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PRACTICALITY,
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BELL'S ARGUMENTS IN POLAND'S
HELICOPTER PROGRAMS

PRESIDENTIAL
ELECTIONS AND THE FUTURE
OF THE POLISH NAVY

LEOPARD 2PL MBTS
ENTER SERVICE IN THE POLISH ARMY

SOUTH KOREAN
K9 SPHS
ROLL THROUGH
THE BALTICS

WITH US TO



VIS 100...



... & VIS 100

THE GOAL!



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FABRYKA BRONI



- 006 Practicality, economy, industrial cooperation. Bell's arguments in Poland's helicopter programs
020 News
036 Leopard 2PL MBTs enter service in the Polish Army
048 South Korean K9 SPHs roll through the Baltics
066 Presidential elections and the future of the Polish Navy

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**PRACTICALITY, ECONOMY,
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BELL'S ARGUMENTS IN POLAND'S HELICOPTER PROGRAMS





MILMAG Defense&Space talking with Joel Best and Andrew P. Woodward about the role Bell wants to play in the Polish Armed Forces' helicopter programmes.

What future does Bell see for the H-1 family of rotorcrafts? How important will they be in company's future business operations?

It's no secret that the United States Marine Corps programme of record has been bought out. We will deliver the programme of record for the Marine Corps in the next couple of years. The good news is, because these aircraft are 85% common, there's a lot of similarity on the production line. So, the parts that we order, the suppliers that we use, we still have good access to all of them. I won't go in a great depth on the number of Foreign Military Sales (FMS) opportunities that we have. I can say that there are a number of them globally. The vast majority of the this year are in the Far East, but we're busy pursuing those opportunities. So, there will be a hot production line for Y and Z, Vipers and Venoms into the foreseeable future, outside the programme of record for the USMC.

Then specifically to your point, the Marines, even though the aircraft will be fielded and fleet, they've got a roadmap for all of the future capabilities and upgrades. Their current plan is to operate the fleet of H-1s to 2040's and beyond. So, buying the Y/Z - type

aircraft in the next couple of years for Poland, doesn't mean that they won't have the United States government's backing. Technology is going to be continued to flow into the platform. The Marines look into POM [Program Objective Memorandum - MILMAG] cycle budget for the things that they want to add in. That goes on a 5 to 7 year schedule. So, they know, when they want to roll in future capabilities and the pieces they want to do.

To what extent will Poland be free to work out any future upgrade or modernization projects for their own fleet of H-1 helicopters?

The polonization of the aircraft is something that needs to be discussed also between the USMC but also Bell Engineering, which will be responsible for making sure that everything works. If the Polish Aviation authority wants to integrate something, we as Bell will be involved in that specific polonization of the aircraft.

You wouldn't want to do something so dramatic, like changing the rotor head, or you'd have to re-certify the airplane. But, systems, weapon systems, sets, kits and outfits that are of interest to the Poles would be something, that would be a three-way partnership between the Polish industry, Bell and USMC for the engineering. So, there's already a letter of intent that we've signed with WZL-1 [Wojskowe Zakłady Lotnicze nr 1, eng. Military Aviation Works No. 1 - MILMAG] for maintenance, repair and overhaul. At this point in time we've been told by the leaders that there's not a lot of interest in Bell coming to Poland and setting up





a factory and building helicopters here. Because they have Świdnik [PZL Świdnik – MILMAG] and Mielec [PZL Mielec – MILMAG] and they're more focused on how will they take on that in the Rzeszów Valley. The bigger issue is making sure that we've got the long term security of supply for Poland in the foreseeable future. That's what we're already working on with PGZ [Polska Grupa Zbrojeniowa, eng. Polish Armaments Group – MILMAG] and WZL-1, and that doesn't mean them only. Back in 2017 we did a huge industry survey at Radom, and then we did another one in Warsaw. We've talked to the whole PGZ family, we've talked to a whole host of suppliers, universities, technology firms here in Poland, all of which have opportunities for working with Bell and working on future programmes.

Our Manufacturing Technology Centre is right now establishing a centre, where we can evaluate and burn down the risk on new technologies and production. They are in negotiations, one part of which has been completed, and there's another negotiation on-going with a Polish company for equipment that will be used in our future vertical lift programmes and other Bell-related programmes. It's not only on the military side for the Manufacturing Technology Centre, as it's also on the civilian side and urban mobilities as well.

Having in mind that Bell is now involved in the Future Vertical Lift programmes, does it mean that the company won't be working on new generations of the currently operated platforms, like the H-1 family, and all that could be done, are upgrades or modifications of the existing technology?





47

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The good news is that the UH-1Y and AH-1Z are all new aircraft. They're the newest generation of these aircraft, started in 2009. The 'Z' didn't get on the streets until 2011. Whereas all the other legacy platforms have been around for a long time, since the 1970's and 80's, you're seeing the end of the lifecycle for their upgrades. While we've got airplanes, the Y's and Z's, that were born essentially in 2010. They're a decade old and they got a lot of lifecycle in front of them for additive technology. The hard points, the material we use, the rotor system are all state of the art. When you compare our rotor system to anything else out there on the market, nobody else is doing what we're doing. That technology will fly into the future.





I want to go back and share again, because I think that this is important. There's no way Poland would be ready for F-35s today, if there were still flying MiG-29s. If you look at the Lockheed Martin and the Polish buy of F-16s, how it thought them the supply chain, training, the technology, all the way in which you support the airplane, which is completely different, that drove in the industry, drove into the military. That's the knowledge that was necessary to get ready for the future generation fighter. With the AH-1Z and UH-1Y it's the same kind of process. Because you're now going to step away from Mi-8s/17s on the utility side and you're going to step away from Mi-24s on the attack side, and yet you bring in the same kind of construct: a combat multirole in the UH-1Y and attack in the AH-1Z with all the latest capability to go forward.

When you talk about future technology, when you look into the BELL 360 INVICTUS programme, you'll see that there's a system called ALE, air-launched effects. It can go right onto of the UH-1Y or AH-1Z. There's really no reason the systems and sensors can be changed now.

It's logical to assume that the future technology, like the ALE and other weapons platforms, systems and sensors will be fully integrated. We'd do that with the Polish industry. I know that one of the things that the Poles are very big on is Spike ATGM. I will tell you that USMC in the is also very familiar and interested in Spike. Having a demand signal from the Poles, the Marines will be really happy to hear that and having a foreign customer pushing for that. Poland could be a leader in the AH-1Z - Spike technology.





Which fields of cooperation with the Polish defense industry on the H-1 programme do you see as most promising?

We've already been giving guidance that we're working with PGZ companies, like WZL-1. We've been out for that factor many times. We signed a Letter of Intent (LoI) in February. We believe that it could include a grander cooperation. Not only on the military side, but also the commercial side. We're involved here in all three programmes: Kondor, Kruk and Perkoz.

For many years, Bell has been making a strong point about AH-1Z and UH-1Y significant parts commonality and what does it bring to the operator of these two platforms. However, out of the H-1 family of rotorcrafts, you're currently offering Poland only the AH-1Z attack helicopter for the Kruk programme. Do you intend to make a bid with Venom in any other Polish helicopter programmes?

Andy - If AH-1Z were to be selected under the Kruk programme, then it would make a lot of sense for UH-1Y to be selected for Perkoz. With the 85% commonality, that's in play, that saves you money on logistics, the supply chain behind it, the sustainment or pilot training, as you can train one pilot for both platforms. All of the sudden the case becomes very strong for the UH-1Y Venom, when you got the AH-1Z Viper already working for Kruk.

South Korean K2PL MBT in the Polish 'Wilk' programme

The South Korean Hyundai Rotem company showcased during MSPO 2020 exhibition in Kielce a scaled model of the K2PL main battle tank, a polonised variant of its K2 Black Panther MBT operated by the South Korean land forces. The company wishes do participate in the 'Wilk' programme, which is expected to lead to the development of Polish Army's next generation MBT.

The South Korean manufacturer informs, that the modified K2PL MBT could feature a number of enhancements in comparison to the original K2 vehicle, bringing the platform closer to the operational and combat requirements of the Polish Army and the Polish Ministry of Defense (MoD).

Among the modifications, which could be implemented in the original vehicle, are: additional armour plates in the front and on the sides, as well as slat armour in the back of the vehicle, to improve its survivability against a wide range of threats, like ATGMs.

Hyundai Rotem affirms that it's ready to implement a number of locally designed onboard systems into the K2PL platform, such as advanced sensors or internal and external communication systems. A number of local defence manufacturers have been identified as potential partners of Hyundai Rotem. This includes subsidiaries of the Polish Armaments Group (Polska Grupa Zbrojeniowa), like PCO, or privately owned WB Group. They are expected to play a major role in production, delivery and maintenance of the future Polish MBTs with a South Korean origin.



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The K2PL MBT could be fitted with an automatic threat detection and tracking systems or soft- and hard-kill ASOP systems. Furthermore, the vehicle would be capable of countering the enemy's rotary-wing platforms.

In general, the offered K2PL MBT would have a crew of 3 and dimensions: 10.8x3.6x2.4 m. It would be fitted with a 1,500 HP Diesel engine, a fully automatic transmission and all ISU (In-arm Suspension Unit) suspension system.

The vehicle will be armed with a 120mm 55 cal. smoothbore main gun with an autoloading system and a stock of 40 rounds. It would also feature a composite armour and an NBC protection system, as well as GPS based optical/thermal fire control system with hunter killer and auto target tracking functions.

The 'Wilk' programme calls for a gradual replacement of obsolete, Soviet-era T-72 and PT-91 MBTs with a more modern platform. The total requirement of the Polish Army for a new MBT is expected to be at least 500 vehicles. The programme is included in the current Technical Modernization Plan of the Polish Armed Forces for 2021-2035.

Lithuania takes delivery of the NASAMS AMD system

NASAMS medium-range air defense systems has been officially handed over to the Lithuanian Armed Forces. The representatives of the National Defense System and Kongsberg, a Norwegian manufacturer of NASAMS, signed a document certifying good testing results of the system on October 30 at the Lithuanian Armed Forces Air Defense Battalion.

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Borsuk IFV on field trials

The Polish Armaments Group (Polska Grupa Zbrojeniowa, PGZ) informed that in September a prototype of the Borsuk tracked infantry fighting vehicle (IFV) went through a series of field trials at the military training ground in Drawsko Pomorskie.

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Exercise 'Brilliant Jump 20 II' in full swing

After long preparation, the final phase of this year's NATO exercise Brilliant Jump has finally gained momentum. After the first alert exercises in January this year, and the maritime part conducted in the waters off Scotland from late September till early October, now the deployment of NATO's land-bound Very High Readiness Joint Task Force (VJTF) is underway in Lithuania.

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New M-346 Bielik trainers in Poland

The head of the Polish Ministry of Defense (MoD), Mariusz Blaszczak, informed that the Polish Air Force (Siły Powietrzne RP) has taken delivery of additional two M-346 Bielik / Master advanced trainer aircraft. The deliveries took place over the last few days.

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New Finnish-Latvian armoured vehicle

Finland, Latvia and Patria Land Oy have signed a product development agreement for the creation of a common armored vehicle system. The agreement is linked to a memorandum of understanding signed by the countries last spring.

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WARMATE can be used as a self-contained system transported by dismounted soldiers in backpacks. The loitering munitions can be also installed on various types of combat vehicles and integrated with the Ground Control Station and the Ground Data Terminal with onboard vehicle systems.

WARMATE is designed to locate and precisely engage high-value attack targets with low collateral effect



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Bulgaria gets closer to the OPV deal

According to the Bulgaria weekly *Капитал* (eng. *Capital*) the Bulgarian government is closing a deal with the German shipyard Lürssen Werft GmbH on procurement of two offshore patrol vessels. The newspaper states that according to country's defense minister, Krasimir Karakachanov, the contract could be signed within days. However, the *Capital* itself indicates that it is more probable, that the deal will be reached in the beginning of November.

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LÜRSEN





PGZ will deliver elements of the Wisla/Patriot AMD system

The subsidiaries of the Polish Armaments Group (Polska Grupa Zbrojeniowa, PGZ) signed an agreement on production and delivery of a series of utility vehicles for the Poland's Patriot-based 'Wisla' medium range air-and-missile defense (AMD) system.

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NSM for Romanian coastal defense systems

The Defense Security Cooperation Agency (DSCA) informed that the U.S. State Department has made a determination approving a possible Foreign Military Sale (FMS) to Romania of Naval Strike Missile (NSM) Coastal Defense Systems (CDS) and related equipment for an estimated cost of \$300 million.

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New flight simulators for Polish F-16s

The Armament Inspectorate, which acts on behalf of the Polish Ministry of Defense (MoD) announced on 12th October, that three companies confirmed their intention to participate in the ongoing tender for new flight training simulators for future pilots of F-16 C/D Block 52+ multirole fighter aircraft.

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Lukasiewicz-PIAP Institute presents Hunter UGV

The Lukasiewicz-PIAP Institute, a Warsaw based manufacturer of high quality mobile robots for counterterrorism applications, presented a prototype of a Hunter unmanned ground vehicle (UGV). Hunter UGV was designed for a number of applications, such as protection of selected areas, monitoring of the country's border, patrolling and reconnaissance and troop support. It has a cross-country traverse and obstacle avoidance capabilities and can conduct operations in an autonomous or semi-autonomous modes.

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Norway takes delivery a more F-35s

A batch of three F-35A Lightning II multirole fighter aircraft landed in Norway on Sunday evening. They flew into the Ørland Air Base of the Luftforsvaret (Royal Norwegian Air Force) from Fort Worth in Texas. New aircraft were received by 332nd Squadron's commander, Lieutenant Colonel Tron Strand and commander of the 132nd Air Wing, Colonel Øivind Gunnerud.

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Finland will increase its defense budget by 54%

The Government of Finland has approved the draft proposal of country's defense budget for 2021. According to the Ministry of Defense (MoD), next year Finland will allocate approx. €4,87 billion for defense related expenditures. The draft budget is higher by €1,7 billion in comparison to the current spending plan, which means an increase by 54%.

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Polish soldiers train in Romania

Soldiers of the Polish Military Contingent in Romania conducted a training exercise on the premises of the Cincu military base. The exercise took place day and night from 7th to 11th September. The exercise, which involved Polish and other multinational military contingents stationed in Romania as well as soldiers from the 22nd Infantry Battalion „Romanati” in Craiova, played a role in enhancing cooperation capabilities and improving procedures.

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Poland will send its troops to Turkey

The President of Poland, Andrzej Duda, approved sending of a 80-men strong military contingent to Turkey under a NATO-led TAMT (Tailored Assurance Measures for Turkey) mission, which was launched in 2015. It will be the first Polish military engagement in Turkey. The future mission has not combat-related character.

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Polish SOF trained in Georgia

Polish Special Operations Forces conducted training with their Georgian counterparts during a Noble Partner 2020 multinational exercise. Noble Partner 2020 exercise was held in Georgia between 7th and 18th September. Approximately 2 800 soldiers from France, Georgia, Poland, UK and US took part in the event. Training sessions took place in Vaziani military base located around 20 km outside Tbilisi and Camp Norio.

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Romania formally takes over the Patriot AMD system

The takeover ceremony of the first battery of the MIM-104 Patriot PAC-3+ medium range air-and-missile defense (AMD) system took place today at the premises of the Capu Midia Surface-to-air Training and Air-to-Surface Shooting Range.

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Poland acquires Rosomak-S vehicles

The Polish Ministry of Defense has signed a contract for 60 Rosomak-S 8x8 armoured modular vehicles for the cost of over 105 million Polish Zloty (\$28 million). Rosomak-S vehicles will be manufactured by the Rosomak S.A. company, a subsidiary of the Polish Armaments Group (Polska Grupa Zbrojeniowa, PGZ). Deliveries of new vehicles should take place between 2021-2022.

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Polish Territorial Defense Force train with US & UK troops

Soldiers of the 1st Podlasie Territorial Defense Forces Brigade conducted a training exercise with their US and UK counterparts from the enhanced Forward Presence Battle Group Poland (eFP BG POL). Polish operators of WB Electronics FlyEye 3.0 mini UAV systems conducted reconnaissance and observation training flights as well as conducted simulated combat operations, with UAV systems being involved in target detection and acquisition.

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LEOPARD



18 DYWIZJA ZMECHANIZOWANA

2PL MBTS

A 2PL MBTS tank is shown in a desert environment, firing a missile. The tank is positioned on the left side of the frame, with its main gun barrel extending towards the right. A large plume of dust and debris is being kicked up by the tank's movement, partially obscuring the lower part of the tank and the ground. The missile is in the air, trailing a large amount of dust and debris as it moves away from the tank. The background is a clear blue sky. The overall scene is dynamic and action-oriented.

enter service
in the Polish Army

The Polish Ministry of Defense (MoD) confirmed that the first batch of three Leopard 2PL main battle tanks (MBT) was delivered to the 1st Warsaw Armoured Brigade in Wesoła near Warsaw, which is subordinate to the 18th Mechanised Division in Siedlce.

The new equipment was already tested during a series of field exercises conducted by elements of the 18th Mechanised Division, which aside from the 1st Warsaw Armoured Brigade, also includes: 19th Lublin Mechanized Brigade in Lublin and 21st Podhale Rifles Brigade in Rzeszów. An independent 25th Air Cavalry Brigade

in Tomaszów Mazowiecki also took part in the event.

Delivery of the first batch of Leo 2PL MBTs to the 1st Warsaw Armoured Brigade indicates that the Polish Army has probably taken over as much as 9 modernized main battle tanks. The first 6 vehicles are said to have already been handed over to the



18 DYWIZJA ZMECHANIZOWANA

10th Armoured Cavalry Brigade in Świętoszów, subordinate to the 11th Armoured Cavalry Division in Żagań. They are used for training of future Leo 2PL crews and maintenance personnel.

At the end of May 2020 the Polish Army took delivery of a number of prototype Leopard 2PL MBTs. The vehicles were to be

delivered to the 10th Armoured Cavalry Brigade stationed in Świętoszów shortly after.

Overall fleet modernization

The contract for modernization of the 1st batch of 128 Leopard 2A4 MBTs to the 2PL standard

was signed in late 2015 by the Polish MoD and a number of Polish defence companies, such as the Polish Armaments Group (Polska Grupa Zbrojeniowa, PGZ) and its subsidiaries: ZM Bumar-Labedy, WZM (Wojskowe Zakłady Mechaniczne), PCO, Zakłady Mechaniczne Tarnów, ROSOMAK, and OBRUM. These vehicles were





8
18 DYWIZJA ZMECHANIZOWANA



acquired in the 2010's from the German Army's stocks.

Initially, the contract had a value of 2,4 billion Polish Zloty (€520 million). However, in 2018 the original agreement was amended and an annex regarding the modernization of additional 14 2A4s, from the batch acquired from Germany in 2014-201, was added. In result, the project's total cost increased by 300 million Polish Zloty (€65 million).

Subsequent to the signing of the contract for Leopard 2A4 modernization, a consortium of Polish defense companies reached an agreement with the Rheinmetall Landsysteme GmbH, under which the German manufacturer will play a decisive role in the whole project. In result Rheinmetall became responsible for working out the whole modernization plan and overseeing implementation of required modifications on a number of prototype Leopard 2PL MBTs.

The German manufacturer also agreed to help the Polish defense industry develop capabilities required for the future modernization of the serial production Leopard 2PL vehicles as well as setting up a local maintenance, overhaul and repair centre.

Continuing irregularities and project's delay

In 2018 the German Rheinmetall delivered the first prototype Leopard 2PL vehicles. They were handed over to the ZM Bumar-Labedy company for further testing and evaluation. The Polish industry, in hand with the Army, were to confirm that all required modifications were

actually implemented and that the modernized vehicles meet the operational and combat requirements of the future operator.

The ongoing tests helped to identify a number of technical

issues which troubled the prototype Leopard 2PL vehicles. The Army required that these were dealt with preceding their formal hand over. Furthermore, a number of new requirements,

which were not included in the original modernization project, were also added. Their implementation required additional work, eventually extending the modification process.



18 DYWIZJA ZMECHANIZOWANA





18 DYWIZJA ZMECHANIZOWANA

In the early 2020 the Armaments Inspectorate, which acts on behalf of the Polish MoD, informed that the original deadlines for modernization of the whole fleet of Leopard 2A4 MBTs won't be met. According to the current estimates, the full fleet of 142

modernised Leopard 2PL vehicles should be delivered to the Army by 31st July 2023.

Additionally, on 24th December 2019 the Armaments Inspectorate amended the original contract for MBTs modernization. The updated document included

additional works and services, which need to be included in the project. In result, additional PLN569 million (€124 million) had to be added to the programme's original cost, increasing the total budget to PLN3.2 billion (€700 million).





18 DYWIZJA ZMECHANIZOWANA



Overall, the Leopard 2PL modernization programme includes implementation of a number of new onboard systems and equipment to the platform, such as: new/upgraded observation and aiming sites for the commander and gunner, improved ballistic protection of the turret, new electronic system for turret traverse and cannon elevation, installation of more effective fire/

explosion prevention system, new command and control system, additional APU generator, additional cargo carrying equipment and upgraded evacuation/towing system adjusted to the higher weight of the platform, new fire control system, new ammunition (DM63 antitank and DM11 multipurpose) and day/night reverse camera for the driver.

SOUTH K9 SPHS

ROLL THROUGH THE BALTICS



KOREAN

The ongoing acquisition of South Korean K9 Thunder 155mm self-propelled howitzers (SPHs) by a number of countries in the Central and Eastern Europe and Baltic Sea regions, like Estonia, Finland, Norway and Poland, will significantly enhance combat effectiveness of these countries armed forces, therefore, boosting their defense capabilities and improving the overall security system in Europe.



ARGUMENTY BELLA W POLSKICH
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Estonia takes delivery of the first K9 Kõu SPHs

At the end of August 2020 the Estonian Armed Forces took delivery of the first two 155-mm K9 Kõu SPHs. Following tests and further modifications, these artillery systems will be operated by a sub-unit of the country's 1st Infantry Brigade in Tapa.

Within the next 3 years Estonia will receive all 18 K9 SPHs ordered from the South Korean Hanwha Defense.

The Estonian Minister of Defense, Jüri Luig, perceives procurement of K9 howitzers as a major step forward in the modernization of the country's armed forces, eventually leading to significant enhance of their operational capabilities.

'The process, which began two years ago, has now gone so far that we can begin to technically adjust the SPHs to fully meet our needs. This is one of the most important defense procurements of the Defense Forces in recent years, the aim of which is to strengthen, above all, indirect fire capabilities,' said Luik.





'K9 is a well-suited and modern weapon system suitable for Estonian conditions, which was introduced in South Korea already in 1999. This weapon system also fits well into the Estonian climate, because South Korea, like Estonia, has four seasons and large temperature differences', added Lieutenant Colonel Kaarel Mäesalu, Commander of the Mobile Artillery Procurement Project.

Although the K9 SPHs, which have just arrived in Estonia, are operational ready, they will have to undergo additional modification, prior to entering service. These will include, among others, covering them with a special paint scheme. Following enhancements, they will be transferred to the artillery battalion of the 1st Infantry Brigade

In total, Estonia will purchase 18 155mm K9 Kõu SPHs. Deliveries will run through to 2023. The contract with Hanwha Defense also includes training services for instructors, crews and maintenance personnel, as well as supply of special equipment and spare parts. It is expected that K9 Kõu SPHs will remain in service for at least 30 years.





Norway takes delivery of first K9 SPHs

In mid-September the Ministry of Defense (MoD) of Norway has taken delivery of the first batch of a dozen 155mm K9 SPHs and three K10 ammunition supply

vehicles, as they were delivered to one of seaports in northern Norway onboard a Ro-Ro Kvitnos cargo vessel.

Shortly after their disembarkation, they were loaded on trailer trucks and transported to a storage facility. In the next couple of weeks K9 SPHs and

K10 supply vehicles will undergo a series of tests, which will confirm their compliance with technical requirements of the Norwegian Army. Subsequently, a training period for crews and operational personnel should commence, preceding entering into operational service.





SAMSkip
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H54,5M





The formal takeover ceremony of the first K9 SPHs took place on 19th September 2019 in Changwon, South Korea. The event was hosted by the vehicle's manufacturer, Hanwha Techwin.

On 20th December 2017 Norwegian arms procurement agency, Forsvarsmateriell (FMA) signed a contract with the Hanwha Defense for delivery of 24 155mm K9 SPHs and 6 K10 supply vehicles for \$226.6 million. Deliveries are expected to conclude by 2021. The agreement has an option for additional 24 SPHs and an unspecified number of supply vehicles.



Finland enhances field artillery capabilities with K9 acquisition

In February 2017 a €146 million contract was signed, authorizing the Finnish Defense Forces to procure 48 second-hand 155mm K9 SPHs from South Korean Army's stocks.

The Operational Artillery acquisition project was carried out as

part of the comprehensive field artillery modernization project launched in 2014. Its purpose is to replace the currently operated field artillery units, which should be phased out of service in the coming years, with new and more modern weapon systems.

The goal of the Finnish MoD was to select and implement a far-reaching and mobile artillery system that could effectively support

the operations of the country's land forces. New 155mm weapon systems should have a life cycle of at least 30 years.

At the beginning of the Operational Artillery project, several different options were considered. A request for information (RFI) was sent about the project, to which responses were also received from different countries. In the tender phase (RFQ), it became



clear that South Korea would be interested in offering Finland its own little-used K9 Thunder SPHs. The offer proved to be interesting, and eventually the Finnish armed forces conducted tests of the South Korean K9 howitzer in Rovajärvi in November 2016.

Following the tests, the Finnish Defence Forces suggested that Finland should procure surplus K9 SPHs from South Korean Army's stocks. This should be

complemented by forming a new unit type, namely, a heavy armoured howitzer battery.

Apart from the procurement of 155mm artillery systems, the Finnish land forces also required implementation of more modern and efficient fire control and command and control systems, as well as launching of a combat service supply and training programmes for K9 crews and maintenance personnel.









Poland – the major K9 operator in the region

By 2024 the Polish Army should receive all of the 120 155mm Krab SPHs, delivered by the Huta Stalowa Wola (HSW) company, which is a subsidiary of the Polish Armaments Group (Polska Grupa Zbrojeniowa, PGZ).

The Krab SPH is based on the K9 Thunder chassis from South Korean company Hanwha Techwin fitted with the British BAE Systems AS90/52 Braveheart turret and a L52 155mm gun system, all built and assembled at HSW on a license.

In December 2014 HSW reached an agreement with Hanwha Techwin



regarding licensed production of the K9 chassis in Poland. Under the terms of the agreement, the first 24 vehicles were built in South Korea and shipped to Poland.

The 2014 contract included a transfer of technology, under which, a batch of additional 12 K9s were delivered in modules to

be assembled in Poland by HSW and the remaining 84 will be built entirely in the country.

Acquisition of 120 Krab SPHs will lead to the formation of five Regina artillery squadrons. Each squadron will be equipped with 24 howitzers. However, four of them will operate serial production Krabs, while the

first one will field vehicles, which initially were fitted on a locally designed, faulty UPG-NG chassis from ZM Bumar-Labedy, another subsidiary of the PGZ. The UPG-NG chassis proved to be faulty, leading to a number of technical issues which prevented the Army from their further procurement and



required selection of the replacement K9 chassis.

The first three serial production Regina squadrons should be formed by 2022 and the last one in 2023-2024.

Each Regina squadron will consist of 24 Krab SPHs as well as three command staff vehicles, eight command

post vehicles, six ammunition supply vehicles and one mobile armament and electronics workshop vehicle.

The first serial production Krab SPHs were delivered to the Polish Army in March 2019. They were handed over to the 5th Artillery Regiment in Sulechów, western Poland, which is subordinate to

the 12th Mechanized Division in Szczecin.


In late October 2020 another batch of 8 Krab SPHs and auxiliary vehicles were delivered to the Polish Army. New howitzers were handed over to the 23rd Silesian Artillery Regiment, which is a subunit of the 11th Armoured Cavalry Division.



PRESIDENTIAL ELECTIONS



**AND THE FUTURE
OF THE POLISH NAVY**



Construction of three *Kormoran II*-class minehunters is the only procurement / construction project of the Polish Navy that is lead according to initial plans

In summer 2020, during an election rally in Lebork, incumbent president Andrzej Duda referred to the current condition of the Polish Navy, expressing an opinion that the defense budget should have a portion dedicated specifically to the development of naval forces.

'I told the minister [of defense - MILMAG] that I want a part of the 2.5% of GDP spent on defense and modernization of Polish Army to be statutorily dedicated for the Polish Navy. The service needs to be rebuilt, and it needs to have guaranteed modernization funds each year. The minister said he will support my push for this project in the government.' said President Duda.

That statement was clearly related to the candidate's previous visit to the military training grounds in Ustka, where he overlooked *Anakonda-20* multinational exercise, and to an electoral campaign for the upcoming presidential elections, which 2nd round took place on 12th July, leading to re-election of President Duda. How does it relate to the actual condition of the Polish Navy, though?



Polish Navy run aground

Current condition of the Polish Navy can be, without exaggeration, called *critical*. Its operational capabilities have been diminishing for years. Despite numerous announcements and declarations, none of the central governments over time managed to stop the degradation process. Currently, the Polish Navy operates

35 vessels classified as combat ships. Only two of those are new naval units: ORP *Kormoran*, a mine countermeasures vessel (MCMV) of the *Kormoran II*-class, commissioned on 28th November 2017, and offshore patrol vessel, ORP *Ślązak*, commissioned exactly two years later — 28th November 2019. Event with these two platforms taken into account, the average age of Polish combat ships is currently over 32 years!

If one breaks down Polish Navy's combat fleet into specific vessel categories, the situation gets even worse. For instance, the Polish Navy currently operates 3 conventional submarines: a 34-years old ORP *Orzeł*, of the project 877E / *Kilo*-class and two ex-Norwegian *Kobben*-class vessels: ORP *Sęp* and ORP *Bielik* aged around 53-54 years. At the time being, ORP *Orzeł* has been

subject to never-ending repairs and maintenance works, far from reaching full operational capability. Initially, the Navy planned to keep the vessel in service for 3 years, which means that it should be phased out by 2022. However, in current circumstances, it seems completely infeasible.

Also the two *Kobben*-class submarines present minimal operational and combat capabilities, therefore they should have been phased out years ago. When they were acquired by the Polish Navy in the early 2000's, along with the already decommissioned *ORP Kondor* and *ORP Sokół*, having formerly served with the Norwegian fleet for approx. 40 years, they were expected to be kept in service by 2015-16. However, they are in use until today, but mostly for training purposes, as they no longer present any capable combat force on the modern battlefield.

The fleet of Polish Navy's large surface vessels includes: two missile frigates *ORP Gen. K. Pułaski* and *ORP Gen. T. Kościuszko* of the *Oliver Hazard Perry*-class, project 620D corvette *ORP Kaszub*, and project 621 corvette *ORP Ślązak*. Both OHP-class missile frigates have seriously limited combat capabilities, practically incapable of using anti-ship Harpoon missiles, which were never acquired in significant numbers. They also lack proper surface-to-air missile capabilities. Ironically, despite these operational inabilities, problems in procuring potential replacements, leads to the situation, in which these two vessels will have to be kept in service for the time being.

However, they are more probable to be used for training



ORP Ślązak – initially designed as project 621 multipurpose corvette, was finished as project 621M patrol corvette



purposes than in individual or multinational operational detachments. It is worth noting that both OHP-class vessels were originally supposed to be decommissioned in 2015-2016, just like the *Kobben*-class submarines. Furthermore, according to original plans also the ORP *Kaszub* should be phased out by 2017, reaching 30 years in service.

The only combat-ready ships of the Polish Navy, capable of engaging naval targets with missile weapons, are three project-660M fast attack crafts: ORP *Orkan*, *Piorun*, and *Grom*. All of them, while younger than the previously mentioned vessels, aren't exactly brand new units. They are between 25 and 28 years old, and are getting close to the end of their planned 30-years long service life.

The Polish Navy poses a significant number of mine warfare vessels in its service. Its fleet is composed of as many as 20 ships, grouped in two naval squadrons: 12th Wolin Minesweeper Squadron in Świnoujście and 13th Minesweeper Squadron "Fleet Admiral Andrzej Karweta" in Gdynia. Aside from the aforementioned ORP *Kormoran*, the Polish Navy continuously operates 2 project 206FM minesweepers: ORP *Flaming* and ORP *Czajka*, as well as 17 project 207DM/P/M minesweepers. The latter vessels are significantly younger, as they entered service in 1982-1994, therefore the youngest vessel has *just* over 25 years. However, despite their age, these vessels present minimal operational capabilities and do not meet the requirements of the modern battlefield.

Interestingly, the fleet of Polish mine warfare vessels is the sole, which undergoes a minimal modernization process, initiated in September 2013 with the launch of the *Kormoran II* programme. Under this initiative the Polish Navy should receive up to three project 253 *Kormoran II*-class minehunters, the first of which is already operational.

The last category of warfare vessels in the Polish Navy is the *Lublin*-class (Project 767) ships. They entered service in 1989-1991, therefore are currently 29-31 years old. Initially, they played a role of classis landing ships, gaining minelaying capability over time.

Plans, plans, plans...

The Polish Navy has been in critical condition for many years, and the current situation did not appear unexpectedly. It was decades ago, when the Polish MoD and the Naval command should take decision about procurement of a number of modern surface and subsurface vessels, as well as gradual modernization of most capable ones currently in service. This would allow the fleet to avoid the current situation.

However, it was not until 2013, when the first such decision was taken. The MoD and Naval command accepted a multi-year Technical Modernization Plan of the Polish Armed Forces (TMP), which included one significantly important project: *Countering threats at sea*. Among other initiative, the project called for procurement of 36 new combat and auxiliary vessels.



ORP *Kraków* – one of five project 767 vessels.
These amphibious assault ships were reclassified as
minelayer-transport ships after the fall of Communism,
and are relatively young compared to other
Polish Navy vessels







Upper left:

The project for the construction of six new tugboats is well underway. However, it is questionable if those are the most needed vessels in the current situation and if their purchase was rational

Upper right:

Due to their age and obsolescence, the two presented *Kobben*-class submarines are suitable only for crew training. ORP *Sęp* is the oldest vessel serving under the Polish banner. In August 2020, 54 year passed since its commissioning by the Norwegian Navy

Left:

ORP *Orzeł*, Polish Navy's youngest, yet not fully operational, conventional submarine. A 34 years-old vessels hardly can be considered a modern platform capable of meeting requirements of the today's and future battlefield

The 2013 TMP called for procurement of, among others, 3 conventional submarines (*Orka* programme), 3 corvettes / coastal defense vessels (*Miecznik* programme), 3 offshore patrol vessels with mine-hunting capabilities (*Czapla* programme), *Ślązak*-class offshore patrol vessel and 3 *Kormoran*-class mine-hunting vessels, as well as 23 auxiliary vessels: 2 reconnaissance vessels (*Delfin* programme), 3 rescue ships (*Ratownik* programme), survey vessel (*Hydrograf* programme), joint support ship (*Marlin* programme), logistical ship (*Bałtyk* programme), logistical supply ship (*Supply* programme), 6 tugboats (*Holownik* programme), 6 small transport crafts (*Transhol* programme), demagnetization vessel (*Magneto* programme) and an ecological barque (*Ekotank* programme).

What is the status of these projects seven years after their announcement? Pretty disappointing. Until today only two procurement projects were launched, however, both were approved before the aforementioned 2013 TMP bill was officially passed. These relates to the 23rd September 2013 annexation of the contract for *Gawron*-class multipurpose corvette, which was in construction, downgrading it into an offshore patrol vessel, the future ORP *Ślązak*. The second project was a contract for construction of a prototype project 258 *Kormoran II* minehunter, with an option for two more ships of that class. Both programmes were assumed to be completed by the end of 2016.

In practice, the construction of the former ORP *Gawron* (the future ORP *Ślązak*) was significantly delayed.



Méndez Núñez, Álvaro de Bazán-
class frigate of the Spanish
Navy. Such ship, as a successor
of Polish Navy's OHP-class
frigates, would meet the country's
operational and security
requirements



The vessel, which was originally planned as the lead ship of the 7-vessel strong corvette squadron based on the MEKO-A100 design, was launched on 2nd July 2015. The event was preceded by a series of technical launches. Over the next 4 years the vessel undergone further works, which included installation of onboard equipment and a series of harbor/sea trials. In the meantime, the ship's main contractor had changed. Assets of the bankrupt SMW shipyard were taken over by a new PGZ Stocznia Wojenna company, which slowed down the project. Construction of the vessel was eventually finalized on 8th November 2019, almost 18 years since its beginning.

The second document signed in 2013 called for construction of a prototype *Kormoran II*-class minehunter. According to the document, the finalization of the vessel's prototype should take place by the end of 2016. The contract included options for two serial production *Kormoran II*-class vessels, following the successful finalization of a series of harbor and sea trails of the first one. According to the initial schedule, serial production minehunters were to enter service in 2019 and 2022.

However, completion of the tests of the prototype *Kormoran II*-class vessel was delayed by one year compared to initial plans. Their successful finalization eventually led to contracting two serial production ships. The contract for future minehunters was signed on 24th December 2017. It had a value of 1,186 billion Polish Zloty (\$311 million).

This closes the list of naval procurement projects launched under the 2013 TMP. Other programmes, such as the planned procurement





Top:

ORP Grom, the youngest of three project 660M fast attack vessels, which are the sole Polish Navy's ships capable of firing surface to surface missiles



Bottom:

Poland has the largest minesweeper fleet in NATO. It's mostly composed of project 207 minesweepers grouped in the 12th minesweeper squadron in Świnoujście and 13th minesweeper squadron operating in Gdynia

of 2-3 Orka-class conventional submarines, has so far failed to reach its initial milestones. Today, the project is listed as a priority under the current TMP for the period 2021-2035. However, its successful finalization is doubtful, as the MoD and the Naval command have yet to present a specific

plan for selection of the preferred vessel's design, its construction and commissioning.

With the depleting fleet of currently operated obsolete submarines, the Polish MoD decided to implement a temporary solution. In November 2019 the MoD announced its intention to acquire two

ex-Swedish *Södermanland*-class submarines (a modernized A17 *Västergötland*-class). The project is in the intergovernmental analysis phase and only initial discussions with the Swedish authorities have been made. Therefore, at the moment it's difficult to predict if it will lead to any positive results.



All of the large combat ships of the Polish Navy in a single frame. Two 40-year old *Oliver Hazard Perry*-class missile frigates, ORP *Kaszub* and ORP *Ślązak*

Other shipbuilding plans have so far resulted in nothing. The number of *Miecznik*-class coastal defense vessels planned for construction was cut from 3 to 2 units, while the *Czapla*-class patrol ships were cut from the Navy's procurement list. Instead, the service introduced a plan of building a series of smaller

Murena-class missile ships. This leaves the Navy with a possibility of building a series of multirole frigates, which would replace OHP-class ORP *Pułaski* and ORP *Kościuszko*.

One also can't ignore the fact that a few years ago Poland made an attempt to replace its old OHP-class vessels with a number of

ex-Australian *Adelaide*-class vessels, which are based on a very similar design. In August 2018, during his visit to Australia, President Andrzej Duda signed a letter of intent for the purchase of two such ships by Poland, though the possibility of the deal was later blocked by the Polish Prime Minister, Mateusz Morawiecki.







Upper right:

ORP *Piast*, a 46-year old project 570M rescue vessel is currently undergoing repairs at PGZ Stocznia Wojenna

Upper left:

ORP *Lech* – a project 570M rescue vessel. It was supposed to be replaced in 2022 by a more modern platform. However, in April 2020 the Armaments Inspectorate cancelled the contract for a new platform of this type

Left:

ORP *Heweliusz*, one of two hydrographic ships in the Polish Navy



Technical Modernization Plan And Declaration

Why are we referring to the realization of a TMP, which was introduced seven years ago and already replaced with a new one? The reason that there's something that connects the document to

recent announcements made by the President Duda. A year before the approval of the TMP 2013 the then minister of defense, Tomasz Siemoniak, presented a conceptual project for development of the Polish Navy, which was the basis for future discussions on various modernization plans. It was assumed at that time, that the realization of

those plans will be financed with a sum of 900 million Polish Zloty (\$236 million) per year.

When the TMP 2013 was introduced, it was already obvious that the sum won't suffice to finance all the programs included in the plan. The more realistic estimates showed that it would require at least 1,5-2 billion Polish Zloty (\$394 - \$525

ORP *Czajka* – younger of the two project 206FM minesweepers. The vessel was commissioned in June 1967



million) per year and exceeding to 2,5 billion Polish Zloty (\$656 million) in peak years. That gives us a glimpse of the true costs of development of the Polish Navy's modern combat capabilities to a shape envisioned by Polish MoD's planners. Compared to 2013-old plans, the current situation only deteriorated. Over the last years

no significant decisions regarding construction of new ships for Polish Navy have been. In result, accumulation of future modernization/procurement-related expenses will be even greater.

What does that mean in practice? In recent years annual overall expenses for the TMP varied between 9,3 billion and 12,5 billion Polish

Zloty (\$2,4 billion - \$3,2 billion). Specifically, they reached 9,2 billion (\$2,4 billion) in 2017, 12,5 billion (\$3,2 billion) in 2018 and 10,8 billion (\$2,8 billion) in 2019. What share of that financial pie could the Polish Navy get in following years? Recent announcements made by President Duda during the election campaign included no solid numbers. We don't

Danish frigate *Iver Huitfeldt*. One of the most affordable vessels in its category – another alternative for the Polish Navy's OHP-class based frigate fleet





know if the Navy would receive a fixed sum (how big?) or a share of the technical modernization funds (what percentage?). Vague statements of guaranteed funds don't really say anything.

Also, let's note that President Duda spoke of dedicated funds within the context of a planned increase of Poland's defense expenditure to the level of 2,5% GDP. However, it is still only a plan for the future. Would the dedicated naval budget appear then? The revised law from 25th May 2001 regarding the modernization and financing of Polish Armed Forces assumes reaching such level of expenditures in 2030.

The National Security Strategy of the Republic of Poland, approved by President Duda on 12th May 2020, pushes for boosting the capabilities of the Polish Armed Forces by increasing defense spending to 2,5% GDP by 2024. However, its goal remains purely within the sphere of declarations, especially in the context of economic uncertainty caused by the SARS-CoV-2 pandemic.

Let's not fool ourselves, that declaration can't be treated as a realistic proposal. Lack of details and vagueness prevents us from treating it seriously. We should add it to countless pre-election promises intended to cause an impression of the presidential interest in all the spheres of life.



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