



ESTONIAN DEFENSE FORCES



Annual Report
2020

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Soldier from the Viru Infantry Battalion, 1st Infantry Brigade, looks out from a trench at the central training ground near Tapa, Estonia, May 7. EDF photo by Junior Sgt. Jaan Vanaaseme

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TO THE READER

LT. GEN. MARTIN HEREM
Commander, Estonian Defense Forces

You are holding the year 2020 of the Estonian Defense Forces. While these reports include a lot about the COVID-19 pandemic, it remains only a «flavor» of our activities. The short glances in the annual report focus on the development of our military that continued in spite of the virus.

We were unable to conduct snap exercises to our reservists, the type of exercises usually measure the quality and efficiency of our activities. However, it was a year with many other successful outcomes.

We have made some remarkable progress in areas that stay hidden from the public. While we cannot publish these yet, we will as soon as conditions make it possible.

In 2020, we improved cooperation with our Allies – we did it in Estonia, in the wider region, and during international military operations. Estonia is visible to the Allies and the Allies are visible in Estonia.

Equally important are the exercises where we polished our national defense skills. We did field training exercises like Spring Storm and maneuver trainings with our Allies. Also, map exercises enabled a whole government approach to the defense.

In addition to improving our skills and knowledge, we have focused on military «hardware» as well by procuring new weapon systems and preparing new capabilities. As one may understand, it is not possible to include all our activities in this report, only our most remarkable achievements.

On the following pages, you will find interesting information not only for bystanders but also for those inside the military. This will most certainly give to the reader a sense of what the Estonian Defense Forces is and what it does.

Enjoy reading!



RUSSIA'S SECURITY POLICY AND MILITARY DEVELOPMENTS

MILITARY INTELLIGENCE CENTRE,
Estonian Defense Forces

Russia's attitude in international relations is increasingly revisionist, emphasizing the concept of a multipolar world. In fact, this is an attempt to revise the existing, functioning system, which is accepted by the international community, by foreign policy (and, if necessary, military) efforts. Unforeseen factors, such as the COVID-19 pandemic, have only temporarily limited this.

The constitutional amendments established the legal bases of the duration of the state regime. This dispersed domestic political risks concerning the key issue of the state: how to resolve the continuation of President Putin's presidency and/or his regime.

At the same time, the living standards of the population continued to decline, which was further exacerbated by the COVID-19 pandemic and its aftermath. Socio-economic difficulties, combined with corrupt authoritarian rule, are gradually increasing the protest potential of the country; the regime is trying to mitigate this with apparent nationwide measures.

The year was turbulent in the context of the "near abroad" crucial to Russia: the protests that followed the presidential election in Belarus, the resurgence of the Nagorno-Karabakh conflict, the elections in Moldova that did not go entirely according to the scenario envisaged by Russia. At the same time, the changing situation opens up new opportunities to assert Russia's interests.

In its relations with Western countries, the regime has a perception that the international situation will continue to move towards a state of chaos and that this will further be accelerated after the pandemic. Thus, the near future is unlikely to see an easing of tensions between the West and Russia. The thought processes of both the political and military leadership are still guided by an understanding (which Western action itself cannot change) that the main threat to the state comes from Western countries.

Despite Russia's thinking being dominated by the notion that the international environment is on a path towards greater confrontation, the strategic objective in relations with Western countries is to reach a binding agreement to change the European secu-

urity architecture. As a result, Russia would have the right to decide on the security of its border countries, thereby undermining the influence of international institutions (EU and NATO).

Such an agreement is seen as the only way to escape tensions which are usually initiated by Russia itself. Among other things, it seeks to force European countries to enter into negotiations with Russia by way of demonstrating military strength, which, in the absence of other means (or due to weakness), is an important means of achieving foreign policy objectives.

In its relations with Western countries, the regime has a perception that the international situation will continue to move towards a state of chaos.

The past decade has shown that the use of force to achieve the country's foreign policy objectives is in correlation with modernization and training. This includes an increase in the quality and quantity of exercises.

INTERNAL DEVELOPMENTS

The most important event in the Russia's domestic policy was the 2020 vote on the constitutional reform, which ended on July 1. The new constitution will allow the current President, Vladimir Putin, to remain in power until the year 2036. However, this does not mean that he will rule the country for that long: Putin will be 83 years old by then. Additionally, the adoption of the amendments also included providing the president with lifelong immunity, i.e. immunity from criminal prosecution for any possible crimes committed during his lifetime. Thus, the new constitution and its provisions seem like a guarantee for Putin in case that he decides to resign.

Russia is now more repressive than ever before after the Soviet era. Authorities are fighting against critically minded media, harassing peaceful protest-

A municipal worker clears snow from the steps of the Tomb of the Unknown Soldier in Moscow, Dec. 1.
EPA/Scanpix photo by Sergei Ilnitck



Kremlin spokesperson Dmitry Peskov looks on as Russian President Vladimir Putin speaks via video call during a news conference in Moscow, Dec. 17. Russian authorities began to violently suppress nationwide protests triggered by the poisoning of the opposition leader Alexei Navalny. Peskov said a «negligible number» of people turned out to the rallies, compared with the number of people who vote for Putin.
AP/Scanpix photo by Alexander Zemlianichenko

ers, arranging smearing campaigns against independent groups and suffocating the emerging civil society with fines. Various organizations are being banned or discouraged from being active, and Russian citizens associated with them are increasingly being punished.

The new law allows authorities to block access to the Internet partially or completely, even in the event of unspecified security threats, and it provides the government with control over Internet traffic in the country. This will allow the Kremlin to censor information flows.

FOREIGN AND SECURITY POLICY

Year after year, Moscow has increasingly been looking towards the East, strengthening its ties with China. At the same time, another major Asian power center, India, is moving towards the West, strengthening ties with the United States. If this trend continues in the long term, the two friendly countries of Russia and India could eventually end up in conflicting geopolitical and economic blocs.

In 2020, efforts have been made to treat both Beijing and New Delhi as partners. At present, Russia has acted primarily as a mediator between China and India in this triangle. However, it cannot be ruled out that the long common border between Russia and China (where there are several «grey areas») could cause problems between the countries in the future.

The policy pursued by Russia in the Middle East in 2020, which is likely to continue in its core aspects, has a certain peculiarity: Moscow can hold a formal dialogue with several warring parties at the same time. For example, today with Israel and Iran, tomorrow with the United States and Hezbollah, then with Turkey and the Kurdish Democratic Union Party.

Russia exerts political influence, supports strong leaders (Khalifa Haftar in Libya, Bashar al-Assad in Syria) in return for promises of possible future economic benefits. In other words, Russia's scope of activity includes the forming of political ties (support



A Turkish explosive ordnance disposal specialist holds the remains of an explosive device in the Salah al-Din area, south of Tripoli, Libya, June 15. Pro-Haftar forces have been accused of mining areas south of Tripoli using landmines of Russian and Soviet origin after pulling out of the region.
AFP photo by Mahmud Turkia



for parallel structures and parties or groups undermining government authority), military presence (troops, bases, arms sales), trade (direct investments, energy, tourism), diplomatic (visits and agreements) and cultural and religious ties (different diasporas of people in Israel and Syria originating from Russian territories).

Presence in Syria's Tartus port is concerning and will become an even greater issue if Russia is able to use economic influence in nearby Cyprus (an EU Member State) to consolidate its strength.

The Kremlin wants to maintain a military base in Syria, the most important country in the Middle-East for Russia, to protect its regional interests and it has sought out post-war reconstruction projects for its companies for support showed to dictator al-Assad. The first objective has been achieved by Moscow, attaining the second objective has proven to be much more difficult.

The two diplomatic visions for the reconstruction of Syria are still at odds. The West is demanding that

the means of reconstruction be linked to a domestic political process that is considered legitimate, including the release of thousands of political prisoners and ensuring of security of all Syrians. Russia, for its part, wants to make reconstruction a precondition for the return of Syrian refugees.

The Kremlin has tried to push through the idea that more than six million refugees would be able to return home only if the West agrees to pay for the reconstruction of Syria. To this end, Russia sought to hold the first international conference on refugee returns in Damascus, but its coverage remained extremely modest.

One important «partner» of Russia in the Middle East, North Africa and the Caucasus is Turkey. In the context of the Middle East, the relations were quite constructive, as both sides want some control over the conflict reminiscent of being an unimaginable chaos. Therefore, control areas were divided near the Turkish border. However, relations were moving on a course towards a conflict in both Libya and the Cau-

casus.

In Libya, Marshal Haftar's offensive on Tripoli failed by the Turkish drone attacks, despite the active involvement of the Russian private security company Wagner. A similar scenario was repeated in Nagorno-Karabakh, where the Turkish drones used by Azerbaijan were used to exert superiority in the war against Armenia, which was using Russian weapons and tactics. However, direct clashes between the two countries seeking regional hegemony have been avoided.

Russia has especially expanded its reach in Africa. In addition to Libya, where, despite support provided to Haftar, all parties to the conflict and/or the more influential actors are being reached out to, relations with Egypt, Algeria, Mali, the Central African Republic, Angola, Ethiopia and Sudan continue being developed.



Russia has become Africa's leading arms supplier, surpassing traditional leaders France and the United States in the region.

At the end of the year, Russia and Sudan signed an agreement to establish a naval logistics center on the coast of the Red Sea for 25 years. Russia can accommodate up to four ships and 300 fighters at a time. A Sudanese port will become the first military base for the country in Africa to be built under an intergovernmental agreement; a convenient docking station for warships that can be used for both refueling and repairs will also be developed.

The port is planned to be built on a major trade route at a strategic junction of the trade route running through the Red Sea and connecting the Arab and Mediterranean waterways through the Suez Canal. At the same time, Moscow is negotiating the development of other possible bases and ports in Africa, with particularly close contacts with Egypt and Eritrea. The new port will open the gates to Africa for Russia and facilitate work in, for example, the Central African Republic, where Russian mercenaries have been operating for several years.

On the other hand, the political situation in Sudan continues to still be extremely sensitive: if the transitional government does not respond to public calls for democratization and the country's difficult past is not overcome, than the current government could fall just as the regime of Omar al-Bashir fell.

In recent years, Russia has also become Africa's leading arms supplier, surpassing traditional leaders France and the United States in the region. In 2019, President Putin hosted the Russia-Africa Summit in Sochi, during which numerous transactions in the

Ground Forces conscripts wearing masks take part in a training session at the Ussuriysk Technical School based on the Russian Voluntary Society for Assistance to Ground Forces, Aviation and Navy, in Primorskaya Oblast, Russia, June 2. The voluntary society in Ussuriysk has a military driver program for recruits that allows them to learn how to drive armored personnel carriers, multi-purpose tracked vehicles (MT-LB) and trucks. TASS/Scanpix photo by Yuri Smityuk



fields of arms industry, nuclear energy and food were signed. Most of them have yet to be implemented, but the presence of Russia has continued to grow.

In the energy context, Algeria has a key role as the third largest gas supplier to the European Union. By securing dominance over Algeria's energy resources, Russia can increase its influence in Europe. Interest in Libya's oil reserves is another step in that direction. Russia's military influence has limited the room for Western countries to maneuver in these countries and this may ignite future conflicts.

In relations with Western countries, the focus of Russia's influence is on fossil fuels, this will likely continue to be the center of Russia's influence in the near future. The two largest energy export articles – oil and natural gas – need international economic stability to continue filling the state treasury, but they also pose difficult tasks for the interests of Western countries.

Russia will not falter in using energy as a geopolitical tool, even if this destabilizes the situation in some regions over time. A cautionary example could be the building of Nord Stream (but also of Turkish Stream) and its accompanying aspects, directly related to Russia's «near abroad» and its intention to establish power in Ukraine and Belarus.

On the other hand, Russia's dependence on gas and oil revenues motivates the Kremlin to keep prices high while maintaining significant market share on a global scale. In the long run, the global transi-

tion from fossil fuels to green and renewable energy could undermine the filling of Russia's state treasury.

The Arctic, and in particular the international shipping traffic there, could become an important factor in Russia consolidating its position and increasing its role in international trade due to Russia taking advantage of the economic consequences of climate change. As the planet warms, ice will continue to melt on Russia's Arctic coast, creating the conditions for the North Sea route to become one of the most viable alternatives to existing intercontinental sea routes.

While this route could benefit the global economy in general, it could also mean greater control exerted by Moscow over shipping, which in turn could jeopardize other countries' existing freedom of navigation, as Russia has become very vigorous in militarizing the seafront. In the long run, however, the melting of ice could allow the transit corridor to bypass Russian jurisdiction altogether.

Russia also continued to conduct cyberattacks. While the 2017 NotPetya malware attack, attributed by Western investigators to Russian military intelligence, cost the world economy an estimated \$10 billion, the economic cost of further large-scale attacks is so imperceptible that it has not even been estimated. The latest announced cyberattack with more impact took place at the end of the year against US government agencies and major infrastructure companies, including Microsoft.

The culmination of the year was the strategic command and control exercise Kavkaz 2020 in the Southern Military District. Due to the spread of COVID-19, there were fewer participants from abroad compared to the exercise of last year (Tsentr 2019). The Russian Ministry of Defense stated that there were nearly 80,000 participants.

It was added that, in line with the 2011 «Vienna Document», the maximum number of military personnel under one operational command was 12,900 (13,000 participants would require the involvement of external observers). As in previous years, management-staff training was preceded by strategic assurance training at 25 different training grounds and 16 aerodromes. The purpose of the deployment exercise is to practice the deployment of forces to the necessary strategic location.

The political leadership announced in the first half of the year that Russia would not hold exercises in the immediate vicinity of borders of Western states, as it sought to find common ground and take real steps to ease tensions with NATO. Despite this, a Russian-Belarusian co-operation exercise Slavic Brotherhood 2020 took place in Brest, Belarus, in September, and an exercise of the Baltic Fleet and the 6th Combined Arms Army took place in the strategic western direction (regions of Leningrad and Kaliningrad) in August.



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The training was influenced by COVID-19, so the spring conscription started later than planned. On 20 May, only 34,000 conscripts, or 25% of the total, had been sent to military service. By June 30, there were as many conscripts as usual. In total, the number of conscripts was more or less the same as last year: 135,000 in the spring and 128,000 in the autumn. The share of contract staff has remained stable over the last few years, with almost 400,000 professional military service members.

The May 9 parade was postponed to June 24 due to the pandemic. Parade rehearsals did not follow antiviral measures and, according to unconfirmed data, a large number of infections occurred.

The most important training events for the 76th Guards Air Assault Division in the Pskov Oblast were the co-operation exercise with the Belarus military in Brest in September and the civilian exercise in Pskov and Strugi Krasnye in September. Despite the spread of the virus, conscripts continued to be

sent to the division, but with a greater temporal dispersion.

Russia is involved in military operations outside the country in three regions: Syria, Ukraine and Libya. On November 10, it was announced that 1,960 peacekeepers would be sent to the Armenian-Azerbaijani conflict zone in Nagorno-Karabakh, where observation posts were set up.

The majority of those sent came from the 15th Separate Motor Rifle Brigade of the Central Military District in the Samara Oblast. 90 armored vehicles, 380 cars and special equipment were brought along. There were also reports of movements of units of the 102nd Military Base located in Armenia to the concentration areas in order to be ready to fulfil a task.

MILITARY DEVELOPMENTS

Ground Forces has had 42 self-propelled rocket launcher systems BM-27 Uragan added to the armament of the 1st Tank Army of the Western Military District in addition to the existing ones, in accordance with the Vienna Document, replacing the self-propelled rocket launcher systems BM-21 Grad.

The planned reforms of the Airborne Forces have been stalled, but supplies of new or modernized machinery and equipment continue. The Airborne Forces received about 300 units of modern armored and other equipment in 2020, including the BMD-4M airborne fighting vehicles and BTR-MDM armored personnel carriers. The delivery of parachute systems D-10 and Arbalet-2 continues alongside the delivery of PBS-950U, equipment and machinery required to drop. Work is underway to improve the artillery capabilities of the Airborne Forces with tests taking place for the armored tank destroyer Sprut-SDM1.



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Due to the COVID-19 pandemic, medical centers were also built for the armed forces in Pskov (200 beds) and Velikiye Luki (100 beds). The spread of COVID-19 also affected the training of units, especially in the spring. For example, the corresponding unit of the 76th Guards Air Assault Division was disinfecting city streets, and normal training was disrupted.

76th Guards Air Assault Division added two battalion sets of BMD-4M and BTR-MDM armored vehicles during the year. Thus, four of the division's



Airborne infantry fighting vehicle BMD-4M driving along the Bolshaya Sadovaya Street to reach the parade rehearsal in Moscow, June 17. The BMD-4M differs from its predecessors in that it uses 80% of the same modular systems as the modern BMP infantry fighting vehicles. Shutterstock photo by Dmitry Shchukin

seven maneuvering battalions are armed with the latest combat machines, which have more advanced maneuverability and firepower than before. The Air Assault Airborne Regiment consists of one airborne battalion and two assault airborne battalions.

To date, the division has four airborne assault battalions, all of which are armed with modernized combat vehicles. In the airborne assault forces more generally, offensive units have become a priority, as indicated by the establishment of tank battalions in these units.

Great attention was still being paid in the Air and Space Forces to the development of air and missile defense and the development of early warning capabilities of strategically important areas in case of air and missile attacks, the aircraft fleet modernization also continued. Long-range strategic bombers and naval anti-submarine planes continued to patrol the world's seas and oceans to demonstrate presence and provide deterrence, while raising awareness of Allied activities on Russia's borders.

The replacement of the S-300 Favorit weapon systems of air defense rocket regiments with S-400 Triumf continued. The regiments armed with the S-400 achieved combat readiness in Khabarovsk Krai and the Oblasts of Sakhalin, Sverdlovsk, Samara and Leningrad.

In the Arctic direction, regiment armed with the S-300PS system in Yakutia achieved combat readiness and the same was done by the anti-aircraft missile brigade unit armed with the S-300V4 system in the Far East in the Kuril Archipelago. The first S-350 Vityaz weapon system was delivered to the training center of the anti-aircraft missile forces in the Leningrad Oblast. It is planned to arm the first anti-aircraft missile brigade armed with this system in 2021.

The upgraded strategic bombers Tu-95MS and Tu-160 can be armed with the new H-101 missile. The modernized test specimens Tu-95MSM and Tu-160M2 made their first flights. During the modernization, the aircraft will receive new communication and navigation systems and engine. An agreement was achieved between the Ulyanovsk Aircraft Construction Plant Aviastar-SP and the Ministry of Defense for the construction of new tanker aircraft IL-78M-90A, while the construction of new transport aircraft IL-76MD-90A continued.

New Su-35S fighters and Su-34 attack bombers were handed over (app. 100 fighters and 130 bombers have been built under previous contracts). The modernization of another batch of MiG-31 fighter jets was completed (app. 150 MiG-31BM/BSM fighter jets have been delivered).

The Air and Space Forces received the first series manufactured new generation Su-57 fighter jets, which were handed over to the Akhtubinsk State Flight Test Centre in the Astrakhan Oblast. In the coming years, it is planned to arm the 6th Air and Air Defense Forces Army of the Western Military District with Su-57 fighters. A contract has been signed for the supply of a batch of modernized multi-purpose naval destroyers Su-30SM2. The modernization of the Su-25 attack aircraft to the level of Su-25SM3 continued.



The security situation in Estonia's neighborhood can be expected to intensify, as in 2021 the strategic exercise Zapad will be conducted.

The Strategic Missile Forces are a key component of Russia's strategic deterrent forces, the modernization and maintenance of which is a priority of the Armed Forces. At the end of the year, 81% of the branch was equipped with modern weapons. Currently, the main focus is on rearmament.

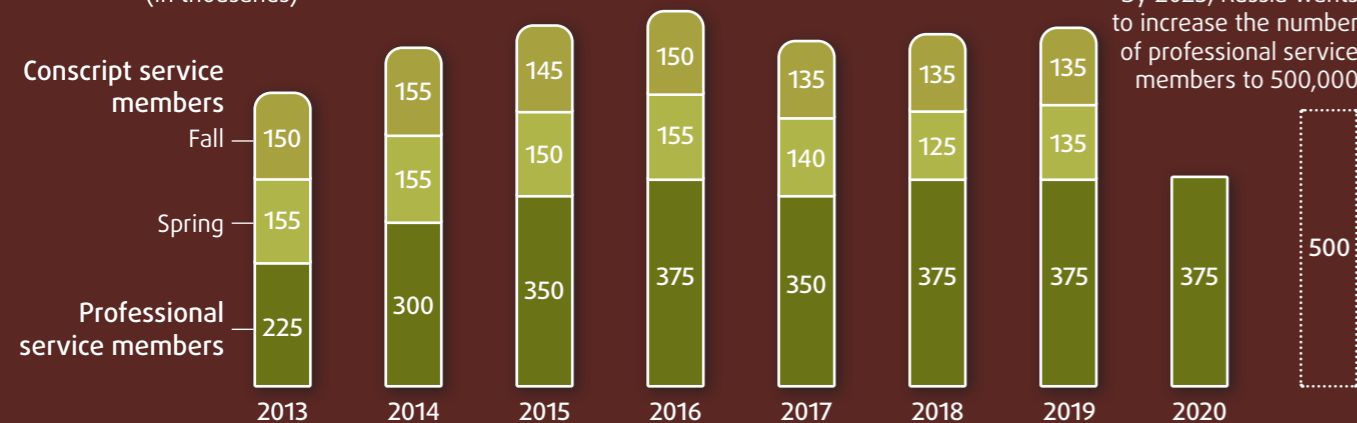
Missiles Topol are removed from the armament and replaced with missiles Jars. The latter should be taken into use by at least two missile regiments during 2021: 27th Missile Army of a regiment of the 28th Division (Kaluga Oblast) with missiles located in the shaft and a regiment of the 35th Division of the 33rd Missile Army (Altai Krai) with mobile missiles. The 31st Missile Army is likely to get two more Avangard intercontinental missiles with an ultrasonic warhead into its armament.

By the end of 2021, one missile regiment (six missiles) should be fully armed with this system. Preparations for the launch of the Sarmat intercontinental ballistic missile flight test should also be completed with this year. Thus far, launch tests have been performed with the missile.

This year, the security situation in Estonia's neighborhood can be expected to intensify, as this time the strategic command and control exercise will be conducted in the western direction: the active phase of Zapad 2021 will take place Sept. 10–16, 2021. At the request of Russia, the exercise is planned to be organized on the basis of common operational and strategic background of both Russia and Belarus. During the maneuvers, it is planned that new ways of joint activities of the offensive units are practiced in the metropolitan area to assess the effectiveness of new and modernized armaments and military equipment, but also to learn from the combat experience of Russian officers. ■

Armed Forces of the Russian Federation

(in thousands)



TASS/Scanpix photo by Alexander Kolbasov



Russia's Annual Strategic Command and Staff Exercise





Pvt. Raul Lees, podcaster of «Sõdurileht», Strategic Communication Centre, Cyber Command, puts a mask on his face. Lees started his conscription in July and much of his training has been under restrictions caused by the COVID-19 pandemic.

EDF photo by
Pvt. Jarkko Martin Pukki

FIGHTING THE PANDEMIC

MAJ. INDREK OLVETI

Staff Medical Officer, 1st Infantry Brigade

first information about the discovery of novel coronavirus reached the public Jan. 7, when the authorities of China issued an official statement regarding the matter. The virus began to spread widely, first in China, and then around the world. The World Health Organization classified the novel virus outbreak as a pandemic March 11. Most countries responded to the pandemic with severe societal constraints and decisions to close state borders.

The first wave of the virus hit Italy and Spain the hardest in Europe, with these countries also having the highest number of coronavirus deaths. The virus spread rapidly among the elderly, who also see the disease develop more severely and are more likely to die from it. This led to a rapid overload or even collapse of the health care system in these countries, and a depletion of medical resources.

Most countries of the world have had to deal with the fact that medical resources quickly ran out and that they were not ready for the pandemic. The main problems were the lack of medical equipment (personal protective equipment, respirators), the lack of medical staff and insufficient laboratory resources to detect the virus. In many countries, military structures and equipment were involved in resolving the crisis.

A NEW TYPE OF ENEMY

This was a new type of virus and due to this there was a lot of uncertainty about the appropriate treatment methods. Lack of information about the novel virus caused uncertainty. Initially, the mechanism of transmission of the virus and the length of the incubation period were unknown. This in turn made it difficult to select an appropriate methodology to control the spread of the virus.

The first case was

confirmed in Estonia Feb. 27, and four new cases of coronavirus infection were identified in Estonia March 11. In the following days, the number of new cases increased, and the first confirmed coronavirus death occurred March 25. The government established a state of emergency in Estonia late in the evening March 12, which led to schools going on distance learning, the closure of sports clubs and entertainment facilities and shopping centers.

Like the rest of the world, the Estonian medical system faced the same problems: it lacked both suitable personal protective equipment and respiratory equipment. Until additional supplies arrived, EDF helped alleviate the situation by handing over protective masks and other personal protective equipment from its national reserve to the civilian health care system.

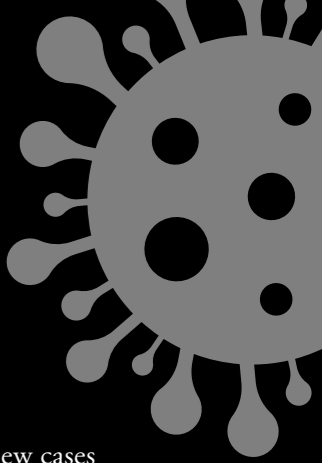
At the beginning of the first wave of the virus, two epicenters of the disease appeared in Estonia: Võru County and Saare County. The reason for the outbreak in Võru County was a birthday party and the outbreak in Saare County started with the Estonian-Italian volleyball tournament organized there. After that, the virus spread rapidly across Estonia.

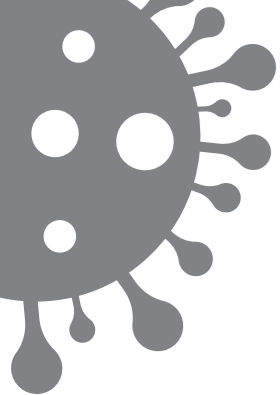
Due to the high prevalence of the disease in Saare County and the depletion of the on-site medical resource, the leadership of the EDF decided to direct its field hospital to Saare County in support of Kuressaare Hospital at the request of the State Crisis Centre. The whole operation proved successful, showing once again the need for a centrally managed mobile medical infrastructure to deal with both wartime and peacetime crises.

The first confirmed coronavirus incident of the EDF was identified March 13 by a conscript of the Kalev Infantry Battalion who had participated in a volleyball tournament in Saare County. In the following weeks, new cases appeared among both active service members and conscripts.

CONTINUATION OF TRAINING

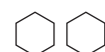
The Estonian Defense Forces responded quickly and decisively to the pandemic. A decision was made to continue military training. In order to prevent the introduction of the virus into the campuses from outside, the leave permits of conscripts were sus-





pending, and the work organization of active service members was changed.

The main decision was to send half of the active troops to telework from home, sending the other half to barracks in the campuses. The aim of all these measures was to limit the spread of the disease, to continue military training and to maintain combat readiness.



Many conscripts who tested positive had no symptoms at all or the symptoms were extremely modest.

The 1st and 2nd Infantry Brigades quickly involved the reserve doctors from the Military and Disaster Medicine Centre of the Military Academy in resolving the crisis situation. The involvement of the brigade's medical officers ensured the commanders' medical advisory competence in planning and decision-making. At the headquarters of the 1st Infantry Brigade, the initial COVID-19 patient management manual was quickly developed and introduced to the whole EDF with some additions.

Center for Military and Disaster Medicine of Estonian Military Academy developed guidelines and training materials on the correct use of personal protective equipment. Appropriate training for medical personnel of the Defense Forces was started immediately. The USAG Italy Forza Handbook (COVID-19 Response) issued by the Italian garrison of the US Army was of great help to us in developing the various instructions. It provided medical planners with clear guidelines based on real experience.

«We are fighting this virus as we would operate in combat; with speed and violence of action upon contact,» said Maj. Gen. Roger Cloutier, USARAF Commanding General and USAG Italy Senior Responsible Officer.

MAPPING LESSONS LEARNED

The rapid management of the first wave of diseases in the EDF was ensured by the prompt preparation of an action plan already after the first signs of danger appearing. It was equally impor-

tant to involve staff physicians in planning and to implement the decisions made, no matter how unpopular the decisions were. It is worth noting the initiative of the unit commanders in developing, applying and implementing virus control measures.

In addition to the planning experience gained in limiting the spread of the virus, it is also noteworthy that the brigade medical officer reserve positions were quickly converted into active duty positions. This ensured the continued medical advisory competence of the brigade management even after the end of the emergency.

The summer period was calm for the EDF. No new cases of COVID-19 were identified and the level of morbidity in society remained low. Simultaneously with the increase in the number of COVID-19 cases in society in late summer and autumn, the number of cases in the EDF also increased. Two outbreaks occurred in the 1st Infantry Brigade: in the campuses of Tapa and Jõhvi.

It took a few weeks to control the situation, and the main step was to restrict the leave permits of conscripts and to test the personnel of the affected units. Thanks to exhaustive testing, it was possible to map the foci of the disease, to isolate those who gave a positive test and their close contacts.

Attention must be paid to the fact that many conscripts who tested positive had no symptoms at all or the symptoms were extremely modest. Therefore, it can be concluded that the control of the spread of the virus was largely due to these two measures. The joint efforts of the medics and the staff of the units resulted in the fact that Dec. 18, most of the conscripts could be sent on a well-deserved Christmas holiday.

The year 2020 was a difficult and challenging one for the medics of the EDF as well as for the personnel and leadership of its units. Nevertheless, one could say that the EDF was able to find a solution to almost all COVID-related situations through their operational and effective activities, some of which at first seemed overwhelming. The experience gained in this process is invaluable for the future, as the pandemic is not yet showing any signs of abating. ●



STILL FAST AND SHARP – NATO MULTINATIONAL DIVISION NORTH

COMMAND SGT. MAJ. ANDREAS REBANE
Division Command Sergeant Major, Multinational Division North

The main effort of the Multinational Division North is to conduct various tasks in its area of operations under the command of the NATO Multinational Corps Northeast. The division's headquarters must be prepared to plan, coordinate and integrate the activities of NATO units provided for reinforcement of the region, and to provide training at headquarters level in accordance with national and NATO defense plans.

A division is usually a unit of nearly 30,000 soldiers. It consists of two to four brigades and various different support units. To understand the size of a division, we could draw a parallel with the wartime rapid response structure for entire Estonia.

NATO's contribution to the security of the Baltic region has been significant in recent years. Starting with permanent deployments from units such as NATO Force Integration Units, NATO battle-groups, the NATO MND North and the NATO MND Northeast and brief deployments of smaller units of other NATO nations during exercises.

The increased Allied presence is a strong message of NATO's strengthened deterrence and defense stance. This is an outstanding example of the Alliance's commitment and deterrence readiness but, if necessary, also to protect us from potential threats.

The Ministers of Defense of Estonia, Latvia and Denmark signed a joint declaration of intent to establish headquarters for the MND North at the 2018 NATO Summit in Brussels. In September of the same year, the preparatory group of the MND North started working in Ädaži.

On March 8 of the following year, the Headquarters MND North officially opened there, and on Aug. 1, operations began as a single headquarters in two locations – in Latvia and Denmark. The establishment of the division's headquarters is a very important milestone for the security of the Baltic States and the Alliance as a whole.

The year 2020 has been difficult and challenging for us. The situation in the region and around the world is still complex, which is unprecedented for all of us. Figuratively speaking, we are fighting with an invisible enemy.

If a year ago we lived with the knowledge that

we had to get out of the trench to win the battle, then now it is enough to just stay in the trench. This is the reality, we need to get used to it, and adapt. Due to the COVID-19 pandemic, the situation changed constantly throughout the year. We followed the situation closely and tried to find a solution to meet the objectives set for us.

NATO's contribution to the security of the Baltic region has been significant in recent years.

MND North has successfully completed all the tasks set for it. We have steadfastly moved towards our main goal – to achieve the full operational capability of the headquarters. We plan to achieve this in 2022.

The recognition as the NATO body in October 2020 was an important first step towards this objective. The initial operational capacity is planned to achieve in the first half of 2021. After that we will be formally integrated into NATO's command structure.

This means that we are able to take over some of the responsibilities from the MNC Northeast and to take the lead in managing the units assigned to the MND North and the MNC Northeast in our area of responsibility.

The headquarters is working daily to ensure that one day the region would have a unit with combat readiness and that in addition to the HQ MND North and Command Support Battalion, there would be real units ready to carry out the tasks assigned to them in their areas of operation.

It is too early to speak of specific military units and subordination. At the same time, the leadership of the Estonian and Latvian Defense Forces have clearly expressed their positions on the subordination of national units (brigades) to the MND North in the event of a crisis.

At present, communication with these units is mostly limited to topics of training. The staffs of the Estonian 1st and 2nd Infantry Brigade and the Latvian Mechanized Brigade are officially involved in the training cycle of the MND North.

Lt. Col. Jim Hadfield, Commander of the Estonian NATO Allied Battlegroup, Command Sgt. Maj. Andreas Rebane, Division Command Sergeant Major of the MND North, Maj. Gen. Flemming Mathiasen, Commander of the MND North and Col. Vahur Karus, Commander of the 1st Infantry Brigade are discussing the situation during exercise Furios Axe in Ädaži, Latvia, Nov. 22. Almost 2,300 warriors of the 1st Infantry Brigade participated in the exercise.

EDF photo by 2nd Lt. Marina Loštšina

NATO Multinational Corps Northeast

The HQ MNC Northeast in Szczecin, Poland, under the command of NATO Allied Joint Force Command, is ready to lead ground operations on NATO’s northeast wing, if necessary. The Corps consists of the Lithuanian and Polish brigades of the MND Northeast with its headquarters in Poland, and the MND North, consisting of Estonian and Latvian brigades, with its headquarters in Latvia and Denmark. Units from the other Allied countries are subordinated to the brigades of the four countries. If necessary, the HQs of the divisions are ready to immediately lead units of other countries up to the size of a brigade, which will be sent to support the northeast wing of NATO.



In peacetime, the HQ MND North and the Command Support Battalion are scattered mainly between four locations. These locations are Ādaži in Latvia with the rest being in Denmark – Karup, Slagelse and Federica. In the near future, the headquarters element in Karup will move to Slagelse.

The headquarters and combat support element in Denmark are immediately ready for a rapid deployment to Latvia in the event of a crisis. Despite the fact that the division’s command is located in Latvia, the headquarters element in Denmark is ready to take over immediately, if necessary.

HQ MND North will have nearly 300 service members, of whom more than 100 are in service during peacetime. These positions are manned by active service members and reservists. This means that a relatively small number of active service members will carry out peacetime tasks and that reservists will join us immediately in a crisis.

This is similar to the functioning of the EDF, which is built on the principle of a military reserve force. The division’s headquarters and the Command Support Battalion are mainly manned by military personnel from the framework countries. In addition, Canadian, Lithuanian, Spanish and British troops serve in the headquarters.

To date, other NATO nations have also shown interest in supporting the development of the headquarters and divisions with their people. Today, more than 20 Estonian officers and non-commissioned officers serve as equal partners in the division’s headquarters and Combat Support Battalion every day.

In addition to the usual staff work, we also approximate NATO’s and national defense plans. Those responsible for the field have done considerable work in a very short time. We can now say that we have a common understanding and a workable plan for various actions in the event of possible aggression in the Baltic region.

We have situational awareness in all areas of responsibility. The division’s Tactical Operations Centre is constantly updating it. This information is shared between NATO headquarters and national units. We have expanded the use of our information systems for military purposes, which allows us to do our work faster and more securely.

The key to the division’s success lies in well-prepared units. No training is too much when it is directly related to maintaining and raising combat readiness. We have set ourselves the goal that the training organized in the MND North must be well thought out and planned but also be active in its structure and demanding in its nature.

Average sizes of NATO units

Unit	Size
Squad	6 to 10 soldiers
Platoon	3 to 4 squads (18 to 50 soldiers)
Company	3 to 4 platoons (60 to 200 soldiers)
Battalion	4 to 4 companies (100 to 1,000 soldiers)
Brigade	2 to 5 battalions (2,000 to 5,000 soldiers)
Division	2 to 4 brigades (10,000 to 15,000 soldiers)
Corps	2 to 4 divisions (20,000 to 80,000 soldiers)

The main focus of our exercises is the cooperation of different staffs in order to increase the combat readiness of the units. As a success story, we can highlight the division tactics course organized in the e-environment as part of crisis preparation. We were also able to successfully use it to train peacetime personnel during the first wave of COVID-19.

To better function as a united team, we organize joint events in the division, which enhance our common spirit and emphasize international unity. It is our custom to celebrate national anniversaries and other anniversaries across the division.

One of the prerequisites for performing its tasks is the existence of modern infrastructure. In Latvia, we started working in a ragged barracks from the Soviet era. Today, the situation has changed. A new modern headquarters building has been completed as part of our infrastructure; this was officially handed over to us Nov. 17 with a modest ceremony.

One can already see pleasant satisfaction in people’s faces. This is not the end of the infrastructure project in Latvia, the headquarters building is just one piece of a big puzzle. At the same time, we are actively developing our infrastructure in Denmark.

NATO is not a magic wand that solves all our problems. I have been jokingly asked whether eastern front will hold? If I look at the daily commitment and level of training of the EDF now, I can say that the eastern front is doing better than ever. It is certainly not someone’s personal achievement, this effort is backed by hundreds and thousands of soldiers, including our allies, who contribute to and support our collective security every day.

Nevertheless, we are facing a dangerous and changing world. As a small country, we must act as an equal partner throughout the region. We must maintain good relations with our coalition partners and be prepared to support them if necessary. At the same time, we must realize that no one will help us unless we help ourselves. We are NATO. ●

U.S. Army M270A Multiple Launch Rocket System crew assigned to Bravo Battery, 1st Battalion, 6th Field Artillery Regiment fires Reduced Range Practice Rounds over the Estonian central training area near Tapa, Sept. 5, 2020. Exercise Rail Gunner Rush (Sept. 4-7) was the first live fire exercise from 41st Field Artillery Brigade outside their home base of Grafenwöhr Germany since they reactivated in 2018.

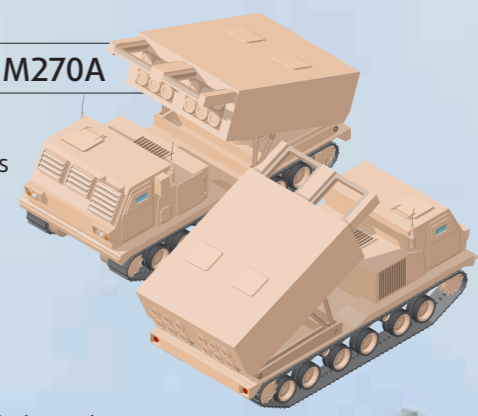
The M270A MLRS is used in shoot-and-move-type tactical firing to prevent the counter-fire of the enemy. The system has an ability to attack a larger area in any weather and it is designed to attack high value targets. The weapon system also uses precision ammunition with a large range.

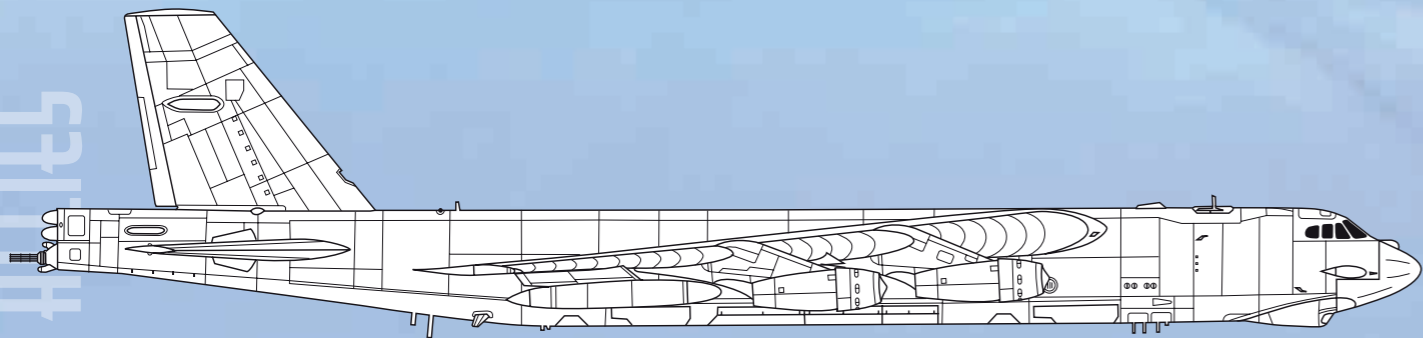
Estonian and Latvian NATO Allied Battlegroups participated in the Rail Gunner Rush exercise. 200 service members from the United States, Estonia, United Kingdom, Denmark, Montenegro, Spain and Czechia participated in the exercise. During the joint exercise, forward observers, weapon crews and command posts were the main training audience.

EDF photo by Sgt. 1st Class Ardi Hallismaa

Multiple Launch Rocket System M270A

Crew:	3
Length:	22 feet 6 inches
Width:	9 feet 9 inches
Height:	8 feet 6 inches
Weight:	55,000 pounds
Maximum speed:	40 mph
Operational range:	300 miles
Effective firing range:	28 miles
Maximum firing range with a tactical guided missile:	186 miles
Rate of fire:	12 rockets in < 40 sec or 2 missiles in 10 sec
Reload time:	3 min





Long-range bomber B-52H

Crew:	5
Length:	159 feet 4 inches
Wingspan:	185 feet
Height:	40 feet 8 inches
Weight:	app. 185,000 pounds
Maximum takeoff weight:	488,000 pounds
Maximum speed:	650 mph
Unrefueled combat range:	8,800 miles
Power unit:	8 × Pratt & Whitney engines TF33-P-3/103 turbofan
Payload:	70,000 pounds

From left, the British Royal Navy Duke-class frigate HMS Kent (F78), the Supply-class combat support ship USNS Supply (T-AOE 6), the Blue Ridge-class command and control ship USS Mount Whitney (LCC 20) and the Royal Danish Navy Absalon-class support ship HDMS Esbern Snare (L17) sail in formation in the Baltic Sea while a U.S. Air Force B-52H Stratofortress long-range bomber flies overhead during exercise Baltic Operations (BALTOPS) 2020, June 15. BALTOPS is the premier annual maritime-focused exercise in the Baltic Region, this year marking the 49th year of one of the largest exercises in Northern Europe enhancing flexibility

and interoperability among allied and partner nations. On the same day, it flew to a cooperation exercise with the Estonian Defense Forces, after which it flew in formation together with air policing fighters over Tallinn. The bomber is capable of flying at high subsonic speeds at altitudes of up to 50,000 feet. It can carry nuclear or precision guided conventional ordnance with worldwide precision navigation capability. The upgraded B-52 also includes some state-of-the-art electronic warfare equipment.

U.S. Navy photo by Mass Communication Specialist 2nd Class Damon Grosvenor





A CV-22B Osprey, assigned to the 352nd Special Operations Wing, U.S. Air Force, arrives in Estonia to assist close air support training with Estonian, Swedish and U.S. Special Operations Forces in Estonian central training ground near Tapa, Nov. 13. Special Forces create conditions for a rapid response to an imminent threat with land, air and maritime capabilities to enhance stability

in the region. The Bell Boeing V-22 Osprey is a unique multi-mission, tiltrotor military aircraft with both vertical takeoff and landing and short takeoff and landing capabilities. It is designed to combine the functionality of a conventional helicopter with the long-range, high-speed cruise performance of a turboprop aircraft.
EDF photo by Sgt. 1st Class Ardi Hallismaa

CV-22 Osprey tiltrotor aircraft

Crew:	3-4
Length:	57 feet 4 inches
Wingspan:	45 feet 10 inches
Width:	84 feet 6.8 inches (including rotors)
Width folded:	18 feet 5 inches
Height:	22 feet 1 inch (engine nacelles vertical)
Empty weight:	31,818 pounds
Maximum vertical takeoff weight:	47,500 pounds
Maximum speed:	316 mph (351 mph at 15,000 feet)
Payload:	24 personnel (seated) or 32 personnel (floor loaded) or 20,000 pounds internal cargo or up to 15,000 pounds external cargo or 1 Growler light internally transportable vehicle

Attack helicopter AH-64E Apache Guardian

Crew:	2
Length:	48.16 feet
Rotor diameter:	48 feet
Height:	15.49 feet
Primary mission gross weight:	15,075 pounds
Maximum operating weight:	23,000 pounds
Maximum speed:	185 mph
Flight ceiling:	20,000 feet
Operating range:	295 miles
Power unit:	2 × General Electric T700-GE-701D turboshafts
Armament:	30 mm chain gun and 16 x AGM-114L Hellfire-2 anti-tank missiles, 4 x AIM-92 Stinger or, 4 x Mistral or, 2 x AIM-9 Sidewinder air-to-air missiles or, 2 x Sidearm anti-radiation missiles, 2 x 19-shot pods with Hydra 70 unguided rockets




The U.S. Army AH-64E Apache helicopter crews from the 101st Airborne Division, and Polish PT-91 tanks from the Latvian Battlegroup, NATO Enhanced Forward Presence, firing during the exercise Winter Shield in the Ādaži training ground, Latvia, Dec. 4.

In addition to the units of the Latvian Defense Forces and the Latvian NATO Battlegroup, service members of the US Special Operations Command Europe and the companies of Estonian and Lithuanian Defense Forces, part of the Baltic Battalion, also participated in the exercise. These units practiced joint regional defense operations and demonstrated their compatibility and mobility.

Boeing AH-64 Apache is a twin-engine four-blade tandem-seat attack helicopter. The prototype YAH-64 made its first flight Sept. 30, 1975. The helicopter was introduced to U.S. Army service in 1986. Full-rate production of the latest upgraded version AH-64E began in 2012.

Latvian Ministry of Defense photo



Service member of the Royal Regiment of Fusiliers, British Army, stands with the LMT L129A1 designated marksman rifle during exercise Spring Storm 2020 at the Estonian central training ground near Tapa, April 28. The Royal Regiment of Fusiliers began service in Tapa in March and was replaced by the 5 RIFLES in September, 2020. The UK-led Estonian NATO Allied Battlegroup, as part of the 1st Infantry Brigade, Estonian Defense Forces, has nearly 1,000 combatants. There are more than 800 service members from the United Kingdom and 200 service members from Denmark, France, Belgium and Iceland.

EDF photo by Sgt. Kevin Valkenklaau

SWIFT AND BOLD – 5 RIFLES IN ESTONIA

BJÖRN MALMQUIST

Media Advisor (Iceland), Estonian NATO Battlegroup

Jumping into ice-cold water and crawling back to safety is perhaps not something that most people dream about doing on a cold Sunday winter morning.

But that is exactly what the one hundred or so British soldiers from the NATO enhanced Forward Presence Battlegroup were doing near Soodla, Harju County. They are part of some 900 UK soldiers and officers based in Tapa alongside the 1st Infantry Brigade, Estonian Defense Forces.

«The first seconds were a bit of a shock, but after that you just calm down and carry on,» says Lance Cpl. Jamie Carter, few minutes after he had dived in, crawled back out and changed into dry clothes. «Once you control your breathing, everything calms down to normal, and you're able to get out of the water.»

Carter and his fellow soldiers spent the weekend out in the woods near Soodla as part of the Cold Weather Operations Training – a program that every soldier and officer in the Battlegroup goes through.

The activities do not only include getting soaked in ice-cold water. Over three days and nights, the soldiers do tactical training in the snow-covered woods practicing their survival skills and teamwork, spending a night outside with minimal equipment and creating their own shelter.

«This is simply a very valuable lesson in the fundamentals of soldiering,» says Lt. Col. Jim Hadfield, the Commanding Officer of the NATO Battlegroup. «Any extreme environment, be it hot, dry or cold, will really test your ability to administer yourself and put you in a position where you can still fight. This training course teaches our soldiers to do exactly that in these cold conditions.»

Hadfield adds that this is a new experience for Soldiers in the British Army. They rarely encounter this coldness and the depth of snow in the UK, so it's very unusual for them to be able to do this training. He thinks that it is one of the great opportunities about being in Estonia as part of NATO's enhanced Forward Presence.

Hadfield and his soldiers in the 5 RIFLES led Battlegroup arrived in Estonia in September 2020 and are due to leave in March. They are the first UK military unit so far to return to Tapa, having been there in 2017.

That deployment marked the beginning of the presence of NATO forces in Estonia, following the decision, taken at the NATO summit in Warsaw a year earlier, to strengthen the deterrence and defensive posture in the eastern parts of the Alliance's territory.

«Our current deployment here in Estonia has been a very rewarding experience for us,» says Hadfield. «Last fall, our first task was to begin the process of integration with the 1st Brigade of the Estonian Defense Force, as well as with the Danish Vidar Company, which arrived in July last year, forming the other part of the NATO Battlegroup in Estonia.»

This process culminated in the Furious Axe exercise in Latvia late last year, which was all about defensive operations and tactical maneuvers of the 5 RIFLES, Vidar Company and the 1st Infantry Brigade.

«Given that our role here is to contribute to the collective deterrence and defense of Estonia, this was a very important milestone for the 5 RIFLES, and I am proud to say that we passed this test with flying colors,» says Lt. Col Hadfield.

The eighth rotation of UK forces to Estonia took place in March 2021, when 1 MERCIAN arrived in Tapa to take over the lead of the Battlegroup. An additional company of French soldiers also arrived in March, replacing the Danish Army's Vidar Company that served in Estonia 2020. ◆

Rifleman Wherrett, Soldier of the D Company, 5 RIFLES, British Army, steps into an ice hole on Soodla Reservoir, Harju County, Jan. 24, 2021. 5 RIFLES is a regular infantry battalion of the The Rifles Regiment, British Army. British Army photo



A Danish soldier from the UK-led Estonian NATO Battlegroup aims with his rifle during exercise Spring Storm in Estonian central training ground near Tapa, Apr. 28.
EDF photo by Junior Sgt. Maria Tökke

STRONG BOND CEMENTED

MAJ. ALLAN MØLLER-PETERSEN
Public Affairs Officer, Danish Contingent,
Estonian NATO Battlegroup

The close cooperation between Denmark and Estonia literally goes back hundreds of years. In recent years, Danish and Estonian soldiers have fought side-by-side in Bosnia, Kosovo, Iraq, Afghanistan and Mali. In 2020, The Danish company-sized contingent joined again the NATO enhanced Forward Presence Battlegroup in Tapa, Estonia.

Around one-third of the 200 Danish soldiers on the last six-month-rotation were in Estonia for their second time. This proved to be useful for a quick familiarization and a smooth integration into the Battlegroup and the Estonian 1st Infantry Brigade. Every week for the last 12 months Danish soldiers have either conducted small units training or participated in larger operations across the Baltic States.

«To us, the eFP mission is an important mission that is demanding due to the dense terrain and because we face a highly capable adversary,» says Lt. Col. Thomas Fogh, the Danish Defense Forces senior national representative in Estonia. «As professional soldiers we have to be well prepared, well trained and ultimately, ready for war, when you enter these grounds. It should not be underestimated that the Baltics still are the eastern front of NATO and our adversary in recent years has shown both will and strength to use military power to achieve his political objectives.»

The Danish cooperation with the UK-led Battlegroup and Estonian 1st Infantry Brigade has been exemplary. The Danes have conducted training with the British 1st Fusiliers and 5 RIFLES as well as Estonian Defense Forces and Estonian Defense League.

The exchange of knowledge often goes both ways. During an exercise, Danish VIDAR soldiers and EDL soldiers played the old game between cat

and mouse. EDL patrols hid in dense vegetation ready to launch their anti-tank missiles, whilst Danish armored vehicles scanned the challenging terrains with their thermal technology.

«This cooperative exercise was an excellent opportunity to test the capability of our soldiers and equipment,» says Maj. Mads, Commander of the VIDAR Company. «It enabled us to learn from Estonian soldiers, who have well-established local knowledge and we provided valuable training for them to operate modern anti-tank weapons against modern armored vehicles and tactics.»



Every week for the last 12 months Danish soldiers have either conducted small units training or participated in larger operations across the Baltic States.

The close cooperation between two allies continues in 2021. Danish infantry will be back in Estonia to participate at the exercise Spring Storm, and EDF soldiers will go to Denmark to participate at the exercise Brave Lion. Pending a parliament approval, Denmark will deploy a company-sized contingent to Tapa again in 2022.

«It has been an honor to be an integrated part of the NATO's defense of Estonia and the Baltics,» says Fogh. «Personally, I am glad that our soldiers have had the opportunity to get to know the people of Estonia with whom the Danes share a long history. Whenever we have met local citizens, we have seen both happiness and friendship. People have expressed their gratitude for us being here as allies and for being ready to defend their country.»

LESSONS FROM THE EXERCISE SPRING STORM

MAJ. GEN. INDREK SIREL

Deputy Commander, Estonian Defense Forces
Overall Exercise Commander for the Spring Storm 2020

The value of the exercise Spring Storm 2020 lies in the fact that it did take place. When the seriousness of the whole situation regarding the pandemic began to come clear for us in February-March, we were not at all sure whether such a large-scale exercise could take place.

We had set ourselves training ambitions. As soon as we saw that the pandemic control measures used in the Estonian Defense Forces allow for training, we decided to focus on training those units whose training cycle would have ended in the spring.

That was the right decision. We gained valuable experience in knowing that we can organize the training with our own resources in almost any conditions.

The EDF is a reservist force. The operational skills of our units depend on how the training of the units is constantly updated. Some countries, which for example have a professional armed force, may be able to afford to take a six-month break in training – not us.

Usually, the purpose of the Spring Storm is to train the units according to their wartime tasks and to cooperate with the Allies. One of our first decisions was not to invite the reserve service members of the EDF to train and not to use civilian lands for the exercise. Due to the general pandemic situation, we decided to practice cooperation only with those allies who were already here at that time.

The most important part of Spring Storm was live fire exercise. The complexity and tactical depth used in the exercise this time was impressive. This will certainly remain the yardstick of future live fire exercises for many years to come.

Spring Storm 2020 was organized in such a way that the main activity was planned for the central

training ground of the EDF. We had to further reduce the command structures – organizing the exercise was mainly the responsibility of the brigade staffs. The minimum objectives of the units were achieved.

With the reduction of the structure, new lessons learned also emerged. Many of the things we already considered routine were now re-examined. This is especially true of the activities of the companies in the battalion level and the joint training of combined arms.

In the future, training will also need to focus a little more on the tactical use of heavy weapons and some other aspects related to the skills of the individual soldier. These lessons learned provided valuable information for future training cycles.

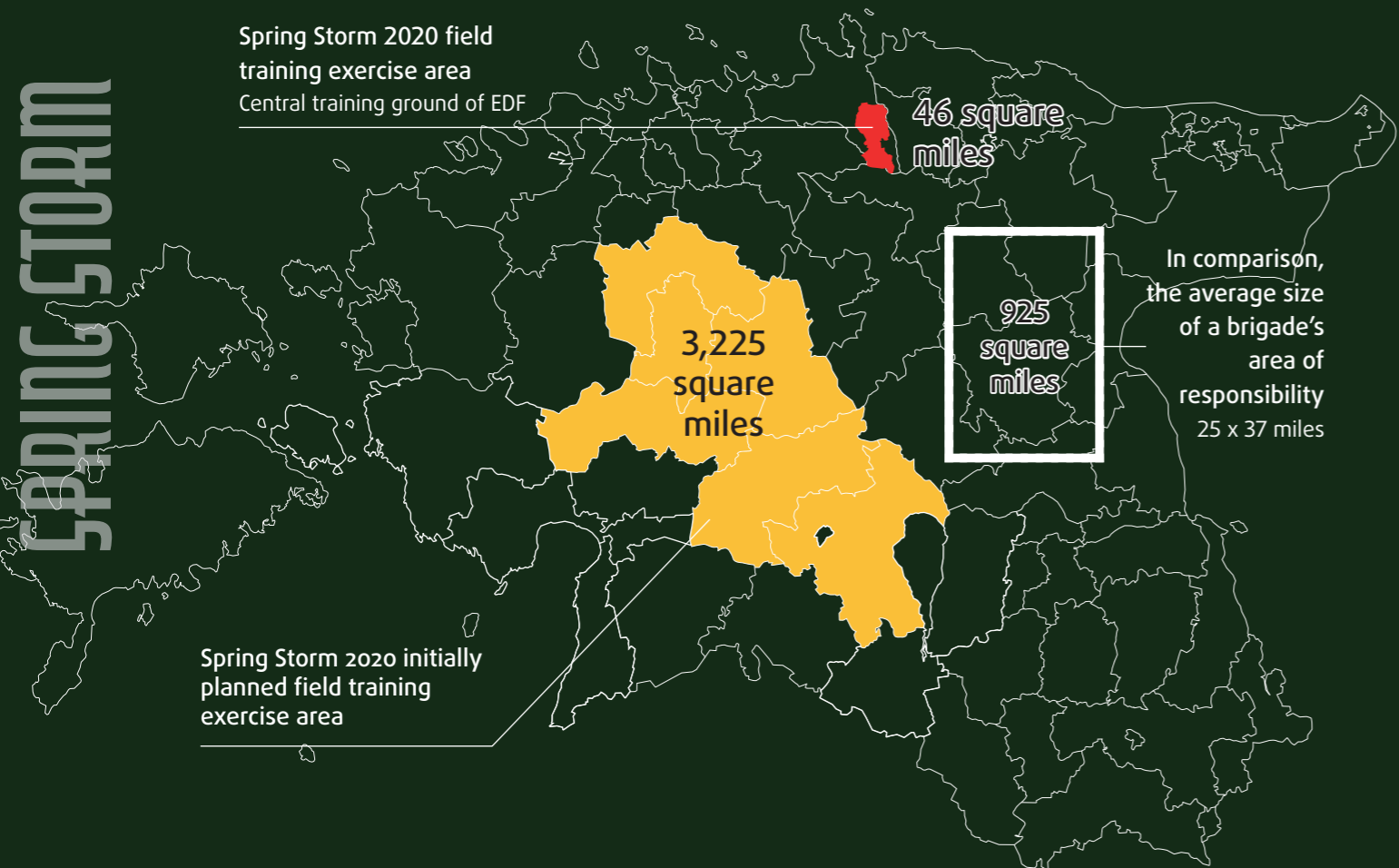
At the same time, we do not protect Estonia only from the central training ground. The better we know different parts of Estonia, the more effectively we can protect the whole country. The EDF is such a large organization that all units will simply not fit on the central training ground.

We have been constantly developing the central training ground and it helps to achieve our daily goals in the training of small units, but it has a limit. Unfortunately, the central training ground is not big enough to get the right feeling about the operation of a larger force.

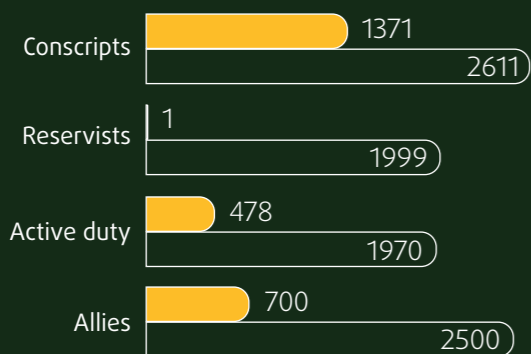
The communication of the EDF with society is also important. All Estonian citizens should feel that the EDF is theirs. People could see and understand that we are also practicing protecting their homes, which we can only exercise in different parts of Estonia. ■

SPRING STORM

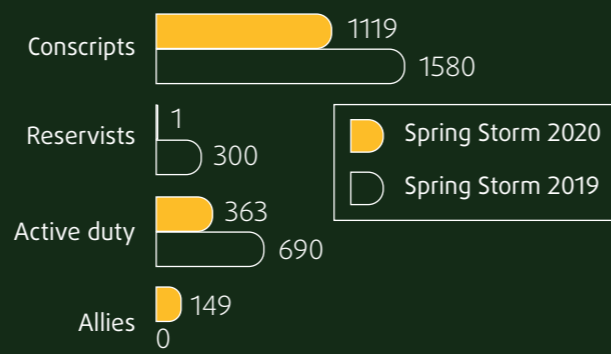
Spring Storm 2020 field training exercise area
Central training ground of EDF



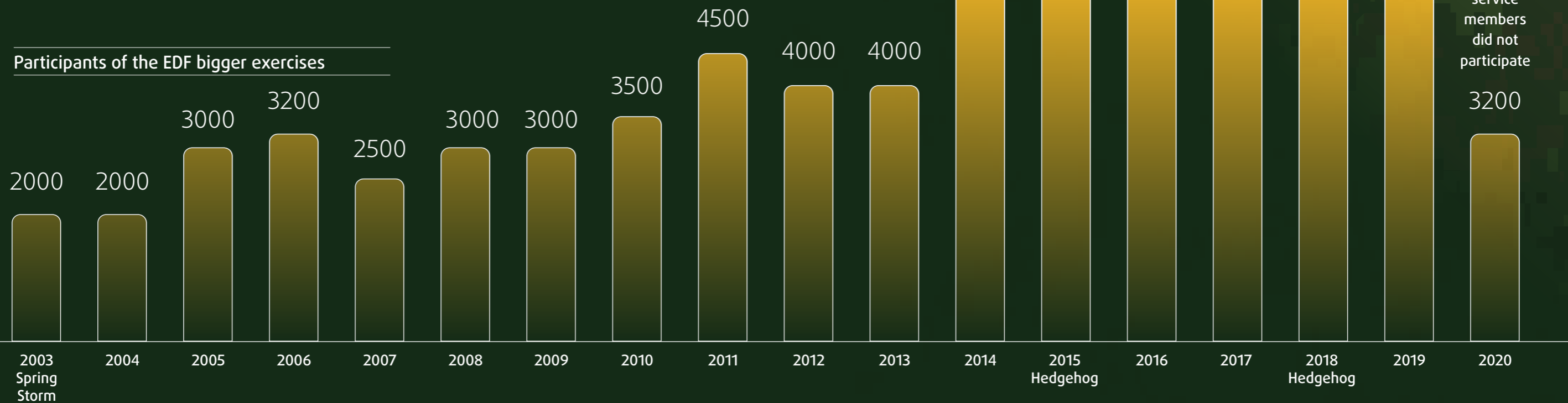
Participants of field training exercise



Participants of live fire exercise



Participants of the EDF bigger exercises



A soldier in camouflage gear is aiming a rifle. The soldier is wearing a helmet with a night vision device and a communication system. The rifle is a modern assault rifle with a scope and a magazine. The background is a blurred outdoor setting.

ESTONIA RECEIVES NEW RIFLES

RAMIL LIPP

Head of the Armament Category, Procurement
Department, Centre for Defense Investment

One of the biggest capability developments in the Estonian Defense Forces, which affects virtually all soldiers, is, of course, the procurement of new rifles. R20 Rahe is a world-class firearm in terms of its user-friendliness and accuracy. The Centre for Defense Investment started preparing the procurement in cooperation with the EDF already in 2016. The public procurement was announced in the summer of 2017. For the first time, Estonia procured weapons under open market conditions.

The company not awarded with the procurement decided to challenge the outcome. Both the Public Procurement Review Committee and the court decided not to satisfy the dispute. The agreement was reached in the summer of 2019. Deliveries were scheduled to start in 2020 and to last until the end of 2021.

However, the world was hit by the COVID-19 pandemic and the scheduled arrival of deliveries became increasingly unlikely. At the same time, CDI and LMT have done their utmost to manage the delays caused by the pandemic.

In 2020, 6,050 rifles with a caliber of 5.56 mm and 500 rifles with a caliber of 7.62 mm have been handed over to the EDF. In addition, most of the accessories ordered with the procurement have been delivered, including various sights (red dot and optical sights) and other weapon parts.

During 2021, most of the supply should arrive in Estonia, i.e. the remaining quantity of 18,340 rifles. CDI, the EDF and the manufacturer LMT Defense are in constant communication. Due to the pandemic, it is important to reach the last delivery of the ordered batch of rifles in the first half of 2022.

In regard to this procurement, it must be emphasized that one important component of the procurement strategy was to ensure the life cycle of weapons by adding separate shot counters to rifles. In this way, an accurate overview of the life cycle is created for each rifle, i.e. information on how much the weapons have been used. This will give one a better overview of when it is time to do full maintenance or decommission the rifle.

We can safely say that we have taken a big step forward as a country with the procurement of these firearms. We look to the future with confidence and we know that we can organize large-scale procurements together with our main customer, the EDF. We can do this under open market conditions, from planning to management leading to a successful outcome. ●

The aim was to acquire a modern weapon for the EDF that would allow the use of various modern accessories and would be both ergonomic and durable.

The new generation weapon also has the advantage of modularity; this allows one to easily and quickly change the barrel together with the bolt and magazine. This makes it possible, for example, to change the caliber of the weapon. It is a big step into the future.

The arms procurement was extensive. It required the full and professional cooperation of a large number of people. The objective was to get the product with the best price and quality available on the market, according to the needs of the EDF. We can proudly say that we achieved this goal.

The chosen procurement strategy attracted a great deal of public interest and dramatically increased the number of participants in the procurement. In the case of large-scale procurements, disputes may always happen – it involves a lot of money. This was also the case when LMT Defense's bid was announced as the winner.

R20 Rahe



LA-R20 is the new standard service rifle of the Estonian Defence Forces manufactured by LMT Defense. This is the most modern version of the M16/M4 rifle and can be considered its latest generation.

AR-15/M16 timeline

M1 was the standard service rifle of the U.S. Armed Forces from 1936 to 1958. It was the main rifle in both World War II and the Korean War.

M14 was chosen as the standard service rifle of the U.S. Armed Forces in 1959. It is still used as a marksman rifle by the armed forces of several countries, incl. the Estonian Defense Forces and the Defense League.

AR-15 is the 5.56 mm caliber version of the AR-10 rifle. ArmaLite sold the license for the rifle to Colt's Manufacturing Company in 1959.

M16A1 is with the addition of forward assist assembly. This was also the service weapon of the Estonian units in the Baltic Battalion in the early 2000s.

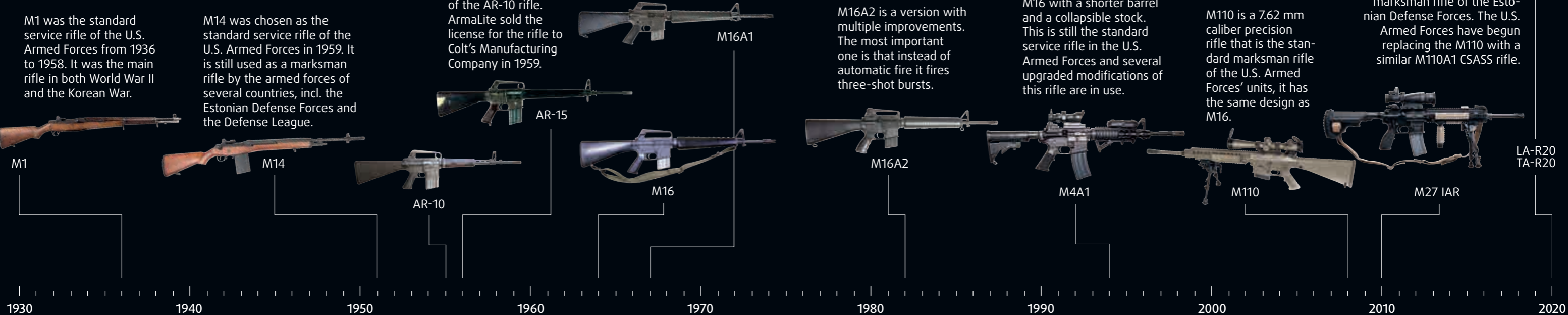
M16A2 is a version with multiple improvements. The most important one is that instead of automatic fire it fires three-shot bursts.

M4A1 is a version of the M16 with a shorter barrel and a collapsible stock. This is still the standard service rifle in the U.S. Armed Forces and several upgraded modifications of this rifle are in use.

M110 is a 7.62 mm caliber precision rifle that is the standard marksman rifle of the U.S. Armed Forces' units, it has the same design as M16.

TA-R20 is the new short-stroke piston designated marksman rifle of the Estonian Defense Forces. The U.S. Armed Forces have begun replacing the M110 with a similar M110A1 CSASS rifle.

M27 IAR is the new standard service rifle of the U.S. Marine Corps. Unlike the M16, it has a short-stroke piston reloading system. The weapon is based on the HK416, which was taken into use by the U.S. Special Forces as early as 2004.

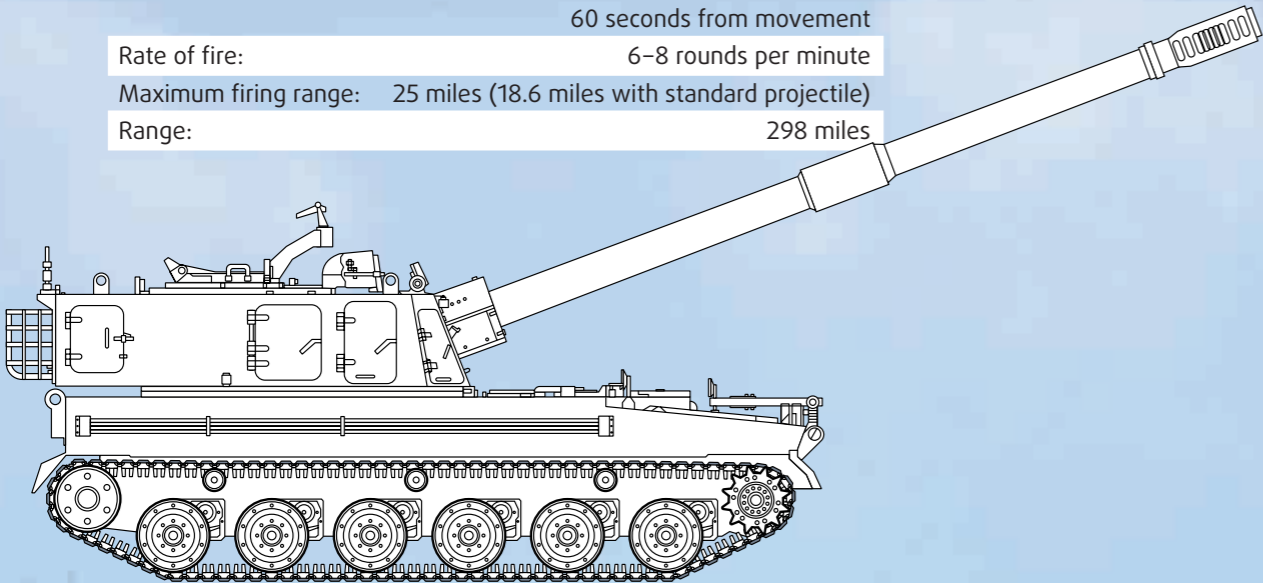


AR-10 is a highly innovative 7.62 mm rifle manufactured by ArmaLite. This can be considered the ancestor of many modern rifles.

M16 is the military version of AR-15, which was first chosen as a standard service rifle by the U.S. Air Force. The most important difference in comparison with its predecessor is that the weapon charging handle is at the back, not under the carrying handle.

Self-propelled artillery K9 Thunder

Length:	39.37 feet
Hull length:	24.28 feet
Withd:	11.15 feet
Height:	8.96 feet
Weight:	102,000 pounds
Engine:	MT881 Ka-500 V8 water-cooled diesel engine
Engine power:	1000 horsepower
Maximum speed:	40 mph
Crew:	5 (commander, driver, gunner, 2 loaders)
Armament:	155 mm L-52 howitzer .50 heavy machinegun
Fire preparation time:	30 seconds at emplacement 60 seconds from movement
Rate of fire:	6–8 rounds per minute
Maximum firing range:	25 miles (18.6 miles with standard projectile)
Range:	298 miles



A K9 Thunder crew, Artillery Battalion, 1st Infantry Brigade, Estonian Defense Forces, jumps down from the top of the self-propelled artillery in Tapa, Estonia, Feb. 8, 2021. Estonia purchased 18 units of K9 from South Korea; the first two units arrived in 2020.
EDF photo by
Pvt. Jarkko Martin Pukki



The field hospital of the Estonian Defense Forces in front of the Kuressaare Hospital, Apr. 4. In COVID-19 treatment configuration, the ward-monitoring beds of the field hospital were also equipped with oxygen.

Postimees photo by Sander Ilvest

MILITARY FIELD HOSPITAL DEPLOYS IN KURESSAARE

MAJ. HELENA ROON
Head of the Training Department,
Centre for Military and Disaster
Medicine, Estonian Military Academy

The number of COVID-19 positive patients requiring hospitalization increased across the country in the spring of 2020. The number of patients in need of hospitalization increased sharply in the island of Saaremaa, where a field hospital of the Estonian Defense Forces was deployed to provide assistance.

The capabilities of Kuressaare Hospital were at their limit, mainly in the intensive care unit – all the beds with supplementary oxygen availability were occupied. According to the request of the Health Board, the Role 2 field hospital of the EDF was sent to support Kuressaare Hospital as a COVID-19 department from April 1 to April 30.

20 ICU beds (monitoring, oxygen therapy, respirator, etc.) were opened and 40 general ward-monitoring beds were ready to be opened. 18 EDF medics, 15 conscripts of the 1st Infantry Brigade (with paramedics training) and 30 civilian medics treated the COVID patients.

Activities in Kuressaare were a great challenge for all personnel as the EDF field hospital was deployed for the first time as fully functioning hospital in the conditions of a civil crisis.

This was an exceptional situation because usually the field hospital treats mostly trauma patients. Under intended circumstances, a field hospital can conduct surgeries and provide intensive care with short-term ward treatment attend to patients for up to 72 hours.

The patients were instead infectious and needed special conditions to prevent the infection from spreading. For this, a «clean» and an «unclean» area were separated; medical staff had to use personal protective equipment while working. There was also a challenge with the patients with large age difference and unknown length of stay.



In addition, due to the specific nature of COVID-19 pneumonia, the need for medical oxygen was significantly higher than normally. Therefore, regular field hospital oxygen supply (oxygen production generator and oxygen tanks) had to be increased with additional oxygen tanks.

Fifteen COVID-19 patients were treated at the field hospital during this period. The average age of patients was 72.9 years. The oldest was a 90-year-old woman. The duration of treatment lasted from three hours to fifteen days.

Two patients were transferred to the ICU of the North Estonia Medical Centre, one to the Pärnu Hospital and one to the COVID department of the Kuressaare Hospital for follow-up treatment. Two were sent back to a nursing home and seven were discharged. Unfortunately, two patients passed away.

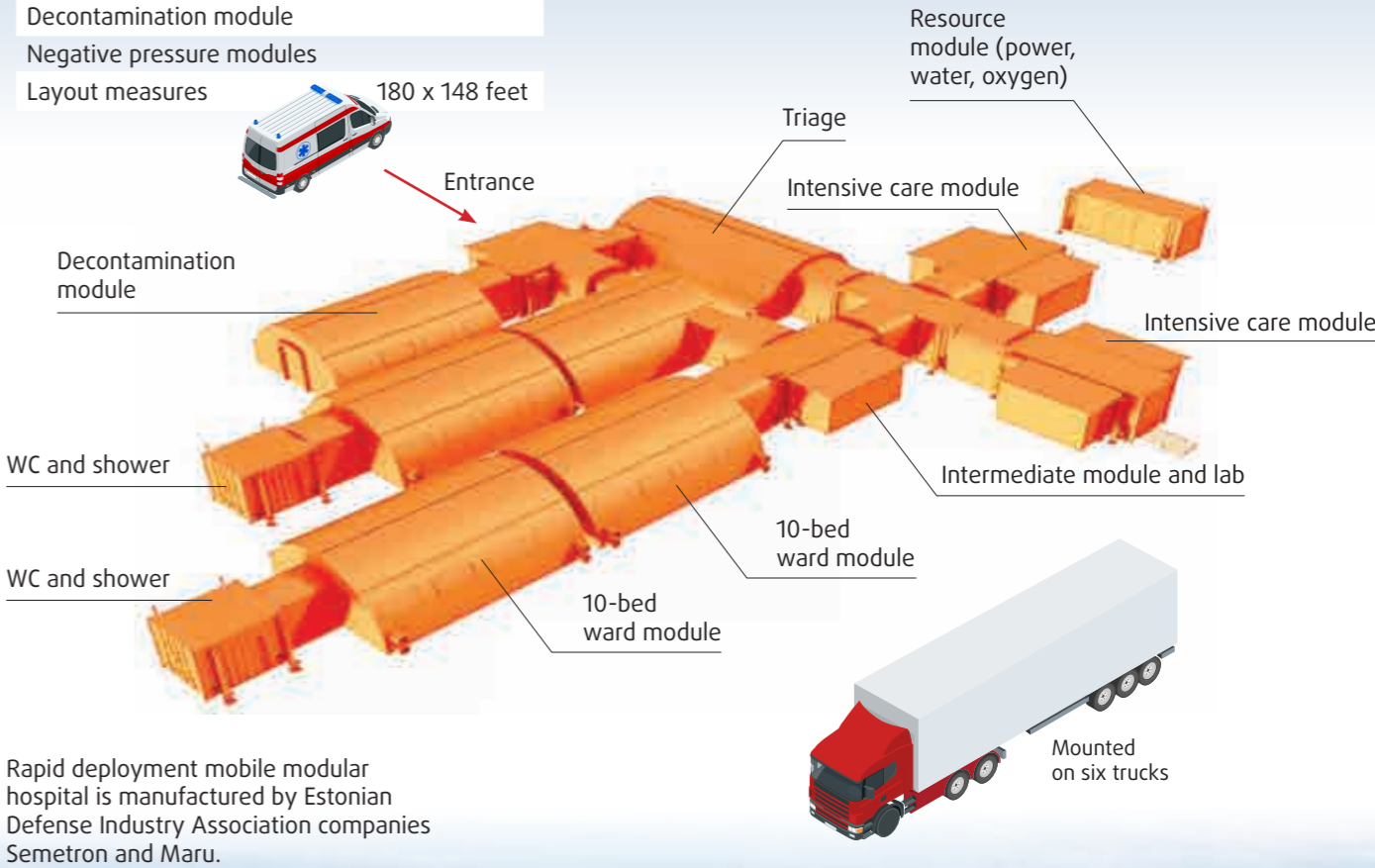
The pharmacy of Kuressaare Hospital provided the medical and personal protective equipment to the field hospital. The hospital laboratory performed the analyses. X-rays were usually taken at the field hospital, in some cases the X-ray room of Kuressaare Hospital was used as well.

The cooperation with the management, doctors, nurses and technical support staff of Kuressaare Hospital was excellent. Their help being crucial at keeping the field hospital running throughout the whole period. It was also a new experience for the staff of civilian hospital.

In conclusion, the EDF Role 2 field hospital in Kuressaare provided invaluable experience of solving and containing the crisis. Many problems, such as oxygen supply, spatial layout, special features of treating infectious diseases, etc., are still being addressed to improve the efficiency of the field hospital in the future emergencies. ●

Role 2 Field Hospital (infection treatment configuration)

Treatment beds	40
ICU beds (fully equipped)	8
WC and shower for patients	2
Lab	
Decontamination module	
Negative pressure modules	
Layout measures	180 x 148 feet



The field hospital of the Estonian Defense Forces on the ferry and heading towards the island of Saaremaa, in Virtsu Port, Apr. 1. Each module has a 20-minute deployment and repack time.

EDF photo by Junior Sgt. Joakim Klementi



US DRONES IN ESTONIA

LT. COL. KRISTO LIPASAAR
Staff Officer, Estonian Air Force

For the first time, a U.S. drone unit was located in Estonia in 2020. The Ämari Air Base operated the remotely piloted unmanned MQ-9 Reaper aircraft from mid-June to the end of July.

These drones are part of the 52nd U.S. Air Force Expeditionary Operations Group, whose main base in Europe since May 2018 is the Miroslawiec Air Base, Poland. One of the reasons for the relocation of the drones was the repair of the main runway. An equally important reason was the expansion of cooperation with the Allies.

In the past, drones have also been based in Romania. The MQ-9 Reaper has been a frequent visitor in Estonian airspace, but without landing here before.

Hosting the drones, the Estonian Defense Forces gained significant experience in compiling the necessary procedures and acquired new knowledge. The Ämari AB of the Estonian Air Force is also the home base of NATO air policing fighters, where round-the-clock readiness for the take-off of armed fighters must be ensured.

Both the drones and the fighters had to be able to carry out their tasks without interruption, with the necessary ground support and preparation. It was necessary to separately develop procedures for the take-off and landing of unmanned aircraft, and thanks to good cooperation with the Estonian Civil Aviation Authority and air navigation services, drones could fly in accordance with the same principles as manned aircraft.

The mission of the MQ-9 Reaper in Europe is to ensure the security of the region and to practice the rapid deployment of troops. Drones help to increase situational awareness in the air, on ground and at sea, making an important contribution to intelligence gathering.

In addition, this drone can carry both air-to-ground guided missiles and guided bombs, and it can detect and destroy targets independently. It is an aircraft equipped with a wide range of monitoring, targeting and intelligence equipment. Long flight times ensure good intelligence gathering and support the targeting of other aircraft and weapon systems.

The MQ-9 Reaper does not have to be directly above the object of interest to collect data. It also allows one to see far beyond the border. This is what the defensive Alliance needs in order to identify the possible hostile intentions of its neighbors in a timely manner.

Additionally to the usual aircraft operations at Ämari AB in 2020, we can also mention the exercise of the United States F-15E Strike Eagle fighters for conducting front armament and refueling point operations. The special operations' tiltrotor aircraft CV-22 Osprey was also used in cooperation with the EDF, during this time both the tactical transportation of the units and the firing from the machine gun onboard were performed.

The diversity of air operations was demonstrated Sept. 21. On the same day, during a flight rescue exercise at Kiltisi Airport, an air force helicopter also found a person who had actually disappeared near Hatu village. On that day, the NATO Air Force exercise Ramstein Alloy and the electronic warfare exercise Ramstein Guard took place. At the same time, there were eight fighters

in Estonian airspace, a B-52 bomber, an AWACS E-3 early warning and airspace control aircraft and an aircraft with electronic jamming equipment.

Due to the difficult time in civil aviation, the Estonian AF started using new M-28 Skytruck aircraft for transport flights to foreign countries in a significantly larger volume than planned. Using our own plane was several times cheaper and often also the only way to transport deployable units to transit airports in time or to bring specialists necessary for the maintenance of military equipment to Estonia. The M-28 has also made its first ship identification flights at sea.

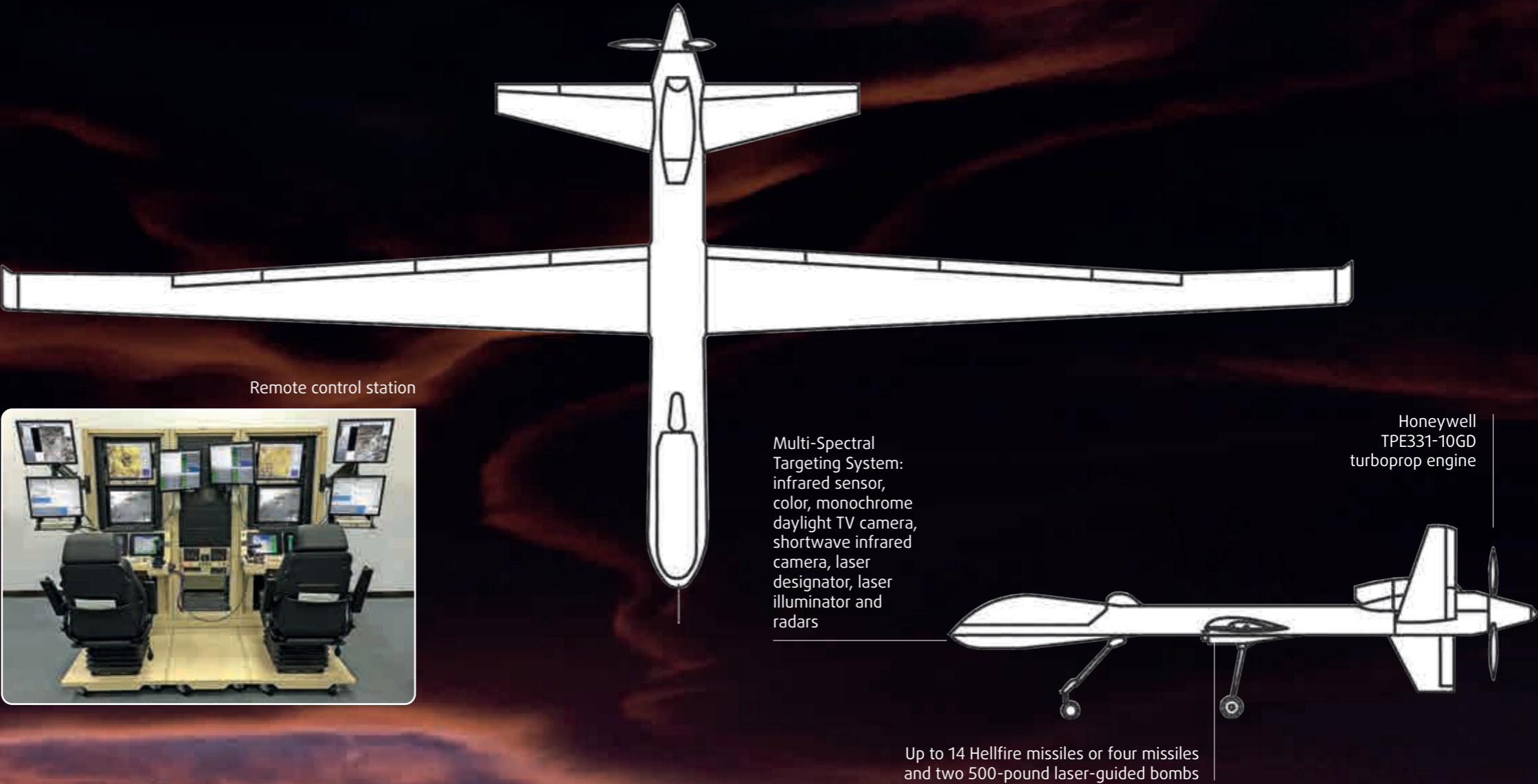
2020 was another milestone year in the development of unmanned aircraft, and Estonia is not just a bystander. The operation of a drone flying at the same altitude as passenger planes from Ämari AB is of symbolic and forward-looking significance. The EDF also support other authorities with drones produced in Estonia, and it seems that there is no limit to cooperation and use when it comes to drones. ●

MQ-9 Reaper

The MQ-9 Reaper is an unmanned aerial vehicle capable of remotely controlled or autonomous flight operations, developed by General Atomics Aeronautical Systems. It made its first flight in 2001 and was introduced to the service of U.S. Air Force in 2007.

Crew (remote):	Two (pilot and sensor operator)
Length:	36 feet
Wingspan:	66 feet
Height:	12.5 feet
Weight:	4,900 pounds
Maximum takeoff weight:	10,500 pounds
Payload:	3,750 pounds
Thrust:	900 shaft horsepower maximum
Max speed:	300 mph
Cruise speed:	194 mph
Range:	1,150 miles
Endurance:	14 hours fully loaded
Ceiling:	Up to 50,000 feet
Operational altitude:	25,000 feet
Armament:	
	7 hardpoints
	Up to four air-to-surface missiles and
	Up to two 500-pound laser-guided bombs
	Testing of air-to-air missiles is underway

The primary user is U.S. Air Force. Other operators include UK, France, Italy, Netherlands, Morocco and India.



An MQ-9 Reaper sits on the flight line as the sun sets at Creech Air Force Base, Nev., Nov. 20, 2019. The Reaper provides dominant, persistent attack and reconnaissance 24/7/365.
U.S. Air Force photo by
Airman 1st Class William Rio Rosado



Petty Officer 1st Class Mairo Küünarpuu, Instructor of the Training Department, Naval School, on board the new force protection vessel EML Roland at its commissioning in the port of Nasva, Saare County, Dec. 10.

EDF photo by
Sgt. 1st Class Ardi Hallismaa

NEW WINDS FOR THE NAVY

COMMODORE JÜRI SASKA

Commander, Estonian Navy

Estonian Navy received two new force protection vessels built by Baltic Workboats. These vessels – EML Roland and EML Risto mark a new era for the Navy.

The introduction of new vessels will significantly fill gaps in ensuring situational awareness, establishing force protection at sea and in the training of our naval officers. These are the first vessels built according to the wishes and needs of the Navy. They are designed to withstand extreme weather conditions and high waves.

The force protection vessels will be assigned to the newly established 3rd Division. The task of this unit will be protecting the naval vessels and ports. This also includes ensuring secure maritime transport and supporting situational awareness at sea.

These vessels are made of aluminum, and in addition, ballistic protection panels have been used. The vessels are equipped with a completely new wave-piercing bow solution. This helps to cut waves better, which significantly increases its vertical stability and top speed.

MAIN EFFORT

In 2020, minehunter EML Admiral Cowan participated in a five-month deployment as part of Standing NATO Mine Countermeasures Group 1. This was quite challenging, due to the limitations of COVID-19, the team lived «behind a fence», so to speak, even when visiting the homeport. However, their main task was fulfilled in an exemplary manner.

In 2021, the Navy will see a new structure adopted. The naval headquarters and divisions as its subunits will be re-established. The Guard Battalion will leave the naval base and the barracks currently at their disposal will be adapted to the needs of the Navy, after which the Navy will move there by 2022 at the latest.

Undoubtedly, the acquisition of new weapon systems, such as the coastal missile system and naval mines, will also be a major challenge, leading to the recruitment and training of additional personnel. It also means improving the training of the entire Estonian Defense Forces in order to increase the readiness to conduct joint operations.

SEA REQUIRES COOPERATION

Sea surveillance has also developed at a rapid pace, and now I dare to say with certainty that the Navy is developing a better understanding of who is moving in our seas and what they are doing. Situational awareness at sea is an important part of providing early warning, and the Navy contributes to its creation through its presence at sea. In the development of sea surveillance, cooperation with the Maritime Administration and the Police and Border Guard Board has significantly improved in recent years.

We have also connected the radar systems of the Transport Administration and the Police and Border Guard Board with the Navy Command Centre. At the end of the year, we started automated information exchange with Latvia and Lithuania, which was achieved thanks to the adoption of a common software and hardware system. This is a textbook example of how the three Baltic States can work together.

A new naval command system is also being developed; this is one of our responsibilities as an ally in NATO. In 2020, we started implementing a ship-to-shore shortwave capability development project. This will provide a better survivability and secure link with our own warships and with NATO fleets. All in order to be able to communicate securely with control points in times of crisis or war, whether they are at sea or on shore, our own or our Allies. ●

Force protection vessel Navy 18WP

Length:	57 feet 3 inches
Width:	16 feet 1 inch
Draft:	5 feet 3 inches
Speed:	33 knots
Armament:	

In the bow, a .50-caliber remote weapon station Sea deFNder
In the stern, two .50-caliber heavy machineguns

The wave-piercing bow design provides a longer waterline length when compared to a traditional hull vessel. In rough sea conditions when the bow becomes submerged, the top surface of the bow creates increased down-force, which compensates for the buoyancy of the bow. The bow design reduces pitching motions and provides a smoother ride for Captain and crew at all speeds. When compared to a traditional hull, a wave-piercing hull design provides 40% less vertical acceleration and up to a 30% improvement in fuel economy, which improves the bottom line of your business.

EML Roland on its maiden voyage at the Suur Katel Bay, Saare County, Dec. 10.
EDF photo by
Sgt. 1st Class Ardi Hallismaa





French and Estonian Special Forces at a joint exercise in Mali, Nov. 29. In addition to advising the Malian Armed Forces, Special Forces also take part in military operations themselves and must constantly improve their skills. French Ministry of Armed Forces photo

ESTONIAN SPECIAL FORCES IN MALI

LT. COL. MARGUS KUUL

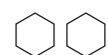
Commander, Estonian Special Operations Forces

Estonian government decided to increase the participation of the Estonian Defense Forces in the French-led military operation Barkhane in Mali, Sept. 2019. The decision was made to contribute with a strategic capability and to send Estonian Special Operations Forces there to cooperate with French Special Forces and to advise the armed forces of Mali.

Thus, Estonian SOF together with other specialists of the EDF started their service in the Task Force Takuba, July 2020. Special Forces may be considered a force multiplier. The mission of this task force is to train, advise and support the Malian Armed Forces in special operations against terrorists who want to create an Islamic State.

LOCAL KNOWLEDGE

These tasks require experienced and well-trained dedicated Special Forces operators. In addition to military pedagogy they must also be able to speak the local language. This is what makes the Special Forces special – the knowledge of the local language multiplies the success rate of the tasks worked on.



The mission of Task Force Takuba is to train, advise and support the Malian Armed Forces in special operations against terrorists.

Special Forces operators must also understand the culture and religion of Mali. All this supports knowledge of the foreign environment. This will also help to better advise service members of the Malian Armed Forces in planning special operations. If necessary, they must be instructed in difficult situations and in difficult terrain.

The experience gained by the Special Forces from both Afghanistan and Senegal will facilitate such tasks. Lessons learned have also been shared through exercises with other units of Special Operations Forces in NATO. For now, we can also con-



Estonian Special Forces operators with the Jackal 2 vehicle and the French Special Forces operators with the Panhard VPS vehicle in Mali, Nov. 29. The Jackals were lent to Estonians by the Ministry of Defense of the United Kingdom for until the Coyote vehicles ordered by Estonians arrive.
French Ministry of Armed Forces photos



sider the valuable experience gained from each of the following Malian rotations for possible future challenges.

The best recognition for both Estonian and French Special Forces operators are the results of operations carried out together with Malian Special Forces. The effectiveness of the special operations of the Task Force Takuba has also been highlighted by the generals of our ally, France.

MAXIMUM CHANCE OF SUCCESS

The first unit of the Estonian Special Forces was transferred Mali with an equivalent unit of the French Special Forces in June. Together, the cornerstone was laid for the further development of the Task Force Takuba. At the same time, the Malian Armed Forces recruited a company called ULRI (unité légère de reconnaissance et d'intervention). European Special Forces operators became mentors for this unit.

In essence, it is a lightweight mobile recce and strike unit. Most Malians had had some military training in the past. The Estonian and French Special Forces were responsible for approximation of the company-level training and raising the level of general training. All that in order to maximize the chances of success of future special operations.

The training consisted of shooting practice, medical training, training in the use of means of transport and training in the movement of small units in the terrain. In addition, so-called counselling "without a gunshot" was provided consistently at the command level.

In the first stage, before the special operations, we got to know the local culture, customs and way of thinking. This laid the foundations for understanding each other on the battlefield and building trust and a sense of camaraderie.

It is important to understand that, in the case of special operations, advising and assisting means in-

creasing the combat capability of the Malian Armed Forces. Raising the morale needed for combat helps to cope on your own. Equally important is the understanding that the Malian company is not a separate unit run by Special Forces, but it is above all an equivalent partner unit, much better familiar with the local conditions.

In special operations, counselling is never a one-sided process, quite the opposite. It all starts with the ability to learn and to listen the locals. This is a unique skill. It is often taught to soldiers in the theoretical level, but Special Forces actually follow it.

Therefore, the recommendations of the Malian company leadership on how to act in the local context must be listened very carefully. Only then can we guide them in the planning, preparation and execution of special operations. During the special operations, the confidence of the Malians increased. This is the main goal of the Special Forces – local combatants must be able to carry out tasks independently.

TERRORISM KNOWS NO BORDERS

The climate of Mali is also worth mentioning. The rotation of the task force began at a time when temperatures reached up to 50 degrees Celsius. The post-drought rainy season was more watery than usual in the Sahel region and this caused problems. Special operations with the Malians took us hundreds of miles from the main base to the Sahara. Familiarity with the landscape was important for smooth movement.

The description of the French Special Forces experienced in the area of operation was highly accurate: one day of rain equals three days of impenetrable terrain. Knowing the local circumstances and considering the risks, a three-week operation, typical of special operations, was carried out in the South Liptako region. In terms of size, the area was similar to the territory of Estonia. In difficult conditions, 750 miles were covered, and 2,800 liters of water was consumed.

The Takuba Special Forces have a strategic impact in the fight against terrorism. Terrorism knows no borders. Islamist terrorist organizations want to rebuild the Islamic State, which was created in 2014 and later crushed, in the Sahel region of Africa. Sowing Europe with a wave of terrorism is part of the Islamic State's strategy.

To prevent this from happening, we must make our contribution with our Allies in Mali. We must prevent Islamic extremists from establishing bases in Africa. If they succeed, the next step will be to create a caliphate. Special operations are always at strategic hotspots. These are the places where, together with our allies, we can be most effective in preventing threats to us. ●



Women, participating the job-shadowing program in Estonian Defense Forces, adjusting their military equipment in Tapa, Aug. 17. Females aged 15-24 can go to a selected military unit to get acquainted with conscription. The job-shadowing program in the Artillery Battalion, 1st Infantry Brigade, lasted 24 hours, during which 40 women were able to take part in the everyday life and routine of a conscript soldier, wear soldier's equipment and participate in military training in the field.

The objective of the job-shadowing program, taking place from 2018, is to raise women's awareness of military service. The participants of this program thought that all soldier's tasks in the EDF can also be done by women. Every year, almost 100 women volunteer for military service, more than half of whom go on to become active service members. 10% of the EDF active service members are women.

THE FUTURE BELONGS TO ROBOTIC SYSTEMS

GERT D. HANKEWITZ
Export Director, Milrem Robotics

Despite the difficult global situation, Milrem Robotics managed to launch a new generation of robotic combat machines, win a project to develop the European standard unmanned ground vehicle and expand the use of its flagship – THeMIS UGV – to new markets, including finally Estonia. All that in 2020.

In September, the Centre for Defense Investment signed an agreement to jointly procure seven THeMIS UGVs together with the Netherlands. Three of the seven vehicles will start service in the Estonian Defense Forces and four in the 13th Brigade, Royal Netherlands Army.

According to the agreement, Milrem Robotics is the systems integrator who, in addition to delivering the vehicles, also takes care of the installation of all third-party equipment, including the weapon systems onto the vehicles. Weapon systems integrated onto the vehicles procured by the Netherlands are, of course, under human control.

The 13th Brigade is already familiar with the THeMIS since April 2019, when its robotics and autonomous systems unit commissioned the first

two vehicles. The fact that the Netherlands bought additional vehicles from Milrem Robotics is a great recognition for the company, but not a bigger recognition than an order from the EDF – the company's longstanding partner, who has contributed to the development of the vehicle with advice and assistance over the years.

JOINT EUROPEAN PROJECT

In addition to Estonia and the Netherlands, nine other countries have acquired the THeMIS, and as many as seven countries using the UGV are members of NATO. The plan is to increase the number of users in the coming years, and hopefully the project iMUGS, or Integrated Modular Unmanned Ground System, which was funded by the European Commission last year, will give a strong impetus to do so.

The iMUGS project has a budget of €32.6 million for the development of a standard European UGV solution based on the THeMIS. The objectives of the project and the requirements of the technical solution have been agreed by seven European

Union Member States: Estonia, as the project's lead partner, but also Belgium, Spain, Latvia, France, Germany and Finland.

In addition to Milrem Robotics, European defense industry giants such as Safran Electronics & Defense, NEXTER Systems, Krauss-Maffei Wegmann, Diehl Defense are also participating in the project. Estonian companies participating also include DefSecIntel Solutions, Threod Systems, Rantelon and the Estonian Military Academy as a research and development institution.

«It is a great honor for Estonia to lead this project, but at the same time this also means that the state has a great responsibility, as it is an unprecedented project,» said Martin Jõesaar, Head of the Project Management Department, Centre of Defense Investment, commenting on the project agreement. «The objective of the state is not only the successful implementation of the project, but also the creation of new development projects based on the systems developed as part of this project.»

The European market for unmanned ground vehicles will grow by more than €1 billion over



Prototype of the robotic combat vehicle
Type-X photographed July 9, 2020.
Milrem Robotics photo

the next 10 to 15 years. European countries need thousands of vehicles during this time. As the product created under iMUGS is based on European needs and requirements, it has a significant competitive advantage.

TYPE-X ROBOTIC COMBAT VEHICLE

While active sales were taking place to capture markets with the THeMIS, the company was developing a completely new Robotic Combat Vehicle – the Type-X. While the THeMIS supports dismounted troops, the Type-X is designed to support mechanized units.

As a result, the Type-X is many times more capable than the THeMIS. Vehicle acquisition and subsequent lifecycle management are also significantly cheaper than traditional vehicles. The Type-X RCV has been developed with the specifics of the modern battlefield in mind.

The Type-X can be equipped with up to a 50 mm automatic cannon. With a 30mm cannon it can be transported to the battlefield by tactical transport aircraft and then be parachuted to the ground. The C-130J and KC-390 transport aircraft can hold one Type-X, the A400M two and the C-17 five.

«One of the main advantages of the Type-X is its intelligent functions, such as follow-me, point-to-point navigation and object recognition functions, which are controlled by artificial intelligence,» said Kuldar Väärsi, CEO of Milrem Robotics. «Also, Milrem Robotics' software developers have taken a totally new and innovative approach to allow remote controlled operations on higher speeds.»

The Type-X RCV successfully passed its first mobility tests at the end of 2020. The top speed of the armored vehicle is 50 mph on the road and 30 mph on terrain.

In addition to unmanned vehicles, Milrem Robotics also co-established a consortium named 6x6 EST consisting mainly of defense and industrial companies, that at the end of last year proposed to develop Estonia's very own armored personnel carriers.

Namely, the Estonian Ministry of Defense wishes to procure 100–300 6 × 6 APCs for the EDF in the next 10 years. According to the consortium, APCs should be ordered domestically rather than purchased from elsewhere. This would leave most of the €140–400 million investment in Estonia. ■



TheMIS UGV participating live fire exercise on the central training ground of the Estonian Defense Forces near Tapa, May 15, 2019. Milrem Robotics photos

Type-X robotic combat vehicle

Length:	19 feet 8 inches
Width:	9 feet 6 inches
Height:	7 feet 2 inches
Weight:	26,455 pounds
Maximum payload:	9,000 pounds
Maximum road speed:	50 mph
Maximum terrain speed:	30 mph
Speed in reverse:	50 mph
Ground clearance:	20 inches
Maximum grades:	100%
Fording depth:	59 inches
Turning radius:	Pivot
Primary weapon:	Up to 50 mm automatic cannon
Secondary weapon:	7.62 mm coaxial machine gun
Kinetic energy protection (incl. artillery):	STANAG 4569 (L4)
Mine protection:	STANAG 4569 (L1)



The Type-X RCVs are intended to support mechanized units by acting as a wingman to main battle tanks, infantry fighting vehicles or armored personnel carriers. The vehicle provides equal or overmatching firepower and tactical usage compared to traditional IFVs. The RCV can be equipped with a main armament of a 30 mm to 50 mm automatic cannon and utilized to localize and engage targets and provide flanking support.

The Type-X considerably raises troop survivability and lowers lethality risks by increasing standoff distance from enemy units. It is a rapidly deployable and dependable unit, able to autonomously navigate the

battlefield and perform tasks, keeping the operator in the loop with real-time situational awareness.

The Type-X is designed to have low maintenance costs and its modular design allows it to be easily upgradable. It is designed for operations encompassing the entire spectrum of conflict from permissive to denied environments, fighting effectively in both conventional and non-conventional conflicts.



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