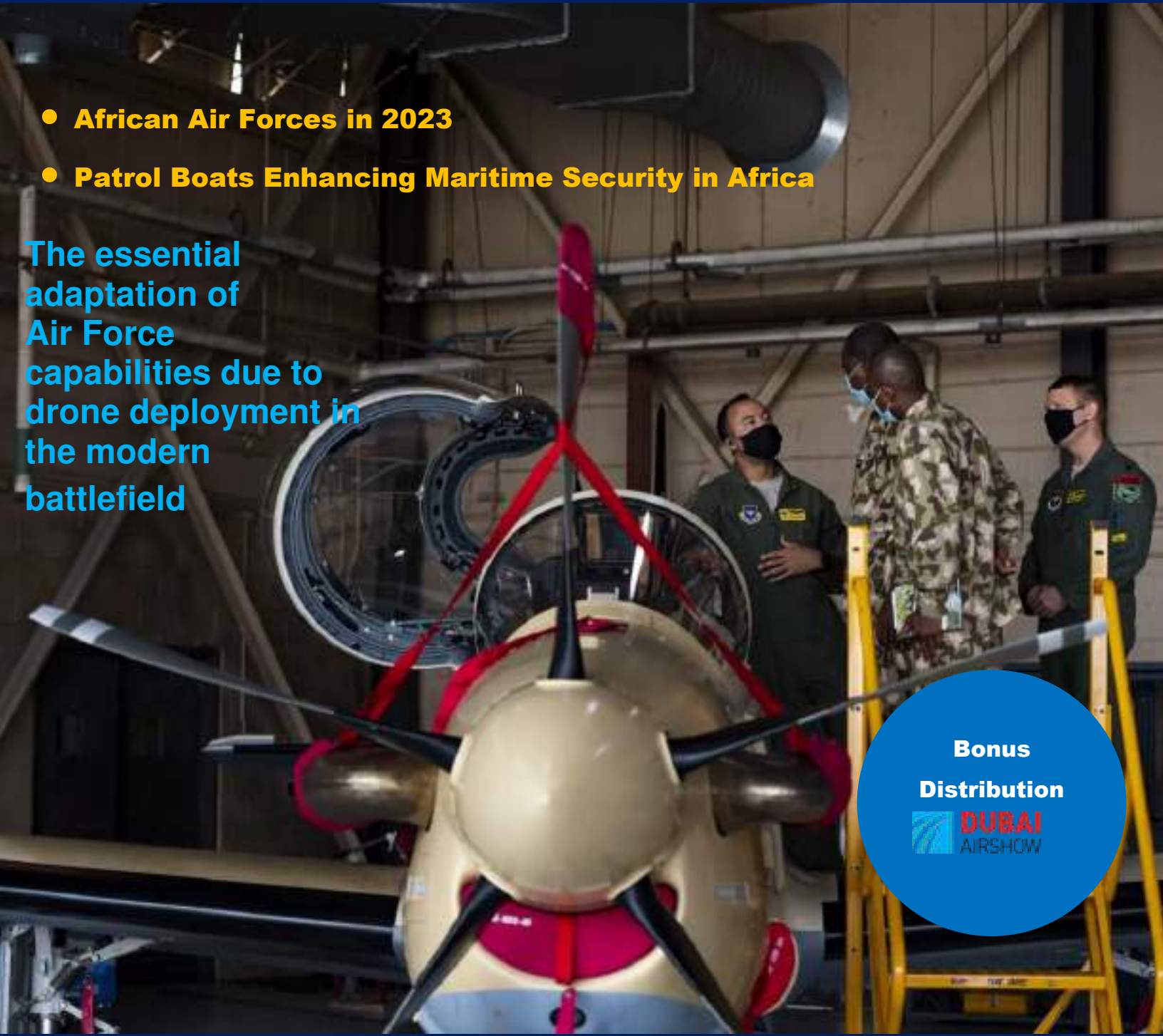
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- **African Air Forces in 2023**
- **Patrol Boats Enhancing Maritime Security in Africa**

The essential adaptation of Air Force capabilities due to drone deployment in the modern battlefield

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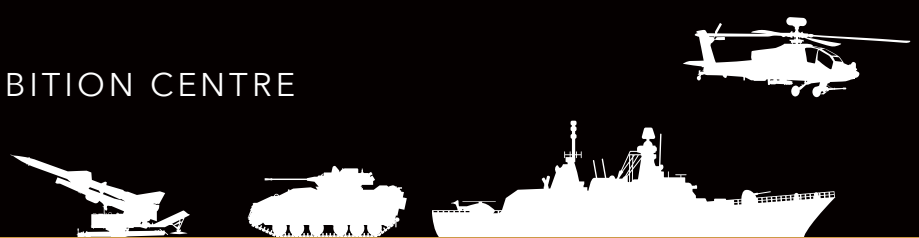


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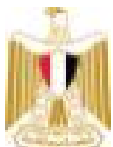
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Cover page photo: /US EMBASSY IN NIGERIA
U.S.-MADE A-29 SUPER TUCANO AIRCRAFT OFFICIALLY INDUCTED
INTO NIGERIAN AIR FORCE

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Patrol Boats Enhancing Maritime Security in Africa

A patrol boat is a relatively small naval vessel generally designed for coastal defence, border protection, immigration law-enforcement, search and rescue duties. There have been many designs for patrol boats. They may be operated by a nation's navy, coast guard, police force or customs. They are commonly found engaged in various border protection roles, including anti-smuggling, anti-piracy, fisheries patrols, and immigration law enforcement. They are also often called upon to participate in rescue operations.

They may be broadly classified as inshore patrol vessels (IPVs) and offshore patrol vessels (OPVs). They are warships typically smaller in size than a corvette and can include fast attack craft, torpedo boats and missile boats, although some are as large as a frigate.

The offshore patrol vessels are usually the smallest ship in a navy's fleet that is large and seaworthy enough to patrol offshore in the open ocean. Smaller inshore patrol vessels also known as coastal patrol craft or coastal patrol boats. Riverine patrol craft are used for patrol river area. In larger militaries, such as in the United States military, offshore patrol vessels usually serve in the coast guard, but many smaller nations' navies operate these types of ships.

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 coastline 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 c. 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.

© NVL- OPV 41





© Israel Shipyards / SHALDAG MK V

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 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.

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, ahouls 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.
- Naval vessels rely on their human crew to deliver the operational capability. For anti-piracy, security and naval vessels Command & Control (C2) is one of the most important functions that needs to be supported and facilitated by the vessels design.

- 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.
- 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 Lürssen) fast patrol boats, quick and versatile, offering top speeds of over 40 knots, these fast patrol boats can respond to challenges quickly. With high performance and excellent seakeeping characteristics, these units are ideally suited to, securing and patrolling coastal waters, deployment in emergency and disaster situations and local naval operations in territorial waters. Suited to your needs, the basic design can be easily adapted to suit your littoral or confined and shallow waters environment and handle specific challenges, such as rapid interception of smugglers, pirates or rogue fishing vessels.

One of the Israel Shipyards Ltd vessels currently in highest demand, the SHALDAG FPC 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.

The Dutch shipbuilding firm The Damen Group, designs and manufactures a wide variety of vessels, including a range of related patrol vessels known

generally as the Damen Stan Patrol Vessels. The Damen Stan patrol vessel designs' names include a four-digit code, where the first two digits are the vessel's length, in metres, and the second two digits are its width. Over a dozen nations have classes of vessels based on the Damen Stan 4207 patrol vessel design.

To ensure coercive intervention the OCEA range of interceptors offers very high-speed capabilities, while keeping full maneuverability, Reduced heeling while fast turning, Optimal response in rough sea, Optimized tactical diameter, Short crash stop distance. The excellent sea keeping performances and high stability of these very fast boats enable the use in maneuver at full speed of gyro-stabilized guns. Moreover, the C-HERON and the C-SWORD are designed to receive surface to air and surface-to-surface fire and forget missiles.

Benefiting from navies' operational feedback and KERSHIP's expertise in shipbuilding and system integration, the CPV 32 is KERSHIP's answer to perform law enforcement operations at sea with high speed, fast intervention capabilities, significant versatility, endurance and sea-keeping behaviour. The CPV 32 is a compact and cost-effective patrol vessel that can be equipped with the necessary communication and armament system. A close attention has been given to high reliability and maintainability due to KERSHIP's extensive experience in Through Life Support.

Swiftships has built around 30 boats for the Egyptian Navy including mine hunters, survey vessels, and both steel and aluminum patrol boats. Swiftships' 28 Meter Patrol Boat is designed for multiple roles, including coastal defense, anti-surface operations, Maritime Security Operations (MSO) and Maritime Interdiction Operations (MIO), surveillance and intelligence gathering, search and rescue, etc. Swiftships BOT (Build, Operate & Transfer) approach secured complete Transferred of Technology (ToT) and Transfer of Production (ToP) to Egypt.

Recent Patrol Boat Deliveries in African Navies

■ Egypt Navy

In early 2021, Egypt took delivery of more Lürssen patrol boats. Lürssen has delivered a second batch of patrol boats to Egypt Navy by the heavy-lift ship Rolldock Sunas, as part of an order for ten vessels, 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. The first batch of four 40 metre hulls (701-704) was transported to Egypt in 2020.

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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.

● Ghana Navy

The Ghana Navy has received four Offshore Security Vessels at the Takoradi Port as part of activities undertaken in line with the tradition of the Ghana Navy prior to the deployment of vessels. Chief of the Naval Staff (CNS), Rear Admiral Issah Adam Yakubu officially received the vessels from the Vice President of Israel Shipyards Mr Oded Breier on Monday 10 January 2022, following their arrival at the Takoradi port on Saturday, 8 January 2022. In his address, the CNS said the acquisition of the vessels was part of Government's decision to discontinue the deployment of Armed Security Guards on civilian vessels to provide the needed security to International Oil Companies operating in the country.

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.

● SA Navy



© Damen

On 25 March 2021, Damen Shipyards Cape Town (DSCT) launched the first of three Multi-Mission Inshore Patrol Vessels (MMIPV) procured by ARMSCOR for the South African Navy (SAN).

The vessels will augment South Africa's maritime security by enhancing the country's capability to respond effectively, rapidly and cost-effectively to threats such as illegal trafficking and fishing. DSCT Project Manager, Ian Stewart said the launch was an important milestone for the shipyard.

● Ivorian Navy

Vice-Admiral N'GUESSAN KOUAME CELESTIN, Chief of Staff of the Ivorian Navy (CEMMAR), unveiled on Friday 22 April 2022, at the Place

d'Armes of the Naval Base, the forthcoming acquisition of a P400 ship, two OPV45s and maritime surveillance drones.



© Marine nationale

The P400 is a class of French Navy patrol boat, built to carry out missions of surveillance and protection of the Exclusive Economic Zone (EEZ), fisheries policing, etc., as part of the State's action at sea.

● Nigerian Navy



© Grup Aresa

In late 2021 Spain's Grup Aresa International have delivered four Aresa 1700 inshore patrol boats to the Nigerian Navy. The Areas 1700 (Fighter II class) is constructed using aluminium and is around 17 metres long. Its overall length is 19.2 metres with a 4-metre beam. Each vessel displaces 7.6 tonnes, powered by two MTU engines each producing 1 250 horsepower and operating a propeller. Maximum speed is much over 40 knots. A RHIB can be also carried onboard and equipped with thermal and night vision cameras.

In December 2019, Rear Admiral Beegroy Ibe-Enwo, head of policy and plans for the the Nigerian Navy, said Negerian Navy it would receive new vessels from France, Malaysia, Vietnam and local manufacturers, adding to the 42 patrol boats and other vessels acquired in 2019.

● Israel Shipyards African Navy

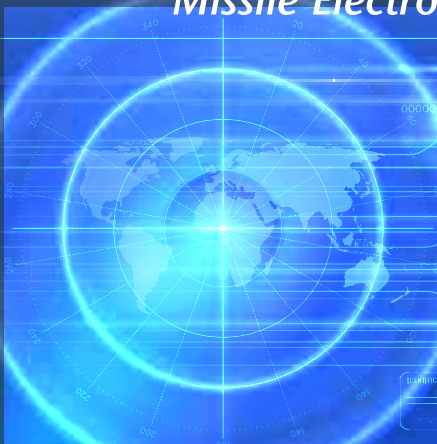
In July 2020, Israel Shipyards announces an agreement with an African navy for the supply of two OPV 45 offshore patrol vessels. The vessels were designed for a wide range of missions, including

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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.

Senegalese Navy

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.

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.

Navy of Djibouti

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.

Nautic Africa supply African Navy

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.

Royal Moroccan Navy

In March 2022, the Royal Moroccan Navy has taken delivery of twelve Metal Shark boats from the United States for special operations, coastal police duties, port entrance monitoring, and coastal interception. The delivery includes two 11-meter boats, valued at

\$970 000, and ten 52 Fearless Super Interceptor boats built by U.S.-based Metal Shark.

Kenyan Navy



© Kenya Shipyards Limited

Kenyan Navy has taken delivery of the patrol boat KNS Shupavu on July 29th, in a ceremony in presence of Kenya's President William Ruto as a result of the African country's investment in a new shipyard. The 60-meter ship received an extensive overhaul at Kenya Shipyards Limited's (KSL) Mombasa Shipyard, which was built at Mtongwe Naval Base with the help of the Dutch shipyard Damen and officially opened in December 2021.

Tanzanian Navy

The United States has donated two patrol boats worth over \$1 million to Tanzania, the latest of several recent donations to African navies. The two boats were handed over to the Tanzanian Navy during a ceremony in Dar es Salaam on 16 December 2022. The US Embassy in Tanzania said the boats, worth \$1.35 million, will strengthen the Navy's ability to interdict illicit activities within the sovereign waters of Tanzania. The donation included repair and maintenance equipment, towing vehicles, and a two-week training course. The boats appear to be manufactured by US company SAFE Boats. One is a 10.5 metre Interceptor model while the other is an 11.5 metre enclosed cabin command boat.

*Dimítrios Angelopoulos M.Sc.
Captain (Rtd)HN*

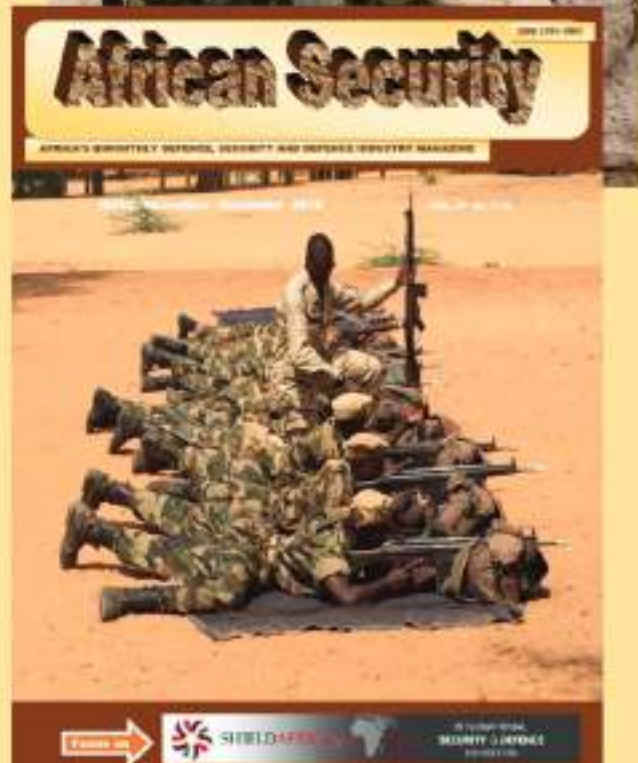
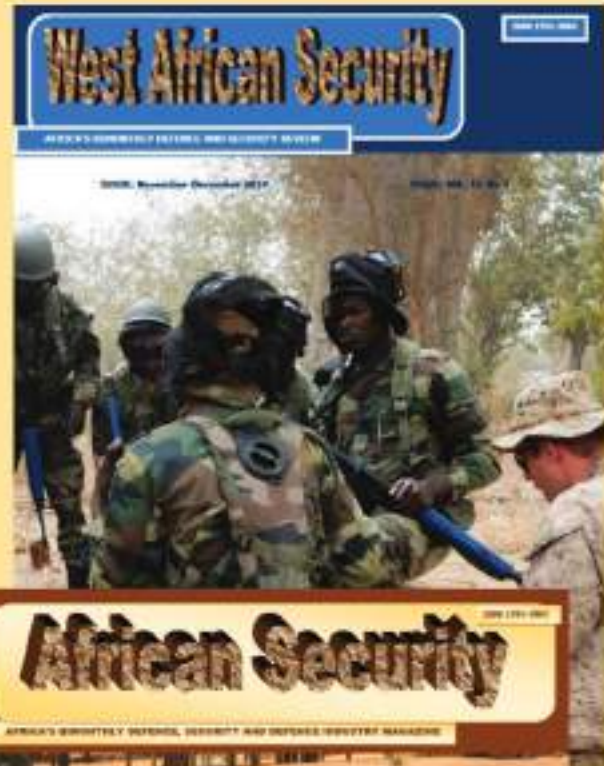
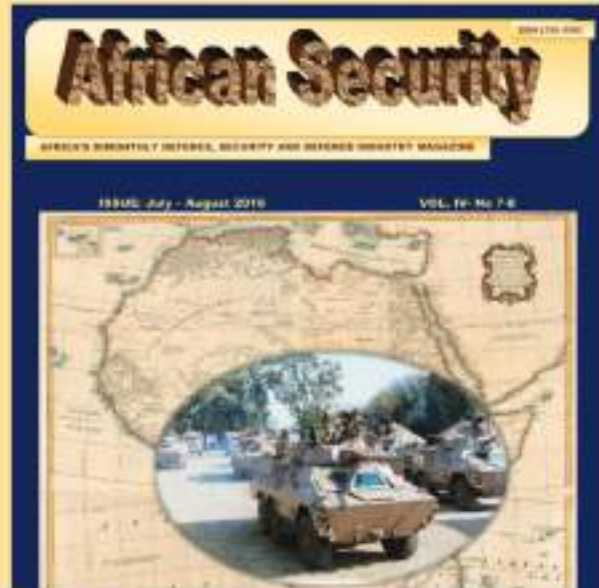
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African Air Forces in 2023

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 helicopters 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 Ghana, 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

The role of the Ghana Air Force (GHF) is to provide air transport and offensive air support to the Armed Forces and protect the territorial air space of Ghana'. Its operational tasks are derived from these roles. As part of GHF's mandate, the nation's developmental goals are paramount to our operational and tactical commitments. Its operational tasks, thus, fall under 2 main areas. These are Defence tasks and Support to civil authority. GHF operates the following platforms: MI 171 SH/ MI 17 V5 and Z9 Helicopters, K-8 fighter as well as Fokker 28, Falcon 900 EX-Easy and Casa C-295M transport aircrafts.

The Air Force, under the command of the Chief of Air Staff (CAS), has witnessed an increase in the tempo of air operations. This was made possible with the overhaul of 2 x Mi-17 V5 helicopters and 2 CASA C295 fixed-wing aircraft.

In January 2022, 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.

In September 2021, of Director of Communications at the Presidency Eugene Arhin, said that Ghana's Government is in the process of acquiring a bigger aircraft for presidential travels.

* Nigeria

Nigeria is expecting to take delivery of 54 new air assets, including attack aircraft and helicopters as well as aerial drones, to boost its capabilities to fight insecurity in the country, according to a public statement of the Chief of Air Staff Marshal Amao.

Amao said President Muhammadu Buhari approved the delivery to the Nigerian Air Force of M-346 attack aircraft, T-129 ATAK helicopters, Agusta 109 Trekker multi-role helicopters as well as Chinese-made Wing Loong II drones, among an assortment of air assets.

Nigeria has also received 12 A-29 Super Tucano planes, four years after the United States agreed to sell the West African country the light attack aircraft to fight insurgents. 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 Salih Magashi and the Nigerian Air Force. A total of 64



© ng.usembassy.gov - A-29 Super Tucano A-29

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 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.

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

Denel Aeronautics and Aselsan signed an agreement to collaborate on the avionics upgrade of the South African Rooibalk attack helicopter. This agreement represents a step forward from the memorandum of understanding (MoU) signed between the South African company and the Turkish company during the Africa Aerospace and Defense (AAD) 2022 exhibition.

Denel and Aselsan signed a Milestone Achieved Certificate on Thursday 27th, which defines the work breakdown relating to the avionics modernization of the Rooibalk modernization program. Denel Aeronautics retains its role as original equipment manufacturer (OEM) and design authority.

As of 2021, Department of Defence officials informed Parliament that a reduced availability of aircraft was negatively affecting hours flown. Helicopter systems were said to have "a critical spares shortage" with similar problems also confronting the transport and combat aircraft and systems. As of late 2021, all the Air Force's Gripen fighter aircraft were grounded. However, in 2022 the Air Force concluded a deal with Saab to return 13 of the aircraft to service over a three-year period.

* Kenya

In March 2021, Kenyan Air Force received three new AW-139 helicopters from Leonardo, in fulfillment of a 2018 order.

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. In February 2020, the U.S. delivered six MD-530F Cayuse Warrior helicopters to the Kenya Army's Joint Helicopter Command at Embakasi Barracks during a handover ceremony. 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.

© NAF

* Senegal

In April 2023, the Senegal's Air Force have taken delivery of second of the two C295 transport aircraft from Airbus, eight months after receiving the first.

In May 2020 Senegal receives first two KT-1 trainers while in April 2018, Senegal became the first buyer of the new-generation Aero Vodochody L-39NG, with an order for four aircrafts.

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

* Ivory Coast

Ivory Coast has taken delivery of a pair of second-hand Mil Mi-8P Hip medium-lift transport helicopters. The aircraft were delivered to the Ivory Coast Air Force in March 2020. The helicopters are operated by the Air Transport and Liaison Group, based at Abidjan-Port Bouët Airport, south of the city of Abidjan in the Ivory Coast.

* Botswana

In August 2021, the Botswana Police Service (BPS) has stepped up its aerial capabilities with the acquisition of three Enstrom 480B light utility US-built helicopters which were ordered in January 2020. The third and final helicopter of the batch was delivered earlier same year. All three are now in service, supplementing an existing fleet that includes Aerospatiale A350 Ecureuils.



* **Zimbabwe**

Zimbabwe's government has taken the delivery of dozens of new aircraft, including a new VIP jet and up to 50 Russian helicopters. Eighteen Ansat helicopters handed over at Robert Gabriel Mugabe International Airport on 18 May 2023 during a ceremony held in presence of Zimbabwe's President Emmerson Mnangagwa, which was also attended by Rostec Director General Sergey Chemezov. Most were in emergency medical services colors, but four were wearing police color schemes. The government said the helicopters would be used as air ambulances, for search and rescue, and air policing. They will also be used for VIP transport and Air Force use. Although the initial batch of helicopters delivered amounts to 18, Zimbabwe will have 32 by the end of the year.

* **Morocco**

In July 2022, Morocco have ordered a fleet of H135s for military primary training missions. The light twin-engine H135, a reference helicopter in the segment, will be used for training pilots to perform a wide array of demanding missions including utility and search and rescue. H135 is a reliable, cost-efficient multirole helicopter that is ideally suited to transitioning to more complex aircraft. The contract also covers an extensive support package including the delivery of Flight Training Devices and the training of instructor pilots and maintenance pilots.

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 June 2020, Morocco signed a contract with Boeing for acquiring 24 AH-64 Apache attack helicopter to replace its current fleet of 22 SA.342K Gazelles. Deliveries of the helicopters to Morocco are scheduled to commence in 2024. The helicopter, which has been designed and equipped with an open systems architecture, comprises the latest communications, navigation, sensor and weapon systems. The configured helicopter has an improved and modernized target acquisition designation system.

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.

* **Togo**

The Togolese Air Force has taken delivery of three Mi-35M combat helicopters and two Mi-17 transport helicopters in November 2022 from Russia as well as well as two modernized SA342L1 Gazelle helicopter were handed over in October 2019 fro the French government.

* **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**

Tunisia's Air Force has taken delivery of the first T-6C Texan II training aircraft as part of an order for eight planes. The U.S. company Textron said all eight planes should be delivered by the end of 2023. 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.

Delivery of 16 Sikorsky UH-60M Blackhawk helicopters was completed in 2019. The UH-60Ms were ordered by Tunisia in 2015. Four of the helicopters were delivered in June 2017, and four more followed in June 2018. The package for Tunisia included training an initial aircrew cadre at Fort Rucker, Alabama, for pilots, instructor pilots and standardization pilots, while helicopter crew chiefs and maintainers underwent training at a number of US Army schools.

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

* **Egypt**

In January 2023, Boeing has been awarded a new contract for the production and delivery of a total of 12 CH-47F Chinook helicopters for the Egyptian Air

Force. The estimated value of the new award is approximately \$426m. The contract has been awarded by the US Army, as part of a foreign military sale (FMS) deal with Egypt to replace its existing fleet of CH-47D helicopters with the latest F-model of Chinook rotorcraft. In June 2022, Lockheed was awarded a contract worth \$22.1 million to procure modernized day sensor assembly kits M-DSA and spares to upgrade the Egyptian AH-64D Apache attack helicopters to the latest AH-64E Guardian configuration.

In May 2021, according to statements issued jointly by the Egyptian and French defense ministries as well as Dassault Aviation, Egypt will acquire 30 additional Rafale aircraft from France. The new acquisition complements the first Egyptian purchase of 24 Rafales six years ago and will up the Rafale fleet in the Egyptian Air Force to 54, making it the second largest Rafale fleet in the world after France. The first aircraft of this new contract will be delivered three years after the contract takes effect.

* **Ethiopia**

Ethiopia has expressed an interest in acquiring 18 helicopters and two C295 transport aircraft from Airbus.

* **Tanzania**

In February 2019, Tanzania takes delivery of four Airbus Helicopters Cougar and Super Cougar transport helicopters.

* **Malawi**

The Malawi Defence Force has taken delivery of two MA600 transport aircraft from the China National Aero-Technology Import and Export Corporation (CATIC).

* **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.

* **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. Over the last decade, Burkina Faso has taken delivery of several small batches of aircraft, including three Super Tucanos from Brazil in 2011, three donated Tetras light aircraft from France in 2012, a single AW139 helicopter from Italy in 2016- and two-armed Mi-171Sh armed helicopters from Russia in 2018.

* **Cameroon**

The Cameroonian Air Force has acquired a single Bell 412EP utility helicopter, increasing its fleet to a total of four. The Bell 412EP utility helicopter with identification TJ-XRA was transferred to Cameroon after being cancelled from the United States register on 20 September 2019. In May 2018, the US government has transferred two American-made Cessna surveillance aircraft to the Cameroon Air Force to fight against Boko Haram and Islamic State in West Africa.

* **Angola**

In April 2022, Angola has ordered three Airbus C295 medium tactical aircraft to perform multirole operations, the press release issued by the aircraft's manufacturer Airbus reported that the two C295s configured as Maritime Surveillance Aircraft (MSA) will play a crucial role in SAR, control of illegal fishing and borders, natural disasters support and intelligence-gathering missions.

In July 2022, the Angola Air Force has taken delivery of additional Ilyushin Il-76s transport aircraft. from ex-Belarusian stocks.





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The essential adaptation of Air Force capabilities due to drone deployment in the modern battlefield

In an era defined by rapidly evolving technology and unconventional warfare, the role of the Air Force in modern conflicts has undergone a significant transformation. Traditional air power, while still vital, now shares the stage with a new player – drones. Adapting to this paradigm shift is crucial for maintaining military effectiveness and achieving success in contemporary battles.

Modern conflicts are no longer limited to conventional warfare on defined battlefields. They often involve asymmetric threats, irregular warfare, and non-state actors with access to advanced technology. As such, the traditional methods of air warfare, which rely on large, manned aircraft, have limitations in effectively countering these challenges.

Unmanned Aerial Vehicles (UAVs), commonly known as drones, have revolutionized military operations. They offer several advantages over traditional aircraft:

Cost-Effectiveness: Drones are typically more cost-effective to produce, operate, and maintain than manned aircraft. This cost efficiency allows for the deployment of a larger fleet and increased operational flexibility.

Stealth and Precision: Drones can operate stealthily and with pinpoint precision, reducing collateral damage and civilian casualties. This attribute is crucial in modern conflicts, where public opinion plays a significant role.

Extended Endurance: Some drones can stay airborne for extended periods, providing persistent surveillance and strike capabilities, a feature critical for intelligence gathering and counterinsurgency operations.

Reduced Risk to Pilots: By eliminating the risk to human pilots, drones can undertake high-risk missions with a reduced fear of casualties, making them ideal for reconnaissance, close air support, and strikes against well-defended targets.

To harness the full potential of drones and effectively combat modern conflicts, the Air Force must undergo a series of adaptations:

Integration: Integrating drones into existing Air Force operations is paramount. This involves developing seamless communication and data-sharing systems between manned and unmanned platforms.

Training: Air Force personnel must receive specialized training in drone operations, 87

© Unmanned airborne system Milkor 380



including piloting, maintenance, and data analysis. This will ensure a skilled workforce capable of maximizing drone capabilities.

Fleet Expansion: Investing in a diverse fleet of drones, including surveillance, reconnaissance, strike, and cargo drones, will provide versatility to respond to various conflict scenarios.

Cybersecurity: As drones rely heavily on technology, robust cybersecurity measures are essential to protect them from hacking and potential misuse by adversaries.

Ethical Considerations: Establish clear ethical guidelines for drone deployment, emphasizing the importance of minimizing civilian casualties and respecting international laws and norms.

Effectively deploying drones in modern conflicts requires strategic planning:

Intelligence Gathering: Drones excel at gathering intelligence. Their deployment for continuous surveillance can provide critical information on enemy movements, reducing the element of surprise.

Strategic Strikes: Drones equipped with precision-guided munitions can carry out surgical strikes against high-value targets, disrupting enemy operations without causing extensive collateral damage.

Counterinsurgency Operations: Drones can be used for tracking insurgent groups and disrupting their activities, making them valuable assets in counterinsurgency campaigns.

Humanitarian Missions: Drones can be repurposed for humanitarian missions, delivering aid to remote or conflict-affected areas, showcasing the softer side of military capabilities.

The integration of drones into the Air Force arsenal enhances operational flexibility, reduces risk to personnel, and improves precision in targeting, all while adhering to ethical principles and international laws. As modern conflicts continue to evolve, the Air Force's ability to adapt and leverage advanced technology like drones will be a defining factor in its success on the battlefield.



*Aristotelis Komianos MSc
Defense & Security Fellow*

© Paramount Group Launches Long Range Swarming UAV System



CAS HEAPS PRAISES ON FG AS NAF TAKES DELIVERY OF 2 ADDITIONAL DIAMOND-62 AIRCRAFT

On 11 October 2023, in its bid to add impetus to ongoing air operations, the Nigerian Air Force (NAF) received 2 additional Diamond-62 (DA-62) aircraft at a brief but colorful ceremony held in Ilorin, Kwara State. In his remarks during the ceremony, the Chief of the Air Staff (CAS) Air Marshal Hasan Abubakar, noted that the process that culminated into the reception of the 2 additional aircraft began about 2 years ago when the Federal Government (FG) appropriated funds for the acquisition of 4 Diamond-62 aircraft for the NAF. According to him, out of the 4 aircraft, the first 2 aircraft were delivered between February and July 2023, while the remaining 2 were being received today. Speaking further, Air Marshal Abubakar noted that the 2 DA-62 aircraft received earlier in the year have since been deployed to the operating theatres in support of the ongoing efforts to restore peace and stability in troubled areas within the country. While urging the air and ground crew that would handle the aircraft to eschew discipline and professionalism, Air Marshal Abubakar admonished them to also ensure the proper maintenance and operation of the aircraft in line with recommended best practices by the Original Equipment Manufacturer. He also implored them to leverage the capabilities available on the aircraft to enhance NAF's operational efficiency.

In paying glowing tribute to the FG for its commitment to revamping the fortunes of the NAF and other Services, Air Marshal Abubakar also noted that the receipt of the 2 additional DA-62 aircraft confirms the sincerity and commitment of the Government towards ensuring peace returns to hitherto troubled spots. He went on to add that the NAF will in no distant time take delivery of additional platforms that include the M346FA aircraft, AW109 Trekker light attack helicopter, AH-1Z Super Cobra, T-129 ATAK helicopters and the King Air 360i Beechcraft aircraft.



In his remarks at the occasion, the Executive Governor of Kwara State, Abdulrazak Abdulrahman, commended the NAF for its efforts, alongside other security agencies towards ridding the nation of its numerous security challenges. He also expressed his appreciation for the CAS for making Ilorin the homebase of the DA-62, which is indicative of the peaceful and conducive nature of the State. He then assured the CAS of his administration's unwavering support to the NAF and other security agencies in their onerous tasks of safeguarding lives and properties.

Earlier in his welcome address, the Air Officer Commanding Mobility Command, Air Vice Marshal Tajudeen Yusuf, noted that the acquisition of the DA-62 aircraft stems from its ability to carry out robust missions in furtherance of combat operations. He then added that domiciling the DA-62 under 303 Medium Airlift Group in Ilorin will no doubt go a long way in breathing life into the unit while enhancing its operational activities.

© NAF



GAF EXHIBITS OPERATIONAL READINESS AND INTEROPERABILITY

The Ghana Armed Forces (GAF) on Friday 27 October 2023 displayed the operational readiness and interoperability prowess that exists between the Army, Navy and Air Force during the Land Combat Fire Power Demonstration at the Battle Training Camp, Bundase.

The annual event forms part of the training curriculum of the Ghana Armed Forces Command and Staff College (GAFCS). This year's exercise featured students of the GAFCS Senior Division Course 45 and was aimed at providing the students with information on the fire assets available to a given battle group and how it is employed on the field of battle.

As part of the demonstration, the students and dignitaries present were given a clear depiction of the various components of an Infantry Battalion, nature of Land Combat Environment, Fire Support Coordination and Combat Supporting Elements.

In line with the scenario, the Ghana Air Force provided air assets for fast roping insertion behind enemy lines and aerial bombardment which aided in

the successful execution of the battle plan to eradicate the insurgents.

The Deputy Defence Minister, Honourable Kofi Amankwa-Manu in his speech commended personnel of GAF for their selfless service and dedication in safeguarding the peace and security of the country. He mentioned that, with the prevailing security situation within the West African environment, it is imperative that the Armed Forces tests their resolve to stand in readiness and guarantee the security of the country to drive nation building and economic growth.

Honourable Kofi Amankwa-Manu used the opportunity to praise the Armed Forces for their participation in internal security operations such as; Calm Life, Halt, Ahodwo and recently the rescue operations offered to victims of the Akosombo Dam spillage.

Some dignitaries present at the event were, the Ranking Member of the Parliamentary Select Committee on Defence and Interior, Honourable James Agalga, Member of the Defence and Interior Committee, Honourable Kofi Adams, Chief of the Defence Staff, Vice Admiral Seth Amoama, Service Chiefs, Formation Commanders, Representatives from the US Embassy and Directors General from the General Headquarters.

© GAF



BAHA SPREADS ITS WINGS TO AFRICA!

Following the unmanned ground vehicle BARKAN's entrance into the inventory of Turkish Armed Forces as the first member of HAVELSAN's Digital Troops technology, second member of the family the sub-cloud Unmanned Aerial Vehicle BAHA was exported to Africa for the first time.

HAVELSAN has been attending at the significant defense exhibitions organised abroad to introduce its brand new high-tech products to international audience. Mostly at these fairs, HAVELSAN had serious talks with the authorities of potential countries including especially the ones in the Africa region. Backed by this strong cooperation intention, those countries were invited to Türkiye on purpose just before IDEF'23, to carry out certain test activities upon their preferences. In this context, the export agreement followed those interactions and the vehicles are planned to be sent to the export destinations very soon.

For one year, tests and development activities regarding the first version of BAHA have been carried out in line with the necessities and requirements of the field and the customers, respectively. Accordingly, with respect to the evolving expectations of the end users together with our business ecosystem, HAVELSAN has upgraded some specifications of the platform such as volume and weight like issues on one hand, and concentrated further on its core mission as making those platforms smarter, on the other. In short, issues that came along with the needs of the customers were solved in accordance, while providing extraordinary service in the field.

BAHA has taken its final form as of today and has reached the level of a smart product. With the latest version of BAHA, HAVELSAN is practicing flight-testing activities in various regions of Türkiye in order to prove its durability in different climates and conditions. HAVELSAN is collecting data especially in the electronic warfare environment, and reflecting them all into its software development activities. Features such as GPS independent movement and capability to return to home base and complete the required mission even when communication is completely lost, have already been acquired by the platform, tested in the field at various regions and reached the point to be verified with the end user at certain regions.

Successful field practices regarding the joint operations of BAHA and BARKAN (HAVELSAN's Autonomous Unmanned Ground Vehicle) within the scope of "Digital Troops" has revealed the company's short term plans in this technology more. As a critical step in this manner, the company is about to accomplish its target about strengthening the joint operational capabilities of its Digital Troops through the advent of Autonomous Heavy Class UGV -KAPGAN and POYRAZ Drone as the new members recently added to this family. Moreover, the company is dedicated to integrate the unmanned products of other companies into its Digital troops system in order to offer a wide portfolio of products that can meet the demands of the Forces and fulfil the mission concepts in the field. In this endeavour, HAVELSAN has already received such positive feedbacks from its business partners and potential/current customers that the products of other companies will also be tested by HAVELSAN in the field in the near future. The first concrete example of this approach is the case of Asisguard's SONGAR which is examined for the communication between its own products to undertake joint operations and compose mission concept.

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MD HELICOPTERS CLOSES CONTRACT WITH NIGERIAN FEDERAL GOVERNMENT FOR 12 MD 530F CAYUSE WARRIOR PLUS HELICOPTERS

On 28 September 2023, MD Helicopters (MDH) closed a contract with the Nigerian federal government for 12 MD 530F Cayuse Warrior Plus Scout/Attack helicopters during a signing ceremony in Nigeria. The aircraft will be operated by the Nigerian Army Aviation to effectively tackle the security challenges in the country. The acquisition of the new attack helicopters is part of ongoing efforts by the Federal Government of Nigeria to enhance the capacity of the Nigerian Army Aviation towards achieving constitutional responsibilities in a joint environment.

The Chief of Army Staff (COAS), Lieutenant General Taoreed Lagbaja commented at the opening ceremony of the maiden Nigerian Army Aviation Seminar in Abuja, that the MD 530F Cayuse Warrior Plus attack helicopters would operationalize the Nigerian army aviation unit, which was set up to improve ground troops' agility, responsiveness, and efficacy during operations. The COAS added that it would also contribute to the overall operational success of joint and coalition troops.

© MD Helicopters

"MD Helicopters is grateful for the trust of the Nigerian government, and we're excited to showcase this purpose built, best value solution to Nigeria and the world," says MD Helicopters President and CEO Brad Pedersen, who attended the ceremony alongside Nigerian military leadership.

MD Helicopters will begin delivering the aircraft to Nigeria in the fourth quarter of 2023.

The Cayuse Warrior is a proven tactical scout and light attack aircraft built from the MD 530F design and valued for its unmatched power, safety, speed, agility, and unparalleled confined area capabilities. The 'Plus' version features mission enhancements that include the weapons system, avionics improvements, armor, and increased power performance. The Nigerian selection includes a complete ILS package, spares, pilot and maintainer training, and a simulator.

MD Helicopters, LLC (MDH) manufactures high-performance rotorcraft solutions that support operators flying military, commercial, law enforcement, utility, and VIP mission profiles. With thousands of aircraft in service worldwide, MDH has been designing and building aircraft known for their safety, versatility, responsiveness, speed, and reliability since 1947. Our commitment to product sustainment and customer success allows MDH to deliver aircraft unmatched in their performance and reliability. MD Helicopters, LLC is owned by an investment consortium comprised of MBIA Insurance, Bardin Hill Investment Partners LP, and MB Global Partners.



BIRD Aerosystems completes a successful demonstration of its ASIO Maritime Patrol aircraft as part of Nigeria's NIMASA Deep Blue project

- **The NIMASA Deep Blue project has proved its efficiency as the International Bargaining Forum (IBF) has recently removed Nigeria from the list of countries designated as risk maritime nations**

Following the delivery of its ASIO Maritime Task Force Solution to Nigeria, as part of the NIMASA Deep Blue Project, BIRD Aerosystems has completed a successful live demonstration of the ASIO aircraft capabilities, including real-time interception of vessels performing illegal activities at sea.

BIRD's ASIO task Force has been successfully operating in Nigeria for over two years, proving its effectiveness and unprecedented achievements in tackling piracy in the Nigerian EEZ and the entire maritime environment, allowing Nigeria to conclude 2022 with zero piracy events in its maritime territory. Recently, the International Bargaining Forum (IBF) has removed Nigeria from the list of countries

designated as risk maritime nations. This is a confirmation of the improved global ratings of Security in the Nigerian maritime domain.

BIRD Aerosystems ASIO Task force solution provided to Nigeria includes multiple Cessna Citation CJ3 Maritime Patrol Aircraft installed with BIRD's advanced MSIS mission management system. The integrated Aerial-Naval-Land solution facilitates maritime and coastal surveillance, patrol and survey of borders and strategic assets, and Exclusive Economic Zone (EEZ) monitoring capabilities over large ranges, enabling efficient detection, tracking, and interception of any suspicious activity at sea.

During the demonstration, which was conducted in the presence of the Nigeria Hon. Minister of Transportation, Mr. Muazu Jaji Sambo, DG Nimasa, DR. Bashir Jamoh, and Secretary General International Maritime Organization (IMO), Mr. Kitack Lim, the ASIO Aircraft identified a suspicious vessel performing an illegal activity and polluting the sea. The Aircraft quickly identified and performed a discrimination process that enabled the Maritime Security Unit to catch this vessel, stop the pollution, and fine them.

Ronen Factor, Co-CEO and Founder at BIRD Aerosystems: "We are honored to have an essential part of the NIMASA Deep Blue Project, with BIRD's ASIO maritime patrol aircraft and the MSIS mission management system. Bringing piracy events in the Gulf of Guinea to practically zero, BIRD's ASIO Task Force delivers an extremely powerful, comprehensive, and flexible maritime patrol solution, ensuring a high level of security."

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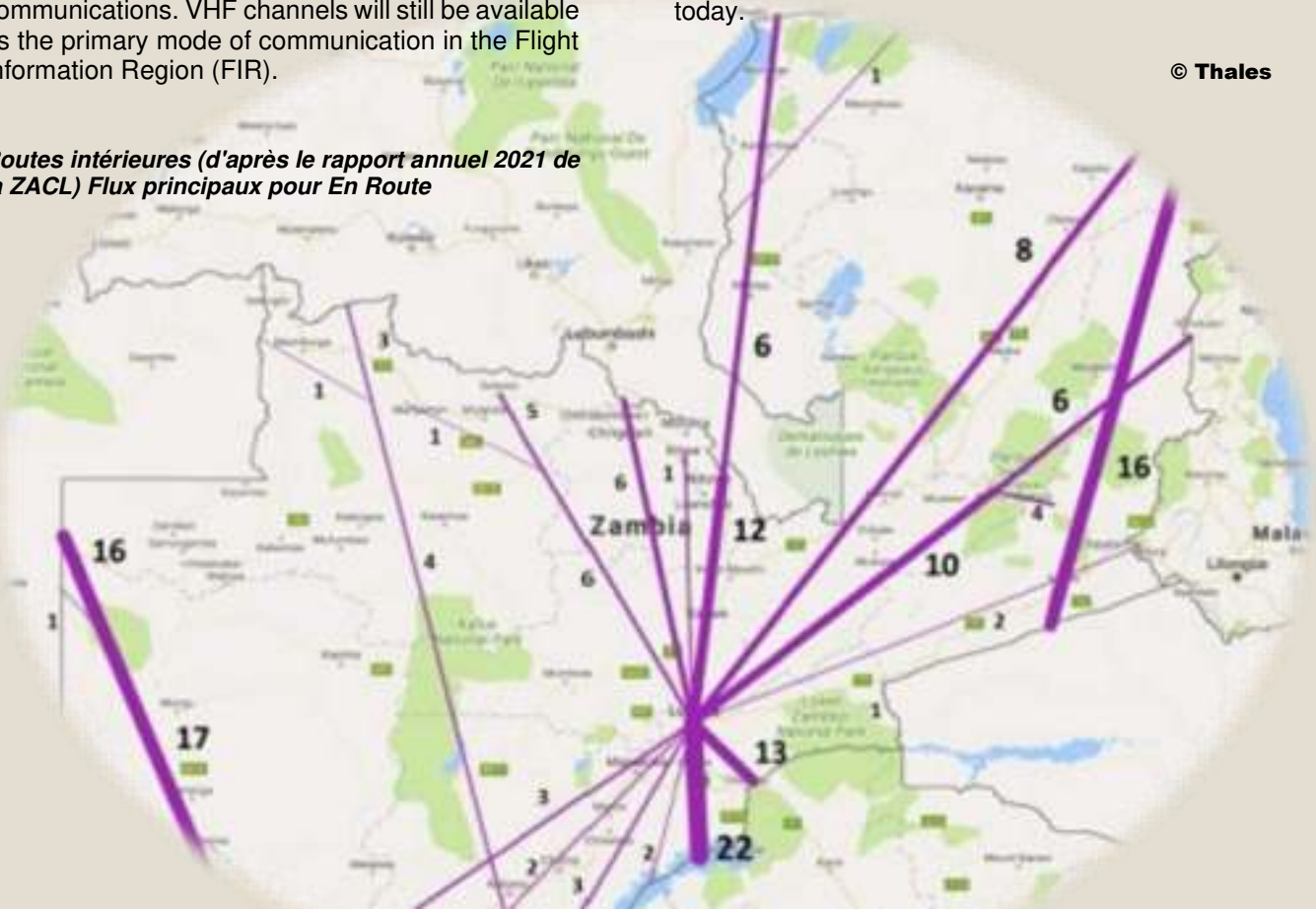
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Thales to modernise Zambia's air traffic control with latest TopSky ATC solution

- Following the contract signed in 2014 with Zambia Airports Corporation Limited(ZACL), Thales is modernising the ATC (air traffic control) centres at Lusaka and Livingstone international airports in Zambia.
- Thales is expanding its TopSky – ATC air traffic control automation solution with two new applications. The first is Controller Pilot Data Link Communications (CPDLC), which allows clear and secure dialogue between pilots and controllers. The second is Automatic Dependent Surveillance – Contract (ADS-C), which automatically transmits aircraft flight status reports to ATM systems on the ground.

Thales is working with Zambia Airports Corporation Limited to modernise the TopSky – ATC systems at the ATC centres at Kenneth Kaunda International Airport, Lusaka and Harry Mwanga Nkumbula International Airport, Livingstone. Thanks to the Datalink CPDLC and ADS-C solutions, Zambia's ATC centres and pilots will be able to communicate via data messages instead of conventional voice radio. This upgrade will enhance flight safety by mitigating the risk of degraded radio communications. VHF channels will still be available as the primary mode of communication in the Flight Information Region (FIR).

Routes intérieures (d'après le rapport annuel 2021 de la ZACL) Flux principaux pour En Route



© Thales

To ensure safe navigation in their airspace, air traffic control officers (ATCOs) need to know the exact position of an aircraft before and during flight. Flight plans provide an initial overview of the pilot's intentions, but complete situational awareness is only possible thanks to a network of connected sensors that provide ATCOs with real-time knowledge. All this data enables flights to be "deconflicted", thereby increasing air safety.

Thales TopSky – ATC is an air traffic control automation solution designed to control en route, approach and oceanic traffic, both in civil and

military environments. TopSky – ATC provides air traffic controllers and technicians with innovative and intuitive access to flight information, accurate real-time tracking for faster and better decisions, efficient tools for enhanced detection and resolution of conflicts, integrated sequencing and optimisation capabilities and a robust, reliable, easy-to-maintain system.

"We would like to thank ZACL for their continued trust and are proud to be able to support them once again in improving air navigation safety by integrating two state-of-the-art functions into our TopSky – ATC system, which are perfectly suited to today's needs. Together, Thales and ZACL are delivering the safer air travel of tomorrow, "Cyril Einaudi, Vice President Global Turnkey segment, Thales.

Over the years, Thales has become a major player in ATM in Africa, with 80% of the continent's control centres equipped with TopSky – ATC. This solution is used by over 16,000 controllers worldwide. More than 80 Thales ATC radars are in service in Africa today.

South African Navy Naming Ceremony of 2nd Multi Mission Inshore Patrol Vessel

The South African Navy proudly named the second (2nd) of three Multi Mission Inshore Patrol Vessels (MMIPVs) in Durban harbour on Friday.

During the ceremony, the vessel was officially named *SAS King Shaka Zulu*. Named for the great Zulu King the vessel was built entirely in South Africa at Damen Shipyards Cape Town and it was designed to deliver rapid response capabilities along South Africa's extensive 2,798-kilometre coastline and it is poised to play a pivotal role in safeguarding national waters.

The use of King Shaka's name is significant as it stands as a symbol of strength, which will now live forever at sea, paying tribute to Zulu nation's significant role in South Africa's rich history.

The vessel's Sea Axe hull design, patented by Damen, ensures exceptional seakeeping behaviour, reduced fuel consumption, and enhanced safety and comfort onboard. These vessels, equipped with advanced military equipment bolster the navy's ability to respond effectively and swiftly to threats such as piracy, illegal fishing, and smuggling operations.

The MMIPV project has not only fortified South Africa's maritime security but also contributed significantly to job creation and the development of small and medium-sized enterprises (SMEs). A total of 848 local vendors have actively participated in the construction of the MMIPVs, highlighting the effectiveness of South Africa's industrial participation policy.

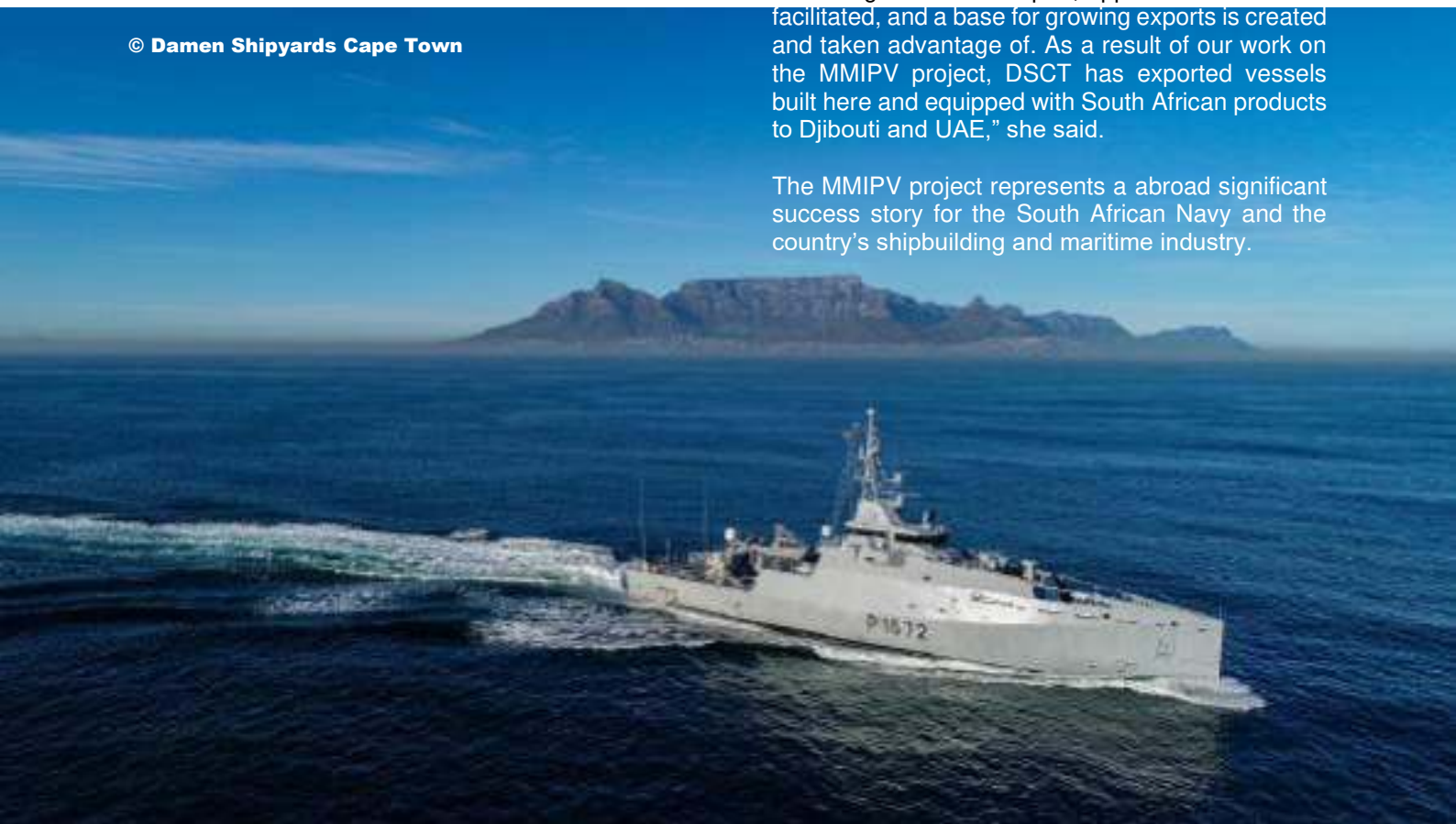
Throughout the project's duration, it is estimated to have generated more than one million man-hours of work, supported over 1,000 direct jobs at Damen Shipyards Cape Town, and engaged nearly 4,000 individuals indirectly. The project has also fortified regional supply chains and created opportunities for skilled job seekers, promoting economic prosperity in South Africa's Ocean Economy.

"I must congratulate Damen Shipyards Cape Town, Armscor, the Defence Materiel Division and the SA Navy who all formed part of the Integrated Project Team for their absolutely sterling work of building these ships on time, in budget and to specification. This was indeed a monumental task and serves as a testament to the willingness of various companies and organisations to come together to produce something that will benefit the people of South African for many years," Vice Admiral Lobese said.

Sefale Montsi, Director of Damen Shipyards Cape Town, emphasised the broader impact of this project on the nation's industrialisation journey. "South Africa must continue to prioritise supporting local vessel suppliers because this creates jobs and develops transferrable skills which are in demand and can be used in other industries. New technologies are developed, opportunities from are facilitated, and a base for growing exports is created and taken advantage of. As a result of our work on the MMIPV project, DSCT has exported vessels built here and equipped with South African products to Djibouti and UAE," she said.

The MMIPV project represents a abroad significant success story for the South African Navy and the country's shipbuilding and maritime industry.

© Damen Shipyards Cape Town



HMOD, CAS IN TURKIYE TO FACILITATE SPEEDY DELIVERY OF ATTACK HELICOPTERS TO NAF



The Honourable Minister of Defence (HMOD), Mohammed Badaru Abubakar and the Chief of the Air Staff (CAS), Air Marshal Hasan Abubakar are currently in Turkiye to facilitate the speedy delivery of the T-129 ATAK helicopters acquired for the Nigerian Air Force (NAF) by the Federal Government. As part of programs lined up for the visit, the HMOD held talks with his Turkish counterpart, Lieutenant General Yasar Guler (Rtd), on critical bilateral and defence cooperation issues. General Guler promised the HMOD of every support required from the Turkish military and defence companies to further strengthen and accelerate the defeat of terrorism and other criminal challenges facing Nigeria.

The Minister and the CAS also visited some selected Turkish companies, including Turkish Aerospace Industries, MKE, Aselsan and Roketsan. These companies are among highly rated global defence companies renowned for the production of quality defence and military equipment. While at

these companies, the HMOD called for improved synergy between the companies and Nigeria through the transfer of defence technology to Nigeria. Recall that the Federal Government procured 6 T-129 ATAK helicopters from Turkish Aerospace Industry, out of which 2 are to be delivered to the NAF in the coming weeks. The remaining helicopters are expected before the end of Second Quarter of 2024.

The T129 multirole attack helicopter is being developed jointly by AgustaWestland and Turkish Aerospace Industries (TAI) for the Turkish Land Forces Command (TLF). The T129 ATAK is a twin-engine, tandem seat, multi-role, all-weather attack helicopter based on the Agusta A129 Mangusta platform. It was developed by Turkish Aerospace Industries (TAI) in partnership with Leonardo S.p.A. The helicopter is designed for armed reconnaissance and attack missions in hot and high environments and rough geography in both day and night conditions.

The ATAK programme was begun to meet the requirements of Turkish Armed Forces for an armed tactical reconnaissance and an attack helicopter. The T129 is the result of the integration of Turkish-developed avionics, airframe modifications, and weapon systems onto the AgustaWestland A129 airframe, with upgraded engines, transmission and rotor blades. It is in use by the Turkish Army and other services including the Turkish Gendarmerie. The helicopter has a unit cost of roughly US\$50 million.

© NAF



Arrow 3 Interceptor

The Arrow 3 interceptor is part of the Arrow Weapon System (AWS) which is the world's first operational, national, stand-alone ATBM (Anti Tactical Ballistic Missiles) defense system. Based on the uniquely effective Arrow 2 and Arrow 3 interceptors, the Arrow modular air defense systems detect, tracks, intercepts and destroys incoming TBMs carrying a range of warheads and over a large footprint, thereby protecting strategic assets and population centers.

The innovative Arrow 3 interceptor is designed to intercept and destroy the newest, longer-range threats, especially those carrying weapons of mass destruction.

Arrow 3 integrates seamlessly into the Arrow Weapon System (AWS) complementing the current and future blocks of the Arrow 2 interceptor, thus enabling upper-tier multiple engagement opportunities.

Performance

- An exo-atmospheric interceptor for long-range threat engagement
- Upper-tier defense system
- Large kinematic envelope short time-of-flight enable a large number of interception opportunities
- Multi-tier defense achieved tighter with current Arrow Weapon System (AWS) reaches near zero-leakage-rate
- Low LCC

The Israeli Air Force (IAF) has intercepted a long-range missile launched from Yemen by the Houthi rebels, one of Iran's proxies. It was the first use of the Arrow 3 against a long-range ballistic missile. On October 31, Israeli sensors detected the missile over the Red Sea, and an Arrow interceptor was launched and intercepted the missile.

It was the first time the Arrow system was used since the beginning of the war with Hamas in Gaza, another Iranian proxy. The Houthi rebels have been using Iranian-made armed drones and cruise missiles mainly against Saudi Arabia.

Israeli defence sources said that the Iranian space program is directly connected to its long-range ballistic missile program and should be an issue of great concern, similar to the country's nuclear program. Israel has recognized the ballistic missile threat and has developed the Arrow interceptors. While the Arrow 2 and 3 are operational, the newly developed Iranian ballistic missiles call for



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improved versions. Israel Aerospace Industries (IAI) is now developing the Arrow 4. The Arrow-4 will have winglets because it is designed to intercept inside the atmosphere. There was no official explanation of that capability.

The Arrow is part of Israel's multi-tiered air defence system, which includes the Iron Dome and David's Sling made by Rafael and the Arrow made by Israel Aerospace Industries (IAI). Germany has recently signed a contract to purchase the Arrow 3 systems from Israel. (By Arie Egozi)



IMDEC 2023 EVENT OVERVIEW



**Rear Admiral Issah Adam Yakubu,
Chief of Naval Staff**

More than 800 international and regional maritime leaders, government officials, industry experts and delegates participated in the 3rd International Maritime Defence Exhibition & Conference (IMDEC 2023), which took place from 29-30 August 2023 at the Ghana Armed Forces Headquarters in Accra, Ghana. Hosted by the Ghana Navy, IMDEC has been playing a critical role in augmenting the maritime defence initiatives for the Gulf of Guinea and play a vital role in fostering maritime security for Africa.

By bringing together African and international navies and key stakeholders, IMDEC has been serving as a platform for fostering cooperation and sharing best practices.

Rear Admiral Issah Adam Yakubu, Chief of Naval Staff opened IMDEC 2023 and welcomed the regional and international gathering from 28 countries to Ghana. H.E. Nana Addo Dankwa Akufo-Addo, President of the Republic and Commander-in-Chief of Ghana Armed Forces launched Ghana's National Integrated Maritime Strategy (NIMS). Hon. Kwaku Ofori Asiamah, Minister of Transport and Hon. Albert Kan Dapaah, Minister of National Security for the Republic of Ghana delivered key presentations as part of NIMS launch. H.E. President of the Republic also inaugurated IMDEC Expo, which showcased cutting-edge and latest innovations in maritime security solutions from leading defence technology providers globally.

The conference delved into the progress made by the Yaounde architecture as it marked a decade. The critical issues and maritime defence strategies were also addressed by Chiefs of Navies and Commanders from African and International Navies and Coast Guards, as well as by the various stakeholders and leading international defence technology providers.

Making his opening address, Rear Admiral Issah Adam Yakubu, Chief of Naval Staff, Ghana Navy among other said: "Our maritime commons, the Gulf of Guinea, has been touted as the most dangerous waters in the whole world. The situation improved significantly with no major attacks in 2021 and 2022. However, we have seen a resurgence of piracy attacks this year most of which occur far offshore over 100 nautical miles and shifting further East and West from the geographical Gulf of





Guinea, which had hitherto, been the hotspot of these attacks. Ghana has not recorded any significant attack or kidnapping in the last 2 years but continue to experience petty thefts on ships at anchorages, particularly the Takoradi Anchorage. We are strategizing to deal with this menace. That is why we deemed it necessary to host this all-important Conference. It is our hope that with the collection of senior maritime operators, experts and industry players, we can put our heads together to determine the best way forward. The Ghana Navy has been hosting international maritime conferences and exhibitions for many years; however, the conferences have become prominent on the global defence events calendar since we started collaborating with our new partners, the Great Minds Event Management LLC in 2019. This year's Conference has more than 300 participants from 22 countries including 10 Chiefs of Navies and Heads of Coast Guards, a number of international and local exhibitors and sponsors as well as over 30 speakers. Arguably, this Conference has become the largest gathering of Africa's maritime industry. Our maritime commons, the Gulf of Guinea, has been touted as the most dangerous waters in the whole world. The situation improved significantly with no major attacks in 2021 and 2022. However, we have seen a resurgence of piracy attacks this year most of which occur far offshore over 100 nautical miles and shifting further East and West from the geographical Gulf of Guinea, which had hitherto, been the hotspot of these attacks.

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Arguably, this Conference has become the largest gathering of Africa's maritime industry. As I mentioned earlier, the President of the Republic and Commander-in-Chief of the Ghana Armed Forces, His Excellency Nana Addo-Dankwa Akuffo-Addo would be launching the National Integrated Maritime Strategy of Ghana immediately after the opening ceremony.

In 2018, a team comprising the National Maritime Technical Working Group as well as local and international consultants were put together to draft an Integrated Maritime Strategy for Ghana. This was done with the support of the US Government through the Security Governance Initiative under the auspices of the Ministry of National Security and the Ghana Maritime Authority.



Senegal launches Africa Air Force Forum



More than 385 international and regional air force leaders, brings over 40 Africa nations, government officials, industry experts and delegates participated in the maiden Africa Air Force Forum in Dakar - Senegal. Hosted by the Senegal Air Force, the two-day international conference and exhibition took place on 26 - 27 October 2022 at the King Fahd Palace Hotel Dakar, with the aim of strengthening regional cooperation to enhance air operations to counter asymmetrical threats. Brigadier General Papa Souleymane Sarr, the Chief of Air Force Staff of the Senegal Air Force opened the event with his welcome remarks. Senegal's Minister of Defence, Sidiki Kaba addressed the participating delegation as the Guest of Honor for the forum.

The two days of the event assembled leading Air Force Chiefs from across Africa, senior dignitaries from international Air Forces, executives from security agencies along with global partners and advanced solution providers to improve and enhance collaborative approaches to combat regional security challenges.

“This forum was very important as it has created a platform for air force chiefs from across Africa to deliberate on the importance of air force in low intensity conflicts. Across the world we have seen what asymmetric warfare is doing and how the use of air power could be an opportunity to solve the region's problem in such kind of conflicts.” Brigadier General Papa Souleymane Sarr Chief of Air Force Staff – Senegal said.

The conference marks U.S. Air Force Gen. James Hecker's first visit to the African continent as the



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USAFE-AFAFRICA commander. During the conference, Hecker presented on the growing presence of international air forces in Africa and their ability to support partners beyond counterterrorism and counterinsurgency efforts.

“The most important thing we can do to guarantee future success is to stand shoulder-to-shoulder, build trust in one another, and face these challenges together,” Hecker said. “We continue to lean into forums like this and others such as the African Partner Flights and Association of African Air Forces events. Each occasion should remind us that we are in this fight together.”

The Armed Forces of Senegal

The Armed Forces of Senegal consists of about 17,000 personnel in the army, air force, navy, and gendarmerie. The Senegal military force receives most of its training, equipment, and support from France and the United States. Germany also provides support but on a smaller scale.

Military noninterference in political affairs has contributed to Senegal's stability since independence. Senegal has participated in many international and regional peacekeeping missions. Most recently, in 2000, Senegal sent a battalion to the Democratic Republic of Congo to participate in MONUC, the United Nations peacekeeping mission.

Senegal also agreed to deploy a United States-trained battalion to Sierra Leone to participate in UNAMSIL, another UN peacekeeping mission. The training operation was designated Operation Focus Relief and involved U.S. Army Special Forces from 3rd Special Forces Group training a number of West African battalions, including Nigerian ones.

The Army currently consists of two divisions, the Operations Division and the Logistic Division.

The Gendarmerie is a military force which provides policing and security. It includes a Territorial Gendarmerie with general policing duties, and a Mobile Gendarmerie for special tasks and serious public disorder.

The navy is responsible for securing Senegal's Atlantic coastline which is strategically located on the extreme west of the African continent. The navy was created in 1961.

The Navy is divided into three branches known as "groupings":

1. The Operational Naval Grouping which is divided TO:
 - The High Seas Patrol Boats
 - The Coastal Surveillance
 - The Fast Coastal Boats
 - The Transport Group
2. The Naval Support Grouping responsible for ports, repairs, training, and logistics.
3. The Fluvial-Maritime Surveillance Grouping.

The air forces orientated towards providing support for ground forces and resembles an army aviation corp. It has no air-to-air combat aircraft but possesses Mil Mi-24 gunship helicopters, transport helicopters and reconnaissance helicopters.

Defence Procurements

In 2019, The Ministry of Armed Forces of Senegal and the PIRIOU group have just signed a contract to purchase three offshore patrol vessels dedicated to the Senegalese navy.

The OPV 58 S (Offshore Patrol Vessel) is a 62m versatile, with high endurance and rededicated to missions such as surveillance and law enforcement at sea.



Main characteristics

Length overall: 62.2m

Breadth: 9.5m

Max. draft: 2.9m

Speed: 21 knots

Autonomy: 25 days, 4,500 NM @ 12 knots

Hull: superstructure steel / aluminum

Accommodation: 48

Including crew: 24

Including special personnel: 24

The weapons suite of the OPV 58 S appears to consist of:

- A 76mm main gun by Leonardo
- 4x anti-ship missiles placed forward
- 2x 12.7mm manned machine guns on the bridge wings
- 2x 20mm remote weapon stations at the back of the bridge
- Surface to air system



- NEXEYA supplied its LYNCEA PATROL product to OCEA, the company building the LE FOULADOU patrol boat (OPV) for the Senegalese navy. The system on board this 58m patrol vessel, makes it possible to group together the different on-board sensors (RADAR, AIS, ADS-B, GPS and EO) with a 30mm cannon and also to share tactical data with the commando units deployed on the 2 fast, semirigid RHIBs thanks to the LYNCEA MOBILE tablet.
- In 2018 Senegal acquired Thales helicopter training systems to be used for the training of the Senegalese Armed Forces Mi-35 attack helicopter and Mi-17 transport helicopter aircrews for collective and tactical operations leveraging Thales's expertise in training and simulation.

- In 2018, The Senegalese gendarmerie has awarded a contract to Turkey's private defence company Nurol Makina to supply Ejder Yalcin 4x4 armoured vehicles and Ejder Toma riot control vehicles.
- In addition, Arqus Bastion armoured personnel carriers (APCs) have been seen during the military parade marking Senegal's 59th anniversary of independence on 4 April 2019, considered as being new acquisitions.
- The U.S. military recently has dominated 23 American High Mobility Multipurpose Wheeled Vehicle (HMMWV), commonly known as the Humvee to the Senegalese Armed Forces. (Photo U.S. Embassy)
- U.S. Africa Command delivered a three-week long vehicle maintenance and recovery course in Dakar, in which U.S. Army advisors from Fort Benning in March 2020 provided training on recovering the M36 Puma armored personnel carrier -- was designed to prepare the Senegalese Armed Forces as they support United Nations Peacekeeping Operations.



Defence Minister expresses willingness to further strengthen Cyprus-Egypt defence cooperation



The Minister of Defence of Cyprus, Michalis Giorgallas, and the Egyptian Defence Attaché, Staff Colonel Pilot Mohamed Yousif Abdelmaged stressed their will to further strengthen the strategic defence cooperation between the two countries, during a reception on October 6, on the occasion of the Egyptian Armed Forces Day and the 50th anniversary of the 6th of October Victory.

The Egyptian Defence Attaché stressed the importance of “the fiftieth anniversary of the great October Victory, which restored the Egyptian military’s prestige and dignity by liberating and restoring the occupied land and calling for real peace in the region built on justice and good neighbouring” and paid tribute to all the righteous martyrs who sacrificed their lives for their homeland. He also saluted “the Egyptian people for their persistence as their awareness and support to the Armed Forces were the decisive factor that achieved this glorious victory.”

Burkina Faso endorses troop deployment to Niger

Burkina Faso’s Cabinet has given the government the green light to send troops to help defend neighbouring Niger, where the military have recently deposed President Mohamed Bazoum. What affects Niger’s security fundamentally affects the security of neighboring Burkina Faso, says defense minister.

The mission’s duration for the military contingent is three months, with the option for renewal. Burkina Faso will finance this deployment as part of its commitment to counterterrorism efforts. Several weeks ago, the government, during a council of ministers meeting, approved a bill for sending troops to Niger. The military juntas in Burkina Faso and Mali have declared their strong backing for the military administration in Niger.

Northern Fleet frigate Admiral Gorshkov made formal visit to Algeria



On 29 September 2023, a detachment of Russian ships and support vessels of the Northern Fleet headed by the frigate Admiral Gorshkov has completed a formal visit at the port of Oran of the People’s Democratic Republic of Algeria and continued fulfilment of tasks under the long-range campaign plan. The long-range voyage of the frigate Admiral of Gorshkov began on 4 January with its departure from the main base of the Northern Fleet - Severomorsk. The frigate’s crew took part in two international naval exercises in the Indian Ocean and the Arabian Sea, and also made formal visits in the ports of the Republic of South Africa, the Islamic Republic of Iran, the Kingdom of Saudi Arabia and the Syrian Arab Republic.

Egypt, Sierra Leone discuss enhancing military cooperation



Egypt and Sierra Leone have discussed means of developing cooperation between their armed forces as they held the first meeting of their military cooperation committee. Egypt’s Chief of Staff Osama Askar met with Deputy Minister of Defence of Sierra Leone Muana Brima Massaquoi, who is visiting Egypt currently as part of the activities of the committee meeting. Massaquoi highlighted the relations binding Egypt and Sierra Leone, hailing the Egyptian efforts to support security and stability in Africa, according to a statement by the Egyptian Military Spokesman Gharib Abdel Hafez on Thursday.

Malian president awards Turkish drone innovators with 'National Order'



© Baykar

Malian President Assimi Goita awarded Turkish drone magnate Baykar's general manager, Haluk Bayraktar and Board Chairman Selçuk Bayraktar along with other two members of their team the country's "National Order" for their contributions and services to Mali. The medal was presented to Haluk Bayraktar by Goita at the ceremony held at the Presidential Palace in Bamako, the capital of Mali. At the ceremony, Bayraktar was thanked for his contributions to Mali. The Mali National Order, the country's highest decoration, began being awarded to individuals who made significant contributions to the country after Mali was liberated from French colonialism in 1960. "We were honored to be deemed worthy of this meaningful engagement in order to strengthen the friendship and cooperation between Türkiye and Mali," Haluk Bayraktar said in a post on X, formerly Twitter.

Bayraktar brothers had previously been awarded various medals in Ukraine, Azerbaijan and Burkina Faso. They were deemed worthy of the Ukrainian State Order of Merit by Ukrainian President Volodymyr Zelenskyy for their significant contributions to strengthening interstate cooperation and supporting the territorial integrity of Ukraine. Selçuk and Haluk Bayraktar, and the late Özdemir Bayraktar were also awarded the "Karabakh Order" by Azerbaijani President İlham Aliyev in 2021 for the contribution of Bayraktar TB2 UCAVs, developed domestically by Baykar, in the liberation of Karabakh from Armenian occupation. Baykar's famed TB2 drones have been exported to dozens of countries to date, while the company is currently developing a medium-altitude long-endurance unmanned combat aerial vehicle (UCAV) – TB3, expected to be able to stay in the air longer, ascend to higher altitudes and carry more weapons than the TB2. The vehicle successfully completed its first take-off roll test last week and once all tests are completed, is expected to be available firstly to the domestic market, according to the company

Gabon coup leader sworn in as 'transitional' head of state



According to France24 General Brice Oligui Nguema, who led a coup last week that toppled Gabon's 55-year-old ruling dynasty, took the oath of office as interim president on Monday, promising "free, transparent and credible elections" to restore civilian rule but without giving a timeframe. Nguema, head of the elite Republican Guard, led officers in a coup against President Ali Bongo Ondimba, scion of a family that had ruled since 1967. The ousting came just moments after Bongo, 64, was proclaimed victor in last month's presidential election – a result branded a fraud by the opposition. <https://www.france24.com>

Sergei Shoigu meets with counterpart from the Republic of South Sudan



On 29 September 2023, Minister of Defence of the Russian Federation General of the Army Sergei Shoigu has held a meeting with Minister of Defence and Veteran Affairs Gen. Chol Thon Balok. During the meeting, they discussed promising projects for cooperation in the defence sphere and exchanged views on topical regional security issues. The parties noted the importance of partnership between the military departments of Russia and South Sudan for ensuring security and stability in Central Africa and agreed on further joint steps to develop bilateral relations in the military sphere.

Polish Land Forces take delivery of their first AW149 helicopters

On 30 October 2023, the Polish Land Forces has taken delivery of their first two AW149 helicopters during a ceremony held at the 25th Air Cavalry Brigade in Tomaszów Mazowiecki, where they are entering service 15 months after the contract signing.

The new Polish military helicopters' configuration allows combat support missions among others. Fully meeting the requirements of the Polish Armed Forces, the configuration will also include, among other capabilities, observation systems, small arms, guided/unguided rockets and missiles and self-defence systems. The armament, depending on the helicopter variant and configuration, is installed in the cabin or on the helicopter's external hard points.

The delivery follows the contract announced on 1st July 2022 including logistics, training, and simulator packages. The logistics package includes a stock of spares and consumable parts, as well as equipment for the ground handling of the helicopters. The training and simulator package includes comprehensive training of pilots and technical personnel and the delivery of a set of advanced simulators and training equipment.

The Polish MoD's program is based on localized production through PZL-Świdnik, which is the prime contractor also covering the integration of the

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helicopter's systems and dedicated armament. Thanks to local production, Poland gains not only state-of-the-art helicopters, but also a domestic logistics base and technical facilities located close to the Polish Land Forces. This delivery marks the quick reaction of PZL-Świdnik as contractor and local industrial partner of Polish Armed Forces for many decades. PZL-Świdnik, the Polish company fully owned by Leonardo, will also deliver support services for these helicopters and modernize them in accordance with the future needs of the operator.

Gian Piero Cutillo, Managing Director of Leonardo Helicopters, said: "The state-of-the-art AW149 helicopter represents a quantum leap forward in true multirole mission and growth capability, efficient fleet management and emergency responsiveness for modern armed forces. The localisation of industrial and logistical capabilities for these new helicopters to meet Poland's needs, leverage the long established and unique capabilities of PZL-Świdnik and its professional skills combined with the outstanding operational capabilities of the AW149 will deliver unparalleled advantages to the country."

Jacek Libucha, President of PZL-Świdnik said: "With complete capabilities in helicopter design, development, customisation and servicing, PZL-Świdnik confirmed again its leadership and the continuation of its over 70-year heritage through the setting of key milestones for Polish aviation industry. As a former military officer with experience in country and through international missions, I have an even greater sense of fulfillment of my duties leading PZL-Świdnik now. I am convinced that the AW149 will meet the Armed Forces' high-end needs and those helicopters will provide them the best in class combat support. This is what the platform has been designed for."



Italian Navy's NH90 helicopter deliveries complete as state-of-the-art mission simulation centre is established at Maristaeli Luni Base

- 56 NH90 helicopters delivered, including 46 SH-90s for ASW/ASuW, and ten MH-90s for tactical utility transport
- Wholly developed by Leonardo, the Full Crew Simulation Training Centre allows high fidelity customised mission training in all scenarios

The Italian Navy achieved a major rotorcraft capability enhancement milestone with the completion of deliveries of its NH90 helicopters combined with a dedicated simulation centre for its NH90 crews. The 46th SH-90A ASW/ASuW aircraft, assembled at Leonardo's facility in Venice Tessera, has been deployed at the Italian Navy's Maristaeli Luni Base and presented during an official ceremony attended by Italian Navy's, Leonardo's and NHIndustries' dignitaries and representatives on 29 September. The helicopter also joins a fleet of ten MH-90As optimized for tactical transport duties and special operations bringing the total fleet of NH90s to 56 in service with this prime operator. The first Italian Navy's NH90 was delivered in 2011. Since then, the whole fleet has logged in excess of 35,000 flight hours in multiple operations in Italy and internationally.

The completion of deliveries occurs as a unique Full Crew Simulation Training Centre is established and opened at the base, featuring a dedicated Level D Full Flight Simulator of the type in full MR 1 configuration (therefore, representative of the latest avionics standard), all fully developed by Leonardo and tailored to the Italian Navy's needs. The new simulation environment allows for the SH-90 and MH-90 crews (including both pilots and specialised

personnel) to be trained with the highest level of fidelity and accuracy (1 simulation hour being equal to 1 real flight hour) to carry out missions in any kind of operational scenarios to the benefit of effectiveness, safety, efficiency, and sustainability. The system is suitable for further evolution in the future, such as the possibility to be linked to other simulation assets in order to develop joint and multi-domain networked mission training. Additionally, the Full Crew Simulation Training Centre will deliver training services to NH90 crews from other countries.

Leonardo is responsible for, or contributes to, the design, production and integration of a wide range of critical NH90 components and systems. These include the rear fuselage, main gear box hydraulic system, upper modes of the Automatic Flight Control System (AFCS), plant management system, power plant integration, NFH mission system (integrating sonar, radar, electro-optics, tactical link, electronic warfare system, Identification Friend or Foe (IFF) interrogator, mission video recording and weapon systems management including air-to-surface missiles and torpedoes for Anti-Surface Warfare (ASuW) and Anti-Submarine (ASW) missions. Leonardo also integrates additional capabilities such as the Laser Obstacle Avoidance Monitoring (LOAM) system and the LEOSS-T electro-optical system as well as pintle-mounted Gatling-type guns, for specific customers.

The largest military helicopter program in Europe, the NH90 is the optimal choice for modern operations thanks to its full-composite airframe with a large cabin, its excellent power-to-weight ratio and its wide range of role equipment. It features a quadruplex fly-by-wire flight control system for reduced pilot workload and enhanced flight handling characteristics. The NH90 is available in two main variants: one specified for naval operations, the NH90 NFH (NATO Frigate Helicopter) and the TTH (Tactical Transport Helicopter) for land-based operations. As of today, over 500 NH90 helicopters, a mixture of both variants, have been delivered worldwide carrying out missions in a wide range of weather and environmental conditions, over land and sea, and have amassed in excess of 380,000 flight hours.

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Paramount's Mbombe 6 Advanced 6x6 Infantry Combat Vehicle (ICV) In Production for Customers in Latin America and SADEC

In response to considerable global demand exacerbated by seismic geopolitical tensions, Paramount, the leading global aerospace and defence technology company headquartered in the UAE, has announced that its 6X6 Infantry Combat Vehicle (ICV), the Mbombe 6, has been ordered by national defence forces in Latin America and in the Southern African Development Community (SADEC). Announced during the Defence and Security Equipment International (DSEI), held in London, Paramount revealed that more than 20 of its next-generation ICVs are presently in production, with deliveries underway. Earlier, Paramount released new market research undertaken by Defence Insight on the armoured vehicle market, forecasting a global renaissance in armoured vehicle spending. The heightened demand will see global expenditures of \$25.6 billion on certain armoured vehicle programmes between 2022 and 2035.

Amidst these revelations, Paramount's Mbombe armoured vehicle family is optimally positioned to cater to these requirements. Standing at the forefront of armoured vehicle technologies, the Mbombe family reflects the evolving demands of the global battlefield. Its advanced construction offers unparalleled protection levels, ensuring the safety of military personnel. "Paramount has always been at the vanguard of innovation, particularly in the realm of asymmetrical warfare.

Leveraging our decades of experience, we've crafted the Mbombe vehicle family to meet the demands of the modern battlefield. It's a potent blend of unparalleled protection and strategic mobility," Steve Griessel, Global CEO of Paramount explained.

"Paramount is more than a mere manufacturer; we are transforming into a technology-driven global OEM. With our unwavering commitment to intellectual property (IP) licensing and the establishment of global partnerships, we are pioneering solutions that address the pressing needs of today's world. Our collaborations with industrial counterparts provide nations with access to modular and proven options for enhancing their armoured vehicle capabilities. Paramount excels at tailoring these solutions to meet precise mission requirements, while our collaborative efforts bring together a diverse array of domestic technology providers to deliver comprehensive solutions." Griessel added. Paramount's portable production concept locates manufacturing activities within the customer country to produce and sustain armoured vehicle fleets, drive indigenous innovation and ensure long-term support.

"Modularity, maintenance and cost advantages have emerged as pivotal factors for global armed forces. Through leveraging the comparative advantage of affordable overhead costs, reduced maintenance burden, and improved strategic mobility, our company is primed for continued industry and regional expansion; propelling economic diversification and sustainable growth in the process for our partners in Latin America, in Africa, the Middle East and indeed across Europe," Griessel concluded.

© Paramount



BARKAN (Unmanned Ground Vehicle) Successfully Completed more than 1,000 km in Challenging Terrain Conditions

BARKAN unmanned ground vehicle (UGV) has successfully completed a field mission of over 1,000 kilometers in challenging terrain conditions. This remarkable achievement demonstrates the BARKAN UGV's durability, long-range, and multi-mission capabilities.

The BARKAN UGV is a versatile platform that can be equipped with different sensors and devices to perform a variety of tasks, including military operations, search and rescue missions, and civilian defense efforts. Its robust design and advanced wheel system allow it to operate in harsh environments, making it a valuable asset for a wide range of applications.

HAVELSAN developed the BARKAN UGV to address national defense needs for international markets. With its impressive capabilities and versatility, BARKAN UGV is expected to generate high demand and become a leader in its class. The successful completion of the 1,000 km field mission is a testament to the hard work and dedication of the HAVELSAN team, and it is a significant achievement for the defense industry. It also highlights the continued importance of unmanned ground vehicle technology in future military and civilian applications.

Key Competencies of the BARKAN UGV

- High durability: The BARKAN UGV demonstrated impressive performance in the harshest of terrain conditions, thanks to its robust design and advanced wheel system.
- Long range: The mission exceeding 1,000 kilometers underscores the BARKAN UGV's long-range capabilities, making it suitable for extended and long-distance missions.
- Multi-mission capabilities: The BARKAN UGV is designed as a versatile platform that can be equipped with different sensors and devices, adapting to various mission requirements.

Potential Operations of the BARKAN UGV

- Military operations: The BARKAN UGV can be used for transporting supplies, conducting reconnaissance missions, and providing support to troops in the field.
- Search and rescue: The BARKAN UGV can be used for searching for and rescuing people in disaster areas or other difficult-to-reach locations.
- Border Security: The BARKAN UGV can be used for monitoring borders, detecting and deterring crime, and responding to emergencies.

The successful completion of the 1,000 km field mission by the BARKAN UGV is a significant milestone for HAVELSAN, and it proves its capabilities in developing innovative and world-class defense products.

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Estonia awarded Otokar €130 million contract for the supply of ARMA 6x6 Vehicles

The Estonian Centre for Defence Investment (ECDI) has awarded Otokar, the global land systems manufacturer of Türkiye, a contract for the supply of ARMA 6x6 Armored Personnel Carriers, at a value of around EUR-130 Million including maintenance equipment and training services, where the deliveries are planned to be initiated in the second half of 2024 and completed by 2025. The agreement was signed between Magnus Valdemar Saar, ECDI (Estonian Centre for Defence Investments) Director General and Sedef Vehbi, Otokar Military Cluster Head on October 18th, 2023 in Estonia. The signature ceremony was held in attendance of Estonian Defence Minister, Hanno Pevkur and Turkey's Defence Minister Yaşar Güler. Following the LOI (Letter of Intent) signed between two countries' Defence Ministers, a protocol on cooperation in defense industry between Turkey and Estonia was also signed by Magnus Valdemar Saar, ECDI Director General and Haluk Görgün, SSB (Turkish Defence Industry Agency) President.

very thorough both commercial and technical evaluation of Estonian Defence Forces (EDF) where combat proven ARMA 6x6 stood out with its superior technical capabilities.

“Otokar is proud to have a chance to serve with its ARMA 6x6 Armored Personnel Carrier to Estonian Land Forces” said Sedef Vehbi, Military Cluster Head of Otokar, “Thanks to our combat proven know-how in land systems and related R&D, engineering, and testing capabilities, nearly 33 thousand Otokar military vehicles are actively in service in more than 40 countries and nearly 60 end users in different climates and geographies around the world. Specifically, ARMA 6x6 has a combat proven success in different parts of the world and Estonia will be the second NATO country fielding ARMA. Being a listed NATO and UN supplier, we value this award very much and consider it as a very important milestone for our ARMA vehicle family. We strongly believe that this initial contract will be a beginning of a long-lasting relation between Estonian Defence Forces and Otokar.”

Otokar's multi-wheeled modular armored vehicle ARMA is actively used by 5 different users in different geographies of the world. The armored vehicle offers superior mobility, high mine and ballistic protection, as well as medium and high-caliber weapon system integration options. Offering high tactical and technical features, ARMA 6x6 stands out especially with its high payload capacity and large interior volume. ARMA can be equipped with various mission equipment, and manned / unmanned turrets according to the user needs.

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The decision to purchase the 6x6 vehicles was made through a strong international competition and



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