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## Shipbuilding in Africa

While investment in shipbuilding is huge, the need to import and export goods, as sparked by globalization, made shipbuilding an important strategic industry. Shipbuilding has a complex value chain that demands skilled workers at each stage of this chain. African nations must improve shipbuilding capabilities to enhance maritime trade. The global maritime industry can – as a key facilitator of global trade – contribute to creating sustainable and inclusive growth with Africa in cooperation with stakeholders from across the continent. This is especially the case when it comes to simplifying trade, which requires improving infrastructure, logistics and reducing administrative burdens related to trade. The maritime industry can also play a key role in creating jobs and providing training opportunities for a new generation of African talent.

Shipbuilding is a big industry for South Africa. Paramount Maritime manufactures ships, boats and other marine vessels for export across the African continent, and it is seeing a big jump in demand for new ships due to new government initiatives. The company previously had orders for 60 vessels over 15 years, but it now has orders for 48 vessels over the next 18 months. In May 2022 South Africa is celebrating its shipbuilding industry after Damen

Shipyards Cape Town delivered the first of three multi-mission inshore patrol vessels (MMIPVs) to the South African Navy. In a major achievement towards the country's ambitions of building navy ships locally, the navy announced it has taken delivery of the first MMIPV vessel, which will enhance its capabilities to respond to the threats of illegal trafficking, illegal fishing and piracy. The launch and operationalization of the Kenya Shipyard Limited by the State is not only a major leap in the country's quest to be a shipbuilding hub but also a leading maritime economy in Africa. While Kenya Shipyard Limited is primarily tasked with construction, repair and maintenance of shipping vessels, the agency will also be instrumental in developing local ship. The new shipyard was developed and built by Kenya Shipyards Ltd (KSL), and was unveiled by President Uhuru Kenyatta at the Mtongwe navy base in Mombasa. The shipbuilding facility will be able to handle vessels of 4000 tons and 150 metres in length and will boost Kenya's maritime hub status across Africa. The new KSL Mombasa shipyard will also have the country's longest slipway, a platform on the shore by which ships can be moved to and from the water. The facility will have two shipbuilding halls. The larger one will be 150 metres long and 30 metres high and the smaller one will be 120 metres long and 20 metres high. Despite its long geographical

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**NVL Group, formerly Lürssen Defence, has decades of experience in delivering and sustaining naval vessels of all types.** We are an independent, privately owned group of renowned northern German shipyards and related companies with a strong reputation and expertise in tailor-made concepts and solutions for the coastal and maritime security of African nations. NVL Group understands the growing importance of the African continent's geostrategic approaches in respect to natural resources and protecting the sovereignty, integrity, economy and wealth of the various African nations.

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THE DNA OF SHIPBUILDING



extension ship repair facilities for ocean going vessels are rather rare in this region. Tema Shipyard Limited in Ghana and Dakarnave in Senegal which is an affiliated company of the Portuguese Lisnave group, can be considered as one of the leading ship repair facilities in this region. Also Nigerdock's Shipyard in Lagos which claims to have the largest facility of its kind in West Africa can offer a 25,000 dwt graving dock for ship repair, maintenance and refurbishment. Carena, a subsidiary of French logistics conglomerate Bolloré operates a ship repair yard in Abidjan/Ivory Coast. It has strengthened its operational capabilities with the acquisition of a third dock with a length of 175 m and a width of 26 m allowing vessels to be docked weighing up to 10,800 tons.

Nigeria's shipbuilding industry is of strategic importance to the economy and plays an important role in employment generation, development of manufacturing and related industries, foreign exchange savings, provide for national security and most important, create access for regional and international trade. Naval Dockyard Limited (NDL) a foremost shipbuilding and fabrication yard in Nigeria is committed to enhancing Nigeria's strategic self-reliance in the building, maintenance, and repairs of Naval/Merchant vessels. And, to develop expertise in design/building of ship and crafts. The Yard has built several naval vessels, tugboats and barges that have been employed in the Nigerian Navy, maritime as well as oil and gas sector. Similarly, the Yard is a leader in the fabrication of steel and aluminium for the telecoms, banking, manufacturing and oil services industry. NDL has earned a reputation as a major player in Nigeria's Maritime business. It plans to expand its activities with by partnering reputable shipbuilding firms around the world who can inject the needed funds required to move NDL to the next level. Presently, The Yard is on the verge of building a 41 metre Seaward Defence Boat, the third in the series, which demonstrates the immense potential NDL possesses in the shipbuilding/repair business. The NDL which is the premiere logistics facility of the NN that caters for Third Line or depot level maintenance of NN shipshad successfully constructed several ships among which was a 31 meter Seaward Defence Boat Project which was commissioned by former President Goodluck Jonathan in 2012 as NNS ANDONI, as well as a 38.9meters Seaward Defence Boat (NNS KARADUWA) which was commissioned by President Muhammadu Buhari at the NDL in 2016, as well as a 43 metres Seaward Defence Boats.

The shipbuilding and ship repair market in Egypt is a relatively small but growing industry. In recent years, the Egyptian government has made efforts to develop the country's shipbuilding and ship repair capabilities, including investing in new infrastructure

and attracting foreign investment. There are several shipyards in Egypt that offer shipbuilding and ship repair services, and the country is gradually establishing itself as a regional hub for these activities. However, the shipbuilding and ship repair market in Egypt faces challenges such as limited access to financing, a shortage of skilled labor, and competition from other countries in the region. Despite these challenges, the market is expected to continue to grow in the coming years as the government continues to invest in the industry and promote its development. Egyptian Navy (EN) and Swiftships partnership features a benchmarkable co-production model and successful partnership. The relationship between parties started in the earlier nineties with delivery of two (2) 54m Missile Retrievers and grew to a massive scale serial Co-production of 28m Coast Patrol Craft (CPC). By combining FMS and DCS contracts, 49 CPCs to be produced by 2027, including built, under-construction and ordered. In January 2021, Egypt's Alexandria Shipyards has delivered the first locally built Gowind 2500 class corvette ENS Port Said (976) to the Navy on 6 January in a handover ceremony held in the presence of the Commander-in-Chief of the Egyptian Navy Vice Admiral Ahmed Khaled Hassan at Alexandria Shipyard facility.



**© Damen - Damen Shipyards Cape Town delivers first of three Multi-Mission Inshore Patrol Vessels to South African Navy**



**© KSL- Cable dressing in the Bridge for KNS Shupavu of the @KSL- kdfinfo at Mombasa Shipyard. KSL is committed to delivering the vessel within a short time and using minimal resources which will, in the end, go a long way in enhancing safety and security of Kenyans**



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## AFRICAN NAVIES

### ★ Nigerian Navy Transformation

The evolution of the Nigerian Navy (NN) in terms of platforms, manpower, organization and capabilities in its almost 60 years of existence gives a fair idea of the transformational milestones that has taken place in the Service. To this extent, transformation is not a new concept per se in the NN. However, promulgation of the Nigerian Navy Transformation Plan (NNTP) 2011-2020 in Dec 11 brought all aspects of NN strategic development aspirations into a single document, with all stakeholders aware of their roles.

The NNTP 2011-2020 was revised in Aug 14 and re-named 'Revised Nigerian Navy Transformation Plan (R-NNTP) 2011-2020', to achieve and sustain effective NN capacity to carry out her statutory roles. The R-NNTP 2011-2020 defines appropriate strategic objectives, milestones and requisite activities along identified Lines of Development (LODs), which are the pillars of the NNTP. These are Concept and Organization, Fleet Renewal, Infrastructure and Logistics. Others are Human Resources Management (HRM) and Administration, Training and Doctrine, ICT as well as Inter-Agency and Sub-Regional Cooperation. For easy categorization of completion time frame on each Developmental Objective (DO), the plan is driven on Short, Medium and Long Terms time-frames for completion of individual activities. Short Term activities are activities that could be completed within one year of initiation of such activity/project; Medium Term activities are those that could be initiated and completed within 3-5 years, while Long Term activities are activities that could be initiated and completed within 6-10 years.

To drive this process, the Nigerian Navy Transformation Office (NNTO) was established in Dec 10 and tasked to develop and coordinate all aspects of NN transformation activities. After 4 years of implementing the NNTP and cognizant of

changes in the strategic environment, the NN considered it incumbent to strengthen the structures for the attainment of NN transformation objectives. Accordingly, the NNTO was upgraded to a branch and renamed Nigerian Navy Transformation Branch (NNTB) in Mar 15. At Naval Headquarters, the NNTB is structured into 4 directorates, namely; Directorate of Transformation, Directorate of Innovation and Concepts Development, Directorate of Monitoring, Evaluation and Analysis, and Directorate of Special Projects. The Chief of Navy Transformation (CN TRANS) is responsible to the CNS for all transformation activities in the NN. Command Transformation Officers drive the transformation process at the commands and enhance effective liaison with the NNTB.

The responsibilities of NNTB are as follows:

- Formulation of strategies for guiding the translation of the transformation pillars into concrete competencies in terms of organizational and personnel efficiency and credible force structure to drive the NN transformation process.
- Development of transformation strategy for the NN and its re-appraisal from time to time.
- Management of the NN transformation plans and processes at all levels of command.
- Conceptualization and development of the CNS Vision.
- Encouraging rapid innovation in response to emerging challenges.
- Conduct of demonstrations or pilot schemes on innovations.
- Advising and updating the CNS on the transformation of the NN.
- Provision of guidance in conjunction with NHQ, NASS, and NDAC on the development and investigation of future operational concepts, technologies and strategies.
- Collaboration with DHQ, the Services and other relevant agencies on transformation matters.

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# ***EMPOWERING YOUR NAVAL PERFORMANCE***

***Foreseeing Your Naval Needs***







## Nigerian Navy commissions new patrol boats

In actualising the CNS Vision and Mission statements, key priority areas in the R-NNTP 2011-2020 were identified for implementation to positively impact NN operational efficiency and personnel morale. The priority areas and specific objectives were articulated in CNS Strategic Directive 2015-1 of 31 Aug 15. The NNTB was tasked to generate Key Performance Indicators (KPIs) and Assessment Mechanism to monitor implementation of CNS Strategic Directive 2015-1 by branches, commands, ships, units and establishments. Accordingly, the Branch has developed a template Score Card for measuring the performance of NHQ Branches, commands and autonomous units in executing the assigned tasks in line with the CNS Strategic

Transformation is not just a one-time reform, nor is it just only about restoring certain values, but a process that involves fundamental restructuring, radical and profound changes which will be a complete departure from 'business as usual'. Transformation is also about internal fundamental change and innovation and this is the context in which the NN transformation process should be

understood. The foundation for attaining NN transformation objectives is effective communication of NN Core Values, CNS Vision, Mission and strategic goals. Consequently, the NNTB shall continue to conduct awareness and sensitization lectures, seminars and workshops across NN commands and establishments on a continuous basis to ensure that the personnel understand their roles in the process. This is borne out of the fact that transformation involves managing a change process and not a one-off event.

Furthermore, bearing in mind that transformation in itself is only a process towards enhancing the NN operational effectiveness, the NNTB will continue to flag issues such as business transformation priorities, outsourcing basic support services and logistics and encouraging innovation that would substantially lead to reduction in wastages from NN administrative and operational processes. NN transformation initiatives shall also continue to align with the national vision such that the NN will be among the top navies in the world.

Source: [www.navy.mil.ng](http://www.navy.mil.ng)



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GNS YAA ASANTEWAA

## ★ Ghana Navy

The mission of the Ghana Navy is to develop and deploy maritime forces with the capability to ensure a safe, secure and clean maritime domain of Ghana in collaboration with other stakeholders in order to ensure a sustainable use of the maritime domain as well as to maintain a modern robust Naval force capable of defending Ghana against seaborne threats and ensuring the safety and security of the maritime domain for the development of the blue economy while maintaining the time-tested traditions of the Navy.

The Warrior Class: Ships were built by LURSEN WERFT in Germany and commissioned into the German Navy as BUSSARD and ALBATROS respectively in 1978. The Ships were decommissioned in March 2005 and later refurbished and purchased by the Ghana Navy in July 2012. The Ships have a length of 57.58 m, a beam of 8m and a draught of 2.78m. The Ships are normally deployed for anti-drug trafficking, anti-smuggling, anti-piracy and fisheries enforcement ops.

Snake class:The ships were built and launched on April 2011 by Qingdao Qianjin Shipyard, China.

They were commissioned into the Ghana Navy in Feb 2012. And have been primarily used for anti-drug trafficking, anti-smuggling, anti-piracy and fisheries enforcement ops. They have a length of 46.4, and a beam of 7.2

The Cutter Class: Ships were originally employed by the US Coast Guard and named as USCGS SWEET BRIER and USGGC WOODRUSH respectively. They were built by the Marine Builder shipyard in 1944 and decommissioned. They were acquired by the Ghana Navy in 2001 and employed as Logistics support Vessels and for humanitarian assistance and disaster relief operations. Additionally they serve as training ships for the fleet. They have a length of 55 m , a beam of 11m and a draught of 3.7m.

DEFENDER AND CNS CLASS:These are a collection of Port Security Boats & Chinese Defender Boats. These boats/ships are primarily deployed to in fighting illicit activities at Sea and on the shores such as piracy, illegal unregulated fishing , drug trafficking and oil bunkering within Ghana's territorial waters.





CNS VOLTA

**RIVER CLASS:** The River Class Ships are the newest addition to the Ghana Navy's Fleet, built by the Penguin Shipyard in Singapore and commissioned into the Ghana Navy on 25 Feb 2022. They are fast fighter boats with a length of 40m, a beam of 7.6 m and a draught of 1.89 m. They are primarily deployed to provide security for Ghana's offshore petroleum installations. *Source:navyonline.mil.gh*

### ★ South African Navy

South Africa has one of the longest coastlines in Africa, stretching for about 3 924 km at the high-water line, from the desert border with Namibia on the Atlantic coast, southwards around the tip of Africa and then north to the border with subtropical Mozambique on the Indian Ocean. South Africa has an extensive exclusive economic zone (EEZ) of 1 553 000 km<sup>2</sup>, which also includes the areas around the Marion and Prince Edward Islands which comprise 474 400 km, one of the world's major shipping routes i.e. the Cape Sea Route, rounds the tip of South Africa, which forms a natural strategic choke point for a high concentration of shipping transiting the Atlantic, Southern and Indian Oceans.

South Africa is therefore a key point for shipping support and repair and will play a major role in the event that ships are rerouted around South Africa in the event of the closure of the Suez Canal. In addition, more than 30% of the world's crude oil passes the Cape Sea Route in any given year. In addition, African countries are increasingly becoming more important as oil suppliers. Most of those countries possess offshore oil fields. Southern Africa is strategically located between the Western and Eastern economic blocs.

The nature of South Africa's maritime security threats is by no means unique or limited to SA maritime borders, but forms part of the global current maritime security threats which include but are not limited to the following:

- a. Drug Trafficking.
- b. Illegal carrying and trafficking of Weapons and Ammunition.
- c. Sailing in unauthorised areas.
- d. Human Trafficking.
- e. Illegal, unreported and unregulated fishing.
- f. Illegal exploitation and unsustainable use of natural resources.
- g. Illegal bunkering.
- h. Marine and plastic pollution.
- i. Money laundering.
- j. Piracy and armed robbery at sea.
- k. Maritime terrorism.
- l. Natural disasters.

The South African Navy is one of the four Services that forms the South African National Defence Force (SANDF) commanded by Chief of the SANDF. The SANDF derives its mandate from the Constitution of the Republic of South Africa. The SA Navy is charged to provide the Chief of the South African National Defence Force with the requisite prepared and supported maritime defence capabilities necessary for the maritime defence and protection of the RSA and its people.

In this regard the following derived Military Strategic Objectives further directs the formulation of the SA Navy's Missions and Defence capabilities in order to meet these missions:

- Enhance and Maintain Comprehensive Defence Capabilities. (Defence and Deterrence).
- Promote Peace, Security and Stability in the Region and on the Continent. (Peace Support Operations).
- Support to the People of South Africa.



To this end the SA Navy must be able to carry out the following missions which include but are not limited to:

- a. Operations against enemy forces.
- b. Protection of maritime trade.
- c. Combat search and rescue.
- d. Combat and non-combat evacuation operations.
- e. Peace support operations.
- f. Anti-piracy operations.
- g. Riverine and inland lake patrols.
- h. Force Protection.
- i. Disaster Relief & Humanitarian Aid.
- j. Hydrographic surveying.
- k. Support to government departments.
- l. Border safeguarding.

The acquisition of three new Multi-Mission Inshore Patrol Vessels as part of the rejuvenation of the SA Navy's patrol capability will significantly supplement the SA Navy's existing surface warfare capability with a more robust patrol capability due to their flexibility. Utilization of cost-effective simulation technologies contribute significantly to enhancement of functional warfare training programs. The SA Navy is well versed in utilization of various simulation technologies and its applications.

## ★ Kenya Navy

The Kenya Navy is the naval branch of the Kenya Defence Forces. It is headquartered in Mombasa.

Kenya Navy has two major bases for its fleet with it being headquartered in Mtongwe base in Mombasa and Manda Bay (part of Lamu Archipelago) being the second naval base. The navy also operates naval stations in Shimoni, Msambweni, Malindi and Kilifi. The Kenya Navy fleet is organized into two fighting squadrons and a logistical support squadron, namely the pioneer 66 Squadron, the 76 Squadron and the 86 Squadron all supported by a Special Operations Squadron, the Fleet Maintenance Unit and a newly formed elite Marine Ranger Regiment.

### Kenya Navy - Fleet - Current Vessels

**-Jasiri Class** survey ship and offshore patrol vessel

- P3124 KNS *Jasiri*

Built as an oceanographic survey vessel but latter fitted with armament at the navy's Mkunguni dock yard. Commissioned into the navy on 29th August 2012. It currently is the largest vessel in the fleet.

**-P400 Class** offshore patrol vessel

- P3134 KNS *Harambee II*

Former French P400 class patrol vessel **La Rieuse**. Donated by France for anti-piracy patrols.

**-Shupavu Class** large patrol boats, Gondan shipyard Spain.

KNS Shujaa and KNS Nyayo during India's International Fleet Review.- PH1 (NAO) Chris Desmond, USN





- P6129 KNS *Shujaa*
- P6130 KNS *Shupavu*

Built to civilian standards in 1997 and entered service in 1997. Armed with a 76mm and a 30mm gun in Kenya.

### -Nyayo Class missile boats

- P3126 KNS *Nyayo*
- P3127 KNS *Umoja*

Built by Vosper Thornycroft, these are similar to the Omani Province class, and were delivered in 1987. Armed with 4 Otomat SSM, 1 76 mm OTO DP, 1 dual 30 mm AA, 2 20 mm machine guns. From March 2009 to July 2011 these ships underwent an extensive refit at Fincantieri's Muggiano shipyard in northern Italy, during which their surface-to-surface missile (SSM) systems were removed, effectively reducing the vessels to an OPV configuration.

### -Madaraka Class small missile boats

- P3100 KNS *Mamba* - classed as **Mamba Class**
- (For three other boats see retired Madaraka Class boats below)

**Delivered from 1974-1976 (Mamba was delivered in 1976)** and built by Brooke Marine along with three others of the class. KNS *Mamba* has a non-functioning missile system and is currently used as an OPV. Remainder of the class decommissioned and placed in reserve status. Formerly armed with 4 Gabriel SSM, 1 dual 30 mm AA.

### -Galana Class/River Class medium landing ship (LSM) /coastal logistics ships

- L39 KNS *Tana*
- L38 KNS *Galana*

Built by Construnaves-CEN, Gondan, Spain and delivered in December 1993 from Spain and entered service in 1994. Used for logistics. These ships are unarmed and used for amphibious warfare.

### -Archangel class RHIB (jet boat)

- 1 - 12 metre IPV

Built by SAFE Boats International and donated by the USA in 2006 to reduce gun and drug running.

### -USGS Defender Class RHIB with outboard motors

5-7 metre IPVs were built by SAFE Boats International and donated by the USA in 2006 to reduce gun and drug running.

### P101 Class IPVs

- P943
- P944
- P945
- P946
- P947

These ex-Spanish Navy patrol boats were built by ARESA (Arenys del Mar, Barcelona) from 1978 to 1982 and procured by Kenya in 1995. Each is 12m long, with a top speed of 16kts, and armed with a 12.7mm machine gun.

### -Personnel Tenders

Two built by Cowes in 1998. Each can carry 136 passengers.

### -YTB Harbour Tug

- KNS *Ngamia*

Built by James Lamont, Port Glasgow in 1969 for Mombasa Port Authority and transferred to the navy in 1983.

### Members of the Special Boat Unit in a simulated mass casualty drill - U.S. Navy photo by Chief Mass





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OPV 80 class offshore patrol vessel

## Effectively protecting African values

NVL Group understands the growing importance of the geostrategic aspects of the African continent in respect to natural resources and protecting the sovereignty, integrity, economy and wealth of the various African nations. The company has a strong reputation and expertise in tailor-made concepts and solutions for coastal defence and maritime security.

## Maintaining security

Today's navies face a broad spectrum of challenges in maintaining security in a fast-changing maritime environment. These geostrategic aspects mean that

nations require affordable, versatile and fast platforms to operate successfully in territorial waters and to protect against traditional threats. Whether the mission is protecting economic resources, countering criminal activity or safeguarding life at sea, a flexible and effective response is essential. At NVL Group, we recognise the importance of building vessels that are easy and economical to operate yet still deliver superior levels of performance.

## Customised platforms for any naval requirement

NVL Group provides state-of-the-art patrolling solutions for every kind of

challenge and threat, such as patrol boats, offshore patrol vessels, corvettes, frigates, minehunters or naval support vessels.





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Offering high speeds of over 40 knots, NVL Fast Patrol Boats can quickly respond to challenges. High performing and with excellent seakeeping characteristics, these boats are ideally suited for interception and patrolling territorial waters.

• **Contiguous zone (<24 nm)**

No matter how long a coastline is, contiguous zones are best patrolled by NVL Patrol Boats, which are characterised by their speed, performance and versatility. The proven design guarantees maximum reliability and endurance.

• **Exclusive Economic Zone (200 nm)**

The Exclusive Economic Zone (EEZ) is best patrolled by offshore patrol vessels built

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**Strong support for cost-efficient naval vessel operations**

Whatever the requirement, NVL Group works in partnership with its customers to establish the right solutions. We offer the option to build vessels at one of our NVL Group shipyards, or we can transfer both our knowledge and technology to develop our partner's maritime industry. In all cases, we focus on delivering technically advanced, high-quality ships that balance a navy's operational needs with its available budget. NVL Group also provides

sustainability support for existing fleet structures in the form of upgrades, spare parts supply, training, technology and knowledge transfer, and other services to maximise the potential of any navy vessel.

**Your naval solution**

NVL Group provides you with feasible and economical solutions to fulfil the tasks of today and overcome the challenges of the future. We aim to ensure each ship entrusted into our care remains mission-ready at every stage of its operational life. NVL Group maritime patrolling solutions offer reliable and versatile multi-mission performance, providing a cost-effective yet comprehensive means of meeting maritime security needs across the seven seas.



The maritime zones (from left to right): territorial sea, contiguous zone, EEZ



NVL Group works closely with the customer to enable local build and the transfer of knowledge and technology



FIB 25 fast interceptor boat



NVL Group is a privately owned group of renowned Northern German shipyards and related companies, formerly known as Lürssen Defence. Customers can rely on the company to consistently provide tailored, smart and cost-effective naval solutions that keep navies mission-ready around the world. With deep roots in shipbuilding, NVL Group delivers high-quality naval and coastguard vessels, as

well as comprehensive services throughout the entire life cycle of their fleets. Construction at NVL Group's shipyards is supplemented by licensed manufacture at customer facilities worldwide under technology transfer arrangements. As an independent enterprise, the company remains flexible to market changes and operates a dynamic, safe and future-oriented business.

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## Leonardo, multi-domain solutions for the new challenges of the Navies

The Naval Forces are undergoing a transformation to which Leonardo is able to respond, thanks innovative technologies such as Artificial Intelligence, automation, high performance computing, cloud, data processing and information management. The company confirms itself as a natural partner of the Military Navies, at the forefront of the multi-domain evolution in every single area - sea, air, land, cyber and space - and is able to offer that operational advantage essential to achieve success in increasingly complex challenges imposed by the new scenarios. For over 50 years Leonardo has been a strategic partner of the Italian Navy and a reference for many naval forces around the world, who have chosen the company's naval defence systems to equip over 1,000 vessels, including the new generation ones.

The capability to process and convey secure information to each specific level of the command chain is a tactical and strategic need to meet the requirements of armed and security forces, and not just limited to the joint operations. Leonardo is able to support customer's naval information requirements at both tactical and strategic levels, ensuring the effective management of intelligence across the fleet thanks to its expertise in digitization and defence electronics, the product of continuous

investment in research, development and innovation. Leonardo's new Combat Management System (CMS) ATHENA is able to integrate and coordinate in real time all the information coming from various sensors in the battlefield with ship-borne sensors in an example of the high technological level expressed by the company. The CMS's capacity of integration and automation reduces operator workload while ensuring full situational awareness, conferring the ability to react quickly in any scenario. The system will be installed on every new unit of the Italian Navy, starting

from the PPA, from the LHD (Trieste ship), from the auxiliary ship LSS (Vulcano ship), up to the new U212 Near Future Submarines (NFS).

In addition to the CMS, Leonardo has the skills and abilities to supply and integrate all the equipment of a military ship: sensors, weapon systems, navigation systems, communications. The possibility of having all the electronic equipment from a single supplier, combined with the ability to integrate systems from other manufacturers, allows the customer to reduce the costs and risks of technical problems during the ship's equipment phase. Added to this are simulation tools, to support the user in training and maintenance during in. As well as providing complete solutions for latest-generation ships, Leonardo experience in naval systems integration allow to assist the customer also in the modernization of naval combat systems, with fast and economical interventions, against of an increase in the operating life of the systems beyond initial expectations.

Leonardo is one of the few companies worldwide to offer a complete range of technologies for naval use: from its Combat Management System to kinetic (naval artillery, torpedoes) sensors, propulsion (through Leonardo DRS), communications and mission systems, in order to maximise the surveillance and control capabilities of surface and underwater assets, given the complex operational scenarios that will characterize the future of operations in this sector. The company's portfolio also includes fixed and rotary wing aircraft and uncrewed platforms for naval applications. Its complete range of proprietary technology products is the outcome of a stratification of skills over time and a unique partnership built over the years with its domestic customer, the Italian Navy. All enhanced by an intensive exchange of knowledge and experience with many of the world's Navies.



## Leonardo, a game changer in the defence technologies

As a leader in the design, development and supply of systems and products for naval and land defence, Leonardo is able to provide a wide range of defence technologies ready to meet the most challenging requirements in today's operational scenarios. Among the technologies, Leonardo is able to provide Vulcano family of guided ammunition (GLR - Guided Long Range), also existing in the conventional variant (BER - Ballistic Extended Range), as result of continuous technological developments. These ammunition represents state of the art technology in the naval sectors, with the calibres 76 mm and 127 mm, and land, with the calibre 155 mm.

In particular, the Vulcano 127 ammunition guarantees an unparalleled engagement distance and accuracy both towards fixed and mobile targets and can be supplied in four variants: conventional (BER), equipped with a programmable 4AP fuze that makes it effective against any type of lens, guided (GLR) with RF (Radio Frequency), IR (Infra-Red) or SAL (Semi-Active LASER) terminal guide sensor, the latter particularly suitable for naval firing support roles.

The Vulcano technology has been transferred to 76mm calibre guided naval ammunition that is able to ensure top level accuracy at a maximum range around 40 km and it will enable precision and range unmatched by the competition, allowing the naval units to obtain the maximum level of effectiveness by maintaining high distances from threats and thus ensuring greater safety for the crews. Also Vulcano 76 ammunition can be equipped with the latest

generation seekers, as IR-Infra Red and SAL-Semi Active Laser, which eliminates targeting errors which reduces risks even in the most challenging environments.

In addition to Vulcano ammunition, in naval domain, Leonardo develops and produces DART guided ammunition to intercept potential airborne threats up to 8km. DART system features aerodynamic surfaces which reduce drag and increase the projectile's speed. By following a radio frequency beam, the DART guided projectile can change its trajectory and be re-vectoring towards the target during its flight. It is very effective against maneuvering missiles and small moving targets at sea. The requirement to face both is very common in current asymmetric conflicts where the security of large and expensive naval units can be jeopardised by small, cheap, explosive boats. Both DART, with the addition of Radio Frequency antenna or a Leonardo's NA-30S Mk2 weapon control system, and Vulcano 76 ammunition can be fired by any 76mm naval gun, such as Leonardo's 76/62 Super Rapido system and its Strales version.

Conceived and realized to operate with high accuracy against stationary and moving point targets with extremely reduced likelihood of collateral damage, Leonardo's Vulcano 155 guided ammunition for land domain has a proved compatibility with the in service 155mm howitzer on the market. It is able to reach a range up to 70 km with metric precision thanks to its outstanding aerodynamics and GPS guidance. In addition to the guided configuration with Radio Frequency (RF) fuse, which allows altimetric, instantaneous and delayed impact, the ammunition is available with Semi Active Laser (SAL) sensor, which allows to engage laser designated targets, stationary and moving, with further improved precision with respect to pure GPS guidance.

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## Israel Shipyards Ltd: A Voyage Through Innovation and Maritime Excellence

Since its establishment in 1959, Israel Shipyards Ltd (ISL) has been a beacon of innovation and excellence in the global maritime landscape. Located strategically in the Haifa Bay area, ISL connects the crossroads of Europe, Africa, and Asia, playing a pivotal role in international maritime trade and security.

### Comprehensive Maritime Solutions

ISL stands out as a holistic provider of maritime solutions, offering various services from design and repair to the purchase and renovation of vessels. The company prides itself on delivering products and services that improve security, efficiency, and performance. Their dedication to continuous innovation and quality has set them apart in the naval and commercial marine markets.

### Strategic Positioning and Facilities

The shipyard, nestled in the Eastern Mediterranean basin, is a hub of activity, extending over 330,000 square meters. With a 1,000-meter wharf and extensive under-roof facilities, ISL is equipped to handle diverse maritime projects. The establishment of the Noble Energy shore base facility and involvement in constructing advanced naval vessels showcase their expanding capabilities.

ISL's edge in technology is powered by its team of over 450 professionals, including 50 specialist engineers and 150 subcontractors. The R&D department, with its eight divisions, is integral in integrating the latest advancements into vessel designs, ensuring optimum performance and innovation. ISL's commitment extends beyond maritime technology to cultural exchange and sustainable practices. Their educational and training programs prepare Africa's next generation of marine professionals, with initiatives like scholarships and exchange programs fostering a skilled maritime workforce.

© IS- Second OPV S-45 at Ivory Coast







© IS- SHALDAG-class fast patrol boats to the Senegalese Navy

### **Israel Shipyards Ltd. (ISL) in Africa: Enhancing Naval Capabilities and Maritime Security**

Israel Shipyards, a key player in the naval shipbuilding industry, has significantly enhanced maritime security and naval capabilities across various African nations. Notable achievements include delivering advanced vessels like SHALDAG-class fast patrol boats to the Senegalese Navy and OPV-45 offshore patrol vessels to Ivory Coast, an undisclosed African country.

These vessels, equipped with advanced weaponry, navigation systems, and surveillance technology, are designed for various naval missions, including border protection, anti-smuggling, search and rescue operations, patrolling, and maritime security.

The delivery of these vessels to the Philippine Navy, Senegalese Navy, and Ivory Coast marks a significant advancement in their maritime capabilities, allowing these nations to better respond to maritime threats and challenges.

The delivery of SHALDAG Mk II and Mk V to Senegal is part of their efforts to modernize their naval fleet. For Ivory Coast, the OPV-45 vessels offer a larger platform for extended sea missions and support for special forces operations. The delivery of OPV S-45 to Ivory Coast is a milestone in ISL's African ventures, emphasizing their commitment to providing customized naval solutions.

Moreover, ISL is set to deliver two 62-meter offshore patrol vessels to Equatorial Guinea's navy, strengthening their patrol and security operations. ISL has provided intensive operational and maintenance training to the crews, ensuring efficient operation and maintenance of these new ships. This reflects ISL's long-standing relationship with Equatorial Guinea, which dates back to their purchase of SHALDAG Mk II boats in 2004. ISL has also reached an advanced phase in constructing landing Craft for an undisclosed African nation, showcasing its expanding range of naval solutions. This project aligns with ISL's strategy to expand its portfolio.

ISL's involvement in Africa extends beyond ship delivery, including Transfer of Technology (TOT) programs, promoting local labor skill development and self-sufficiency in maritime sectors. They emphasize comprehensive, rigorous testing to ensure seaworthiness and operational readiness. They extend their meticulous approach to training during delivery, where ISL's team mentors and trains the customer crew for smooth operation and safety.

Israel Shipyards' diverse African projects underscore its significant role in supporting and enhancing naval defense capabilities, contributing to maritime security and stability across the continent. Their commitment to providing customized solutions, along with ongoing support and training, showcases their dedication to strengthening African maritime defense infrastructure.

### **Transforming Africa's Maritime Landscape**

ISL is pivotal in revolutionizing Africa's maritime sector, with its vast experience in shipbuilding and repair and a keen focus on human capital development. Their approach is not just about supplying advanced vessels but embedding technological advancements and cultivating local talent to elevate African navies to international maritime standards. Through collaborations with African nations, ISL is instrumental in developing robust maritime infrastructures and regulatory frameworks crucial for the continent's maritime security and economic prosperity.

These partnerships extend beyond immediate naval needs. They encompass a holistic approach, integrating advanced technologies, safety protocols, and sustainable practices. ISL's role in these collaborations is more than just a supplier; it catalyzes long-term maritime growth and stability. This strategy enhances Africa's global maritime reach and fosters an environment where local expertise is developed, ensuring a sustainable and self-reliant maritime future for Africa.

### **Visionary Corporate Culture**

Mr. Oded Breier, the VP of Marketing at ISL, exemplifies the company's ethos, highlighting their transformative impact on maritime solutions. ISL's journey from conceptualizing vessel designs to creating operational marvels showcases the passion and innovation that form the core of its corporate culture. This transformation process is not just about technical excellence; it represents a commitment to redefining industry standards and exceeding customer expectations. ISL's focus extends beyond mere construction; it encompasses a holistic vision for the future of maritime operations, blending cutting-edge technology with sustainable practices to revolutionize the global maritime landscape.

### **Conclusion: Navigating the Future**

Under the guidance of experts, including ex-Israeli Navy engineers, ISL is at the forefront of maritime technology. Their innovative use of advanced materials and techniques in constructing durable, efficient vessels reshapes the maritime world. As ISL continues its journey, it remains dedicated to redefining maritime solutions, ensuring a legacy of excellence in security, efficiency, and performance in the global marine industry.

"Collaboration is at the heart of ISL's success," says Mr. Breier, underlining the company's global partnerships. This collaborative spirit is evident in their worldwide navy partnerships, enhancing maritime security capabilities. ISL's journey is more than a business venture; it symbolizes a commitment to mutual growth and a sustainable maritime future, paving the way for Africa to emerge as a leader in global maritime endeavors. With its rich history, cutting-edge capabilities, and visionary approach, ISL is set to continue its legacy of excellence, marking a new era in maritime innovation and global collaboration.



© IS-3 shaldag together





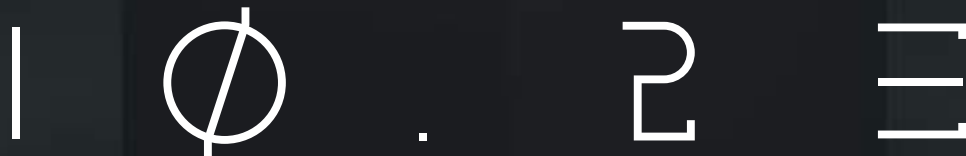


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## Egyptian Armed Forces

Egypt's armed forces are among the largest in Africa and the Middle East. The Egyptian military is comprised of the army, air force, navy and air defense forces.

As per the constitution of Egypt, the armed forces of the country are under the jurisdiction of the Supreme Court led by the President who is the Supreme Commander of the armed forces. Underneath the President there are 21 senior ranking officers in charge of the different departments and armies of the military. The Egyptian army has proven itself time and again and stood strong in protecting the wellbeing of the people.

The military in Egypt has been involved in the completion of many national infrastructure projects like the construction of sewers, power lines, overpass, bridges, schools, roads, telephone exchanges and more. There have been many reviews about the intervention of the military in such infrastructural developments, but most agree that the development was affordable to the government only due to the military's effective use of their resources.

Industries that the military owns have always been a powerful contributor to the economy of the country, even when profits have not been made public.

The Egyptian military has been strongly supported by Egypt's American ally, receiving \$1.3 billion in military aid annually since 1987, including American-manufactured weapons and equipment. The United States has favored regime stability in Egypt and values a regional ally that maintains peace with Israel; both the United States and Israel are viewed with suspicion and sometimes hostility by many Egyptians.

Copyright © Ministry of Defense General // Mohamed Zaki, Commander-in-Chief of the Armed Forces, Minister of Defense and Military Production witnessed War Inspection Procedures for One of the Western Military Zone Formations after Upgrading it According to the Latest Combat Systems.







Copyright © Ministry of Defense General Egyptian, Hellenic Navy conduct joint drills

The Armed Forces' inventory includes equipment from different countries around the world. Equipment from the Soviet Union is being progressively replaced by more modern U.S., French, and British equipment, a significant portion of which is built under license in Egypt, such as the M1 Abrams tank. Egypt is a participant in NATO's Mediterranean Dialogue forum. Egypt is one of the few countries in the Middle East, and the only Arab state, with a reconnaissance satellite.

The inventory of the Egyptian armed forces includes equipment from the United States, France, Brazil, the United Kingdom, the Soviet Union, and the People's Republic of China. Equipment from the Soviet Union is being progressively replaced by more modern U.S., French, and British equipment, a significant portion of which is built under license in Egypt, such as the M1A1 Abrams tank.

Conscripts for the Egyptian Army and other service branches without a university degree serve three years as enlisted soldiers. Conscripts with a General Secondary School Degree serve two years as enlisted personnel. Conscripts with a university degree serve one year as enlisted personnel or three years as a reserve officer.

Officers for the army are trained at the Egyptian Military Academy. The Egyptian Army remains one of the world's largest. It operates more than 1,360 M1 Abrams main battle tanks which has been produced locally under license since 2005. Cairo will also procure at least 500 units of the highly capable T-90 main battle tanks from Russia.

Egypt also operates more than 300 M60 Patton and 500 T-62 main battle tanks and is acquiring almost 800 Caiman mine-resistant ambush protection (MRAP) vehicles, as well as 800 RG-33 MRAPs from the United States plus more than 5000 various types of Infantry Armored Vehicles and Armored Personnel Carriers.

The Egyptian Air Force (EAF) is the aviation branch of the Egyptian Armed Forces. Currently, the backbone of the EAF is the F-16. The Mirage 2000 is the other modern interceptor used by the EAF.

It has about 579 combat aircraft and 149 armed helicopters as it continues to fly extensively upgraded MiG-21s, F-7 Skybolts, F-4 Phantoms, Dassault Mirage Vs, and the C-130 Hercules among other planes



Copyright © Ministry of Defense General Egyptian, US air forces conduct joint drills

With 240 F-16 Fighting Falcon fighter aircraft, 46 AH-64D Apache attack helicopters, 30 C-130 Hercules, nine E2C Hawkeye 2000 air-borne early warning and control aircraft, the Egyptian Air Force presents a formidable force with a growing punch. It is acquiring two squadrons of the latest French-made Rafale multirole fighter and will receive 50 MiG-29 fighters from Russia by 2020.

The Egyptian Air Defense Forces or ADF is Egypt's military command responsible for air defense. Egypt patterned its Air Defense Force (ADF) after the Soviet Air Defence Force, which integrated all its air defense capabilities – anti-aircraft guns, rocket and missile units, interceptor planes, and radar and warning installations. It appears to comprise five subordinate divisions, 110 surface-to-air missile battalions, and 12 anti-aircraft artillery brigades. Egypt has in its inventory the Russian S-300 system in service and may procure the more capable Russian-made Antey-2500 ballistic missile defence system.

The Egyptian Navy was established after the Second World War. Some fleet units are stationed in the Red Sea, but the bulk of the force remains in the Mediterranean. Navy headquarters and the main operational and training base are located at Ras el Tin near Alexandria.

The Navy also controls the Egyptian Coast Guard. The Coast Guard is responsible for the onshore protection of public installations near the coast and the patrol of coastal waters to prevent smuggling.

It has an inventory consisting of about thirty-five large patrol craft (each between twenty and thirty meters in length) and twenty smaller Bertram-class coastal patrol craft built in the United States.

The Egyptian Navy has been undergoing significant equipment modernization. In 2014, the Egyptian Navy inducted four US-made Ambassador MK III fast missile craft and ordered four 2,500-tonne French-made Gowind-class corvettes with an option for two more.

In 2015, the Egyptian Army received a Russian-made P-32 Molniya-class missile craft, one French-made FREMM multi-purpose frigate and two Mistral-class amphibious assault ship paid for by Saudi Arabia that will be equipped with Russian-made Ka-52 Alligator helicopters.

The Egyptian Navy has into service two of four German-made diesel-electric attack submarines based on the Type-209 design.

On 14 October 2022, thyssenkrupp Marine Systems handed over the first-of-class MEKO® A-200 EN to the Navy of the Arab Republic of Egypt. A total of four ships were ordered, with the first three units produced in Germany and the fourth vessel built by Alexandria Shipyard in Egypt.

With these acquisitions Egypt has been modernizing its forces with an approach that except the USA has clearly looked to new suppliers, notably Russia, but also France and Germany, to meet future capability requirements.



- **General \ Mohamed Zaki  
Minister of Defense**



- **Lieutenant General Osama Askar  
Chief of Staff of the Armed Forces**



- **Lieutenant General \ Ashraf  
Ibrahim Atwa Megahed  
Commander of the Navy**



- **Lieutenant General \ Mahmoud  
Foad Abd El- Gawad  
Air Force Commander**



- **Major General \ Yasser Mohamad  
Kamal Al-Toudi**



## Dassault Aviation at Dubai Airshow



Dassault Aviation was particularly honored to be taking part in the Dubai Airshow, from November 13 to 17, in the year which celebrates the 50th anniversary of our company's partnership with the United Arab Emirates. Since 1973 and the Mirage 5, Dassault Aviation has been a partner of the United Arab Emirates Armed Forces, which currently operates a fleet of Mirage 2000-9s and ordered 80 Rafales in December 2021.

Dassault Aviation static display featured a Rafale C combat aircraft and a Rafale F4 simulator. The Rafale took part in the flying display every day, presented by the French Air and Space Force, which operates a Rafale detachment deployed at the UAE base of Al Dhafra.

A Falcon 2000LXS business aircraft and a full-scale model of the Falcon 10X cabin was also on display in the static park. The Falcon 2000LXS, with a range of 4,000 nautical miles (7,400 km), is the most efficient and versatile twin-engine aircraft in its class. After successfully evolving into six different versions, today the aircraft numbers nearly 700 deliveries since it was launched. The Falcon 10X, which was presented in 2021, will offer a range of 7,500 nautical miles (13,890 km), enabling it to fly non-stop from the Gulf to any destination in Asia, Australia/New Zealand or the U.S. West Coast.

Its cabin will be even more spacious than some new regional jets. Many Falcon aircraft are operated in the Middle East where the reliability, comfort and flexibility of our business aircraft are much appreciated. Dubai is one of the key points in the Falcon support network. A new maintenance center, managed by our subsidiary ExecuJet MRO Services, opened last summer at the new Al Maktoum airport (DWC), replacing the former facilities located at Dubai international airport (DXB).

With over 10,000 military and civil aircraft (including 2,500 Falcons) delivered in more than 90 countries over the last century, Dassault Aviation has built up expertise recognized worldwide in the design, development, sale and support of all types of aircraft, ranging from the Rafale fighter to the high-end Falcon family of business jets, military drones and space systems. In 2022, Dassault Aviation reported revenues of €6.9 billion. The company has 12,700 employees.

## Croatia, Delivery of the 3<sup>rd</sup> Rafale

The first three guardians of the Croatian sky are owned by the Republic of Croatia, right before the Day of Remembrance of the Victims of Vukovar and Škabrnja, said PPV and Minister Anušić

The handover of the third multipurpose Rafale fighter plane, i.e. the transfer of ownership between the Republic of France and the Republic of Croatia, took place on Friday, November 17, 2023 in France, making Croatia the richer for the first Rafale single-seater. It is the third of 12 Rafale planes, a multi-purpose fighter plane of the 4.5+ generation of the French manufacturer Dassault Aviation, which the Republic of Croatia acquires from the Republic of France for the needs of the Croatian Air Force. So far, Croatia has taken over two two-seater planes.

"This is a big day, first of all for the pilots of the Croatian Air Force and our aviation technicians, and then for the entire Croatian people.

The first three guardians of the Croatian sky are owned by the Republic of Croatia, and this is precisely on the eve of a day that calls us to common national pride and dignity: on the eve of the Day of Remembrance of the Victims of Vukovar and Škabrnja. This is a strong message to the generations to come, and thanks to the knowledge, sacrifice and wisdom of Croatian veterans, we continue to build a modern and powerful defense system," said Deputy Prime Minister and Minister of Defense Ivan Anušić, pointing out that this is one of the indicators of the successful delivery of Rafale to Croatia.

We remind you that the handover of the first Rafale aircraft took place on 2 October 2023, at the French air force base Mont-de-Marsan in France, and the handover of all 12 Rafale aircraft is scheduled for



the following dynamics: at the end of 2023 – four planes, during 2024 – four planes and at the beginning of 2025 – four planes. The gradual delivery of all Rafale aircraft and accompanying equipment to the Republic of Croatia is expected during 2024 and the beginning of 2025.

By introducing the Rafale multi-purpose fighter jet into operational use, the Republic of Croatia maintains its sovereignty in the national airspace, becomes a possible regional guarantor of the airspace security of the countries in the region and sets new standards in equipment.

Also, the current capabilities and potential of the combat component of the Croatian Air Force will be preserved and significantly increased, the overall combat power of the Croatian Army will be significantly increased, but also the long-standing tradition of combat aviation in the Republic of Croatia will be preserved.



The third multi-purpose fighter plane, the first single-seater, Rafale, owned by the Republic of Croatia | Photo: HRZ





## The Launching Ceremony of first of Nigerian Navy's OPV 76 Offshore Patrol Vessels Has Been Completed at Dearsan Shipyard

Dearsan Shipyard signed a contract with the Nigerian Navy in Abuja on November 3, 2021, for the construction of 2 units of High Endurance 76-meter Offshore Patrol Vessels. Subsequently, necessary steps were taken to realize the project, and on September 16, 2022, the keel-laying ceremony for the two 76-meter Offshore Patrol Vessels was held. Just 13 months later, the launching ceremony for the first vessel of the project has been carried out on October 26, 2023. The ceremony was attended by the Nigerian Navy Delegation led by Chief of Naval Staff Vice Admiral Emmanuel Ikechukwu Ogalla, as well as Mr. Gökhan Uçar, Deputy President of the Defense

Industries Agency, Mr. Aziz Yıldırım, our Chairman of the Board, Mr. Murat Gordi, our General Manager, and many local and foreign guests.

The OPV 76 was designed to operate on various missions mainly anti-surface warfare, anti-air warfare, naval gunfire support, asymmetric warfare and counter-piracy operations. The hull of the ship is built from AH-36 steel and superstructure is Sealium.

The OPV 76 is 78.6 meters long and 11 meters wide. The draft of the ship is 2.9 meters, and the displacement is about 1200 tons. It can reach a top speed of 26 knots and has a range of 3000 nautical miles with economical speed. The ship can be operated by a crew of 46.

### Weapons:

- 76 mm. Leonardo Super Rapid Gun
- 40 mm. Leonardo Light Naval Gun
- 2 x 12.7 mm. Stabilized Automatic Machine Gun
- 2 x 12.7 mm. Manuel Use Machine Gun
- 2 x 2 SAM SIMBAD RC (MBDA)

### Propulsion & Electric System

- Main Engines: 4 x MAN 18VP185 Diesel Engines
- Propulsion: CPP
- Generator Set: 3 x Diesel Generator

© Dearsan Shipyard







On 6 June 2023 in Abuja, Nigeria, a new contract has been signed between Nigerian Navy with Dearsan Shipyard within the scope of the Refit and Remodeling project of the historically important NNS ARADU Frigate (F89), the Flagship of the Nigerian Navy. The refit and remodeling project of the MEKO 360 class NNS ARADU Frigate, which was built by the German Blohm & Voss Shipyard and commissioned in 1982, has a length of 125 meters and a displacement of 3500 tons, will be carried out at our shipyard in Tuzla, İstanbul. Within the scope of the project; systems, equipment and devices that are out of use due to the age and obsolescence will be repaired or renewed with equivalent modern systems and the frigate will be brought to modern-day standards.

The contract signing ceremony was held between the Nigerian Navy and Dearsan Shipyard which was attended by the Members of the Senate of the Federal Republic of Nigeria, Officials of the Ministry of Defence, Commander of the Naval Forces Vice Admiral AZ GAMBO, Headquarters staff of the Naval Forces Command, Chairman of the Board of Dearsan Shipyard Mr. Aziz YILDIRIM, and our company executives.

The Patrol Boat, which can take active roles in Patrol /Escort, Intelligence, Reconnaissance and Surveillance, Anti-Smuggling & Anti-Piracy, Protection of Rights and Interests at Sea and Natural Resources, Maritime Situation Awareness duties and illegal Fisheries Inspection will also be equipped with Anti-Air Warfare, Anti-Surface Warfare, and Asymmetric Warfare weapon systems. We are happy and proud that our platform, which has the distinction of being Turkey's first national warship, will also carry out its duties in Nigerian territorial waters from now on.



## Sweden orders MBDA's CAMM air defence missile



MBDA is pleased to announce it has signed a contract in Sweden to deliver Common Anti-air Modular Missiles (CAMMs) for the Swedish Armed Forces.

The contract – signed between MBDA and the Swedish Defence Materiel Administration FMV (Swedish: Försvarets materielverk) – will see MBDA supply CAMM for the Royal Swedish Navy's five Visby Class Corvettes, which will deploy them from MBDA's Sea Ceptor naval air defence system.

Sea Ceptor is a latest generation naval air defence system, providing robust self- and local area- air defence against simultaneous attacks, including saturation attacks, across the full 360° threat axis. With a wide target set from supersonic anti-ship missiles to attack helicopters and un-crewed air vehicles, the system has been designed to counter advanced threats.

Eric Beranger, CEO of MBDA, said: "CAMM will provide Sweden and the Royal Swedish Navy with a formidable air defence capability that gives the country a strong new contribution to NATO together with other allied Sea Ceptor users like the Royal Navy from the United Kingdom. We're proud also to be continuing our long history of partnership with Sweden and Swedish industry, including Saab."

MBDA has a long history of partnership with Sweden. This is exemplified within the MBDA-led Meteor missile program where Sweden is a strategic and valued partner nation. Sweden's SAAB is also a member of the joint partnership with MBDA on the TAURUS cruise missile. Co-operation with Sweden also includes AKERON MP.

Sweden joins a growing list of militaries worldwide that have chosen to rely on the CAMM family for latest generation naval and ground-based air defence, including major recent orders from Poland, as well as the UK, Italy, Canada, Brazil, and more.

MBDA is a unique multi-national European group, a world-leader in the field of complex weapon systems, playing a key role in keeping nations safe. Created in the spirit of international co-operation, MBDA and its 14,000+ employees work together to support the national sovereignty of France, Germany, Italy, Spain and the UK, and their allies worldwide. As an accelerator for innovation, MBDA is the only European group capable of designing and manufacturing complex weapons to meet the full range of current and future operational requirements of the three-armed forces (land, sea and air). Airbus (37.5%), BAE Systems (37.5%) and Leonardo (25%) jointly own MBDA.

© photo credit: MBDA







## TDW to significantly ramp up PARM production

MBDA subsidiary TDW GmbH has been awarded a contract to produce and deliver 2,600 PARM to the German Armed Forces. TDW and the Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support signed the contract on 14 November 2023, marking the beginning of the procurement.

“TDW provides core competences in the field of anti-access/area-denial systems and warheads. With the procurement, PARM is in the process of returning to serial production, making it the most available, most powerful roadside counter-mobility system on the market” stated Thomas Gottschild, Managing Director MBDA Germany.

“The order intake marks a first milestone of the ramp up of our production capacities. PARM strengthens TDW’s market position as a leading warhead

company in Europe. We are convinced that PARM will help Germany, as well as other nations, develop and expand their area denial capabilities” commented Andreas Seitz, Managing Director of TDW. PARM is a fully automated anti-tank effector that can defeat modern Main Battle Tanks. Its warhead, fuzing mechanism and sensor kit meet the technical and operational demands of today. A single soldier is able to carry PARM and the system requires little training and is combat proven. Through its modular design, PARM can easily be adapted with different sensors and a remote control.

TDW Gesellschaft für verteidigungstechnische Wirksysteme mbH, a wholly owned subsidiary of MBDA Germany, is the leading warhead company in Europe. TDW is experienced in the design and manufacture of warheads and warhead systems including the associated fuzes and safe & arm devices. The available key technologies include insensitive explosive charges with outstanding safety under extreme mechanical and thermal threats which provide nonetheless ultimate destructive performance. Novel technologies are also target adaptive warheads and “intelligent” high shock resistant detonation triggering fuzing systems.

## Israel Aerospace Industries salutes the IDF on the successful interception of a long-range ballistic missile by the "Arrow" missile defense system

Israel Aerospace Industries (IAI) salutes the IDF on the successful interception of a long-range ballistic missile by the "Arrow" missile defense system. The "Arrow" is an advanced air defense system created and designed to intercept ballistic missiles outside of the Earth's atmosphere. The system is developed in collaboration between Israel's "Homa" Directorate within the Ministry of Defense, the U.S. Missile Defense Agency (MDA), and IAI with the involvement of security industries in both Israel and the United States. CEO and President of the IAI, Boaz Levy, said, "The Arrow system, a system developed by IAI in close cooperation with the Ministry of Defense, the U.S. Missile Defense Agency, and the Israeli Air Force, demonstrated today that Israel possesses the most advanced technology for defense against ballistic missiles at various ranges. The "Arrow" missile defense system is a critical component of Israel's multi-layered defense system. IAI's Engineers work closely with the Ministry of Defense and the IDF in full cooperation and support of this system."



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## KRAKEN AND L3HARRIS COLLABORATE FOR USSV INNOVATION

Kraken Technology Group is pleased to announce an official collaboration with L3Harris Technologies (NYSE: LHX) to advance the integration of control systems within the K40 MANTA prototype. This is a pivotal step in the technical evolution of Kraken's K40 MANTA platform, setting the foundation for the development of enhanced autonomous capabilities and ultimately, full autonomy. The K40 is an uncrewed surface-subsurface (USSV) platform that utilises foils for rapid surface transit before submerging for clandestine manoeuvring. This high-performance vessel requires well-established, cutting-edge control systems and L3Harris possesses the necessary components and expertise required for seamless integration into the K40 MANTA.

These integrated systems will enable the remote control of the uncrewed platform for engineering testing, foil development, powertrain calibration and demonstration before enhancement in later developmental stages.







ELMON is a leading producer and Systems Integrator, specializing in the Protection, Security and Defence Systems as well as related services to provide the best possible solutions to the most demanding end-users.

Customized solutions are offered to meet specific demands in the areas of military, police and homeland security.

All products - systems are thoroughly tested to withstand the harsh conditions of the battlefield.

Elmon has a strong extrovert approach to exports to the elite of Customers in more than 30 countries recognised among the most innovative, customer - driven company for personal protection by delivering uncompromising quality.

At Elmon we produce our own Body Armor, Ballistic Plates, Helmets and CBRN suits.

### Line of Production

---

- Body Armor
- Ballistic Plates
- Ballistic Helmets
- CBRN Protection
- Ballistic Vests
- Ballistic Protection
- Soft Armor



**10.23** Plate Carrier



**ACHILLEAS** Tactical Full Cover



**ACHILLEAS** Tactical with Molle



**FAST** Ballistic Helmet



**BALLISTIC PLATE** Level IV Stand Alone

## Roketsan Set to Land its Products in the Gulf at Dubai Airshow

Roketsan, Türkiye's leading player in the global rocket, missile and ammunition arena, is looking to develop new collaborations in the Gulf nations at Dubai Airshow. Murat İkinci, General Manager of ROKETSAN, said, "We will show strong participation at Dubai Airshow with a view to expanding our business not only in United Arab Emirates, but also in the other Gulf countries, all of which are important for Roketsan."

Roketsan is seeking to expand its 35 years of success under the banner "We Rise for Tomorrow" at Dubai Airshow 2023, which will be held in the United Arab Emirates between 13–17 November. To this end, Roketsan will be bringing an experienced team to the event where it will showcase numerous cutting-edge products in a bid to develop new collaborations in the Gulf region – one of the leading global defence arena.

Roketsan will be making its presence known among the many global players that will be attending Dubai Airshow, as one of the most important events on the sectoral calendar in the Gulf region.

Among the products that will be showcased by Roketsan are its Mini Smart Munitions MAM-C, MAM-L and MAM-T, which have made a name for themselves around the world in integration with UCAVs; as well as its CİRİT Laser Guided Missile, ÇAKIR Cruise Missile-first UAV launched cruise missile, SUNGUR Air Defence Missile System, SOM Stand-Off Munition and Micro-Satellite Launching System (MUFS).

Murat İkinci, General Manager of Roketsan, stressed that the cutting-edge products they are bringing to the event will make them one of the most high-profile participants at the event, adding: "The strengthening relations between Türkiye and the United Arab Emirates are reflected positively in our collaborations in the defence and aerospace sector. We will show strong participation at Dubai Airshow with a view to taking new steps not only in the United Arab Emirates, but also in other Gulf countries, which are important alliance for Roketsan. We will be seeking to start harvesting the fruits of our efforts to develop positive commercial relationships in the defence and aerospace sector with the best possible outcomes. The meetings we will hold at Dubai Airshow will allow us to take concrete steps in this regard, thus contributing to the economy of Türkiye and waving our flag around the globe."

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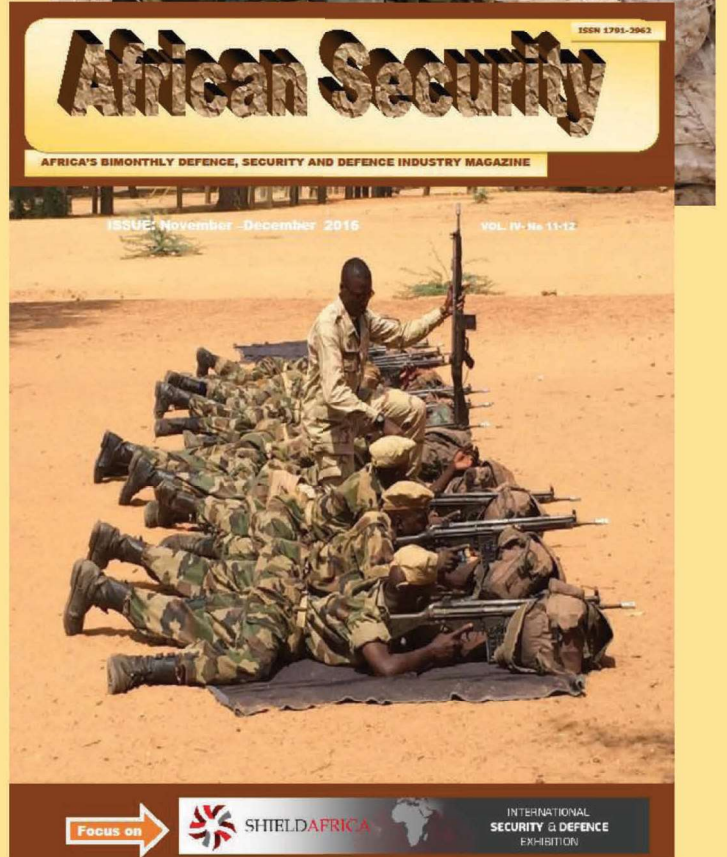
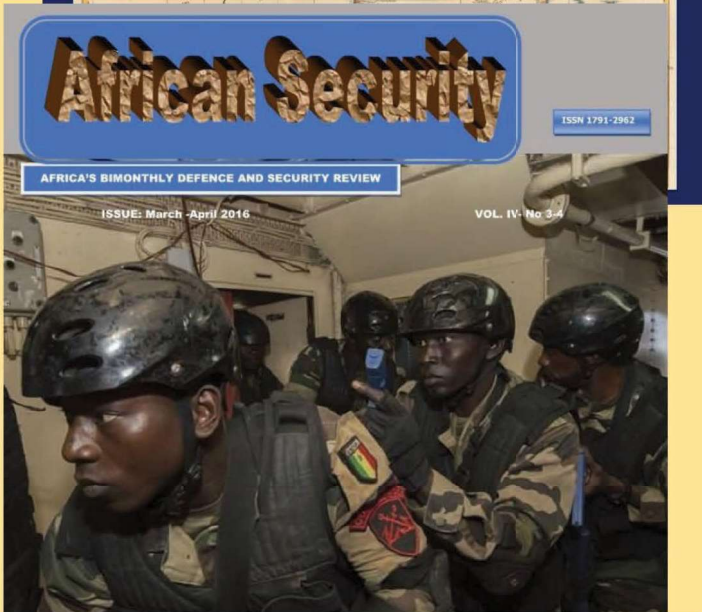
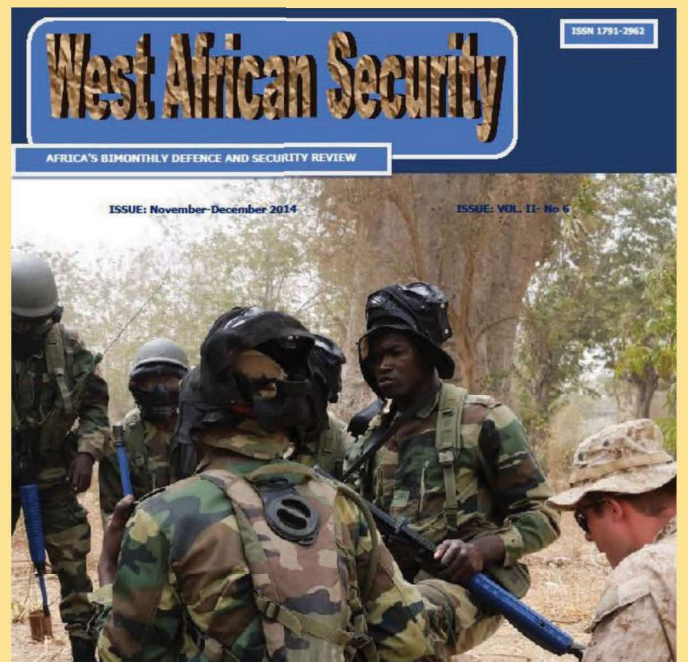
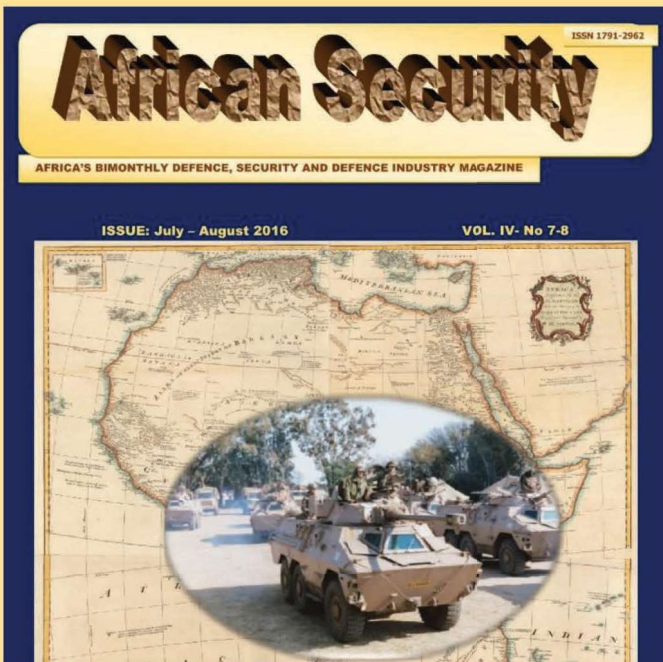




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## **FULL FLIGHT SIMULATOR MANUFACTURER HAVELSAN ANNOUNCES FACTORY ACCEPTANCE TEST FOR NEW A320 SIMULATOR TO TAKE PLACE IN NOVEMBER 21**

Headquartered simulator manufacturer HAVELSAN announced its latest Airbus A320 full flight simulator will undergo and complete factory acceptance test this month. Following the tests, the company will initiate the certification process for the device, making the simulator ready for training at the beginning of 2024.

HAVELSAN previously signed a contract with Turkish Airlines for the procurement of a total of 11 A320 CEO NEOs and Boeing 737 Max full flight simulators (FFS) and FTD's. Following the EASA certification of two Boeing B737MAX full flight simulators, HAVELSAN and Turkish Airlines announced the opening of the new Turkish Airline Training Center within HAVELSAN's premises. With the latest development of the company aiming to complete the FAT's, HAVELSAN is scaling up its solutions to support airline customers for their pilot training requirements.

We believe that the Factory Acceptance Tests for our A320 FFS will be conducted successfully and will pass the tests, enabling us to complete our final preparations for the delivery." stated Dr. Mehmet Akif Nacar, CEO of HAVELSAN.

HAVELSAN is planning to achieve EASA certification for its Airbus A320 CEO/NEO FFS to showcase the global airlines and pilot training industry that it can provide world-class Turkish manufactured narrow body aircraft flight simulators.

Taking its stance in the simulation industry for 40 years, HAVELSAN is dedicated to meet the needs of Flight Simulator Training Devices both domestically and internationally and continues to provide advanced solutions to its customers. The company is currently actively seeking additional airlines or training center operators to share information about its products and the unique offering that it can provide.

HAVELSAN has also previously signed a contract with Turkish Airlines for the procurement of a total of 11 A320 CEO NEOs and Boeing 737 Max FFS and FTD's. In May 2023, the first HAVELSAN manufactured B737 MAX full flight simulator located in the Turkish Airlines Flight Training Center achieved EASA Level D Certification. Now, for the second time, the company has achieved a remarkable milestone by attaining EASA Level D Certification for another B737-8 MAX Simulator. This certification is a testament to HAVELSAN's unwavering commitment to innovation, quality, and safety in aviation training.

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# TÜRKİYE'S LEADING DEFENCE AND AEROSPACE EXHIBITION

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### CAS UNDERSCORES SIGNIFICANCE OF ARTIFICIAL INTELLIGENCE, EMERGING TECHNOLOGIES IN NAF OPERATIONS

The Chief of the Air Staff (CAS), Air Marshal Hasan Abubakar has highlighted the importance of Artificial Intelligence and other emerging technologies in modern-day military operations. He also noted that the ability of the NAF to harness the power of technology will determine its success in ensuring the highest levels of operational effectiveness and efficiency. According to him “a deep focus on artificial intelligence can revolutionize how we process data, analyze information, and make informed decisions in real-time, thereby giving us the edge, we need to excel in theatres of operations around the country”. Air Marshal Hassan Abubakar made this assertion during the opening ceremony of the Nigerian Air Force (NAF) Communications Information Systems (CIS) Conference held at NAF Headquarters today, 8 November 2023. He went on to note that for the NAF to ensure the security of its communications, it must seek out ways to improve its investment in state-of-the-art encryption and cybersecurity measures. On the theme of the Conference which is, ‘Exploiting Emerging CIS Technologies for an Agile and Resilient NAF to Effectively Meet National Security Imperatives’, the CAS noted that it aligned with his Command Philosophy, which is ‘to transform the NAF into an agile and resilient force that effectively meets the airpower demands of national security in all operational environments.’ He also called for deliberations to be guided by the theme in order to come up with innovative solutions. He went on to

state that positioning the NAF to meet the airpower demands of national security is critically hinged on NAF’s ability to monitor Nigeria’s airspace through the implementation of military total radar coverage of Nigeria.

Air Marshal Abubakar stressed the essential role of CIS in enabling commanders to make informed decisions, coordinate forces and ultimately achieve mission objectives. He then underlined NAF’s commitment to staying at the forefront of technological advancements, aligning with one of the key enablers of his Command Philosophy’s of “prioritizing R&D, leveraging cutting-edge technology, strategic partnerships, and lessons learned.” He added that the Conference underscores the NAF’s dedication to staying ahead in the ever-evolving landscape of modern warfare through the effective use of emerging CIS technologies. According to the CAS, the presence of experienced senior officers as resource persons underscored the conference’s significance and went on to encourage participants to see the forum as an opportunity to positively impact NAF’s capabilities.

Earlier in his welcome address, the Chief of Communication and Information Systems (CCIS), Air Vice Marshal Ibikunle Daramola noted that the 2-day Conference aimed at exploring innovative CIS that would enhance NAF’s operational capabilities in addressing pressing national security imperatives. According to him, the theme of the Conference was carefully selected after diligent consideration of the daunting security challenges bedevilling the nation and bearing in mind that the resolution of these challenges requires innovative solutions. He went on to stress the importance of evolving novel CIS technologies in the prosecution of military operations on land, sea, air or cyberspace environments. He also added that the core

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derivative of the Conference was geared towards improving the capacity of CIS personnel as well as reinvigorating CIS-based procedures with a view to enhancing NAF operational effectiveness.

The CCIS also listed some achievements recorded by the CIS Branch in recent times including the receipt of approval for the establishment of Intelligence, Surveillance & Reconnaissance (ISR) Systems Maintenance Workshop at 441 CIS Group Kaduna as well as successfully midwifing the implementation of the NAF Digital Correspondence System in NAF headquarters for efficient handling of correspondences.

The 2-day Conference serves as a platform for CIS practitioners and stakeholders to discuss critical issues, seeking to enhance operational effectiveness and future CIS practices. Some of the stakeholders represented at the conference include the National Information Technology Development Agency, National Space Research & Development Agency, Nigerian Airspace Management Agency, Nigerian Communications Satellite Ltd and Nigerian Communications Commission. Present at the Conference were branch chiefs from Defence and service headquarters, commandants of tri-service institutions and CIS professionals from all NAF units.

### **NO HIDING PLACE FOR TERRORISTS IN THE NORTHEAST AS AIR STRIKES CONTINUE TO DENY THEM FREEDOM OF MOVEMENT**

Two major air strikes on 8 November and 11 November 2023 undertaken by the Air Component of Operation Hadin Kai have led to the decimation of several terrorists taking cover at Ajigin and Banki Junction areas located in Borno State.

In efforts aimed at clearing the remnant of terrorists coming to terms that their efforts at causing mayhem and disunity among law-abiding Nigerians are efforts in futility, air interdiction missions were conducted on their enclaves situated at 1.9km South of Ajigin on 8 November 2023. The terrorists, who had hidden 4 gun-trucks under thick shrubs had earlier perfected plans to attack friendly troops' location around Damboa and Wajiroko. During the air strike, 3 of the gun-trucks were struck, as evidenced by the thick black smoke and fire from the trucks after the strike, while the last gun-truck was observed fleeing the scene of the strike. The truck was subsequently tailed for about 26 Km and thereafter disappeared under a tree.

The truck was subsequently struck and observed to be on fire with no sign of movement at the location. The destruction of the 4-gun trucks, along with the occupants, effectively degraded the capability of the terrorists to attack friendly forces and locals within the area.

Air interdiction missions were also conducted at a location 7km East of Banki Junction on 11 November 2023. The location was a well-known terrorists' enclave hitherto deserted but suddenly active with high terrorists' activities and used as logistics storage area and staging area to attack troops locations at Bank Junction.

The need to attack the location thus became necessary. Accordingly, NAF aircraft were scrambled to interdict the location. The aftermath of the strike revealed the destruction of the location with the logistics sites on fire.

In an apparent display of desperation, confusion and at a loss on why they have continually been on the receiving end of the Nigerian military, the terrorists have continued to feel the firepower of both the air and ground forces. Indeed, the inability of these terrorists to move freely and at will is also attributed to the effectiveness of the operational jointness exhibited, especially by the air and ground troops, which should be commended.



## United States Announces Donation of Helicopters to Zambia Air Force

On September 11, the United States announced an \$80 million (1.6 billion Kwacha) grant to Zambia that will supply four Bell 412EP helicopters to the Zambia Air Force with three years of service, parts, and training for the helicopters. During a press conference, Zambia Air Force Major General Oscar Nyoni thanked the U.S. government for the donation, noting that this grant will enable the Zambia Air Force to better support the domestic needs of Zambia, regional security, and UN peacekeeping missions abroad.

Commander of U.S. Africa Command General Michael Langley made the announcement at the Africa Senior Enlisted Leaders Conference (ASELC), which the United States and Zambia co-hosted from September 10-13. This annual conference convened senior enlisted leaders from

During his two-day visit to Zambia, General Langley met with Zambian Minister of Defence Ambrose Lufuma to discuss strengthening the U.S.-Zambia security partnership. He also met members of the approximately 30 African countries to discuss mutual challenges and opportunities, including crisis response, rule of law, protecting natural resources, addressing instability, and strengthening security cooperation. Zambia is the first African nation to host the ASELC.

Zambia Defence Force (ZDF) to discuss women, peace, and security efforts in the Zambian military and to learn how the ZDF has been so successful in integrating women into all ranks and career fields. Additionally, General Langley visited a U.S. Agency for International Development (USAID) “Stop Gender-Based Violence” program at Munali Boys Secondary School to learn how the project is empowering boys and men to be champions against gender-based violence using the “Coaching Boys into Men” activity.

The United States and Zambia share the goal of promoting peace and stability. We commend the Zambian military for its outstanding commitment to UN peacekeeping missions, as well as serving as a global model for integrating women into its military. The United States looks forward to partnering with Zambia to strengthen bilateral security cooperation that benefits the Zambia Defence Force, the Zambian people, and the region.





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