

The Development of the Lithuanian Armed Forces and Its Response to the Russian Conventional Threats in 2015–2020

Lietuvos ginkluotojų pajėgų vystymasis ir atsakas į Rusijos konvencines grėsmes 2015–2020 metais

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Summary. In a period of 2015-2020, Lithuanian Armed Forces (LAF) military spending increased twice, thus it enabled to initiate and to arrange significant critical projects that eventually allowed armed forces to upgrade military equipment and tactics. New artillery units, armoured personnel vehicles, air defence systems, anti-tank weapons, radars, anti-drone systems boosted military power of LAF. Tactics switched from anti green men to conventional tactics, where fire and manoeuvre dominates again. Meanwhile, in the same period of time in Kaliningrad the Russian armed forces boosted the number of military personnel, upgraded equipment (most of it to offensive one) and increased military exercises. In order to be prepared, LAF must look for the most efficient ways of defence towards a potential foe. In a near future LAF must decentralize a central military storage thus critical assets could be secured and used by battalions at any time. Moreover, LAF capabilities could be improved by cyber conscripts and non-conventional tactics which could bring extra dividends when a small state fights against technologically advanced adversary. Eventually, with an additional military spending LAF could obtain MLRS artillery, the coastal defence systems and unmanned combat aerial vehicles that could deal with enemy from a safer distance.

Keywords: Lithuania, Lithuanian armed forces, Russian army, Kaliningrad, military spending, non-conventional tactics, innovations, drones, MLRS.

Santrauka. 2015–2020 metais Lietuvos ginkluotosioms pajėgoms skirtos išlaidos padidėjo dvigubai, ir tai padėjo inicijuoti svarbių kritinių projektų, leidusių Lietuvos kariuomenei modernizuoti ginkluotę ir patbulinti taktiką, įgyvendinimą. Nujos savaeigės haubicos, pėstininkų kovos mašinos, oro gynybos sistemos, prieštankiniai ginklai, radarai, priešdroninės sistemos sustiprino Lietuvos kariuomenės pajėgumus. Naudojamos taktikos prieš „žaliuosius žmogeliukus“ pasikeitė į konvencines taktikas, kur ugnis ir manevras tapo esminiu faktoriumi. Tuo pat metu Kaliningrado srityje Rusijos armija padidino savo karių personalą, modernizavo įvairią ginkluotę į puolamąją bei padidino vykdomų karinių pratybų skaičių. Lietuvos ginkluotosios pajėgos, siekdamos pasiruošti galimoms konvencinėms grėsmėms, privalo decentralizuoti ginkluotės ir amunicijos centrinį arsenalą, kad visi batalionai bet kuriuo metu galėtų panaudoti turimus resursus. Be to, Lietuvos kariuomenės pajėgumai padidėtų, jeigu dalis privalomąją karo tarnybą atlikti kviečiamų jaunuolių tarnautų kibernetiniais šauktniais ir jeigu būtų naudojamos nekonvencinės taktikos. Tai suteiktų papildomų galimybių Lietuvai, kaip mažai valstybei, kovoti

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prieš technologiškai pažangų priešininką. Galiausiai, iš papildomo finansavimo Lietuvos kariuomenė privalo siekti įsigyti raketinių salvinės ugnies sistemų ir mobilių priešlaivinių raketų sistemų, kurios galėtų naikinti priešininką iš saugesnio atstumo.

Prasminiai žodžiai: Lietuva, Lietuvos ginkluotosios pajėgos, Rusijos armija, Kaliningradas, karinės išlaidos, nekonvencinės taktikos, inovacijos, nepilotuojami orlaiviai.

Introduction

When it comes to a small state and its military readiness, there is always debate about the security of a state. Some would argue that joining the military alliance is the only one solution for a safety of a small state. On the other hand, there would be scholars and military experts who would eagerly assert that significant military spending is the key answer. However, the truth is somewhere in between of them. Moreover, the technological developments create disadvantages for the defence of small states, further increasing disproportions in waging war between small technological powers and great technological powers (Česnakas, 2019). Therefore, the effective management of a military spending and a comprehension of an adversary intentions should be a stimulus for a development of a small state's armed forces. With an increased military spending, Lithuania must be as effective as possible.

The aim of this article is to identify the strategic purchases of the Lithuanian Armed Forces (LAF) in the period of 2015–2020 and to present how these assets contributed to strengthen military capabilities in order to respond to a potential adversary. In this article an adversary is strictly limited to the Russian Federation army located around the territory of Lithuania. The Belarussian army is not taken into account due to a current political uncertainty and still a vague future development, especially in a relation between the Belarussian political and its military authorities.

The research objectives are presented in three parts. The first section reviews strategic purchases of LAF and how they contributed to boost military capabilities and tactics. The second section specifies the Russian technological and conventional threats towards LAF. The third section provides *the research results* that LAF might take into consideration in order to improve its military capabilities in a near future. Eventually, the article is finished with conclusions.

This article applies *a research method* of an inductive reasoning. The article points out the key military pieces, tactics and technological innovations in a method of literature and official documents of the Lithuanian Ministry of Defence (MOD) review. All collected information is compared and contrasted to each other. The outcome allows drawing certain conclusions and providing recommendations for a near future purchases and tactics of LAF.

The development of LAF in 2015–2020

In 2014, the occupation of Crimea and open war between the Ukrainian armed forces and the Russian supported rebels initiated military and political changes in Lithuania. The Russian hybrid warfare triggered changes in LAF equipment and tactics. Moreover, bat-

talions gradually moved out from closed military polygons and forests to open urban areas and bigger cities. For several years, the hybrid warfare and “anti-green men’s” exercises were the paramount of LAF. National volunteer defence forces (NVDF) transformed its structure to smaller units and decentralized light weapon armouries. The green tactics were gradually replaced by the grey tactics where NVDF troops started to learn basics of guerrilla warfare. From time to time mechanized and motorized battalions of LAF were practicing how to protect civil infrastructure, to deal with protesters and to wipe out green men out of municipalities’ buildings and territories.

Since the year 2015 the defence budget of the LAF skyrocketed more than twice from 424.9 million EUR (1.14% of GDP) to 1017.1 million EUR (2.02%) in 2020. Extra flow of cash released LAF’s hands to plan and execute long waited purchases of critical equipment and ammunition that were necessary and pending for years.

In the period of 2015–2020, LAF authorities and politicians agreed on several historical purchases which were partly or fully developed in six years. The list includes armoured fighting vehicles Boxer, armoured howitzers PzH 2000, anti-air defence systems NASAMS and GROM, anti-tank JAVELIN systems, long range radars, and anti-drone systems.

- (1) With new purchases LAF tactics have dramatically shifted from limited manoeuvre and fire to greater mobility and combat power. The arrival of armoured howitzers PzH 2000 (battalion size) boosted a fire power and a movement of artillery battalion. Technical characteristics of PzH 2000 enabled mid-range artillery units to support land forces from 40-50 km away. Furthermore, the artillery tactics has changed dramatically, the movement speed and relocation enabled artillery units to increase a performance and to provide a fire power support up to a brigade level. Eventually, with an additional upgrade of an artillery shells it could expand the operational range up to 65-70 km, but it requires extra spending on defence.
- (2) Armoured fighting vehicles Boxer brought a new way of fighting within land force units, especially among mechanized infantry platoons and companies. Two battalions (Lithuanian Grand Duke Algirdas Mechanized Infantry Battalion and Grand Duchess Birutė Uhlan Battalion) equipped with new Boxers empowered the Iron Wolf brigade to level up its firepower, mobility and personnel protection. Safety measures of Boxers have enabled efficient delivery of troops to a battle ground. Moreover, the remote weapon station is equipped with a 30 mm cannon and two additional anti-tank Spyke LR rockets that enables a crew to neutralize tanks up to 4 km distance. The Lithuanian version of Boxer in some cases can even wrestle with a potential adversary tanks. Nevertheless, these Boxers are still vulnerable from aerial attacks, particularly attacks of small drones. The Lithuanian modification of Boxers are not equipped with the anti-drone system, consequently their tactics could be disrupted by enemy drones.
- (3) The other big purchase is the medium range air defence system NASAMS (3rd generation), which filled the vacuum of the Lithuanian air defence. NASAMS system can neutralize targets up to 40 km range and 16 km above a surface. Such a defence system provides a protection above land and sea. Therefore, troops on

a ground can manoeuvre with additional eagerness and confidence (Ministry of Defence, 2020). However, the purchase is only limited to two batteries which means that the air space cover is limited to roughly 8–10% of the Lithuanian territory. Hence, both batteries could only provide protection for strategic objects such as Šiauliai aviation military base, a central ammunition depot, a sea port, several railway bridges and some critical civil infrastructures.

- (4) Besides NASAMS, the purchase of short range anti-air GROM and anti-tank Javelin systems enabled tactical units to operate freely and to protect themselves from adversary's tanks, armoured vehicles, helicopters and in some cases drones. However, the operational range does not extend more than 5–6 km, therefore additional surveillance equipment is necessary. Even though portable anti-air GROM systems cover a small range of airspace above, it allows troops on a ground to manoeuvre easier. The additional purchases of anti-tank Javelin systems boosted a fire power of land forces units respectively. Nevertheless, the decentralization of these assets should be taken into consideration. Most of these systems are located in Linkaičiai – the main military storage facility. The destruction of it resets most of LAF critical anti-tank capabilities.
- (5) In 2018, two new long range 3D radars were eventually installed and launched. This type of facility enabled LAF to monitor a long range air space and allowed immediately sharing the live information with NATO counterparts. Long range radars replaced the old soviet ones and enabled NATO aviation to conduct full spectrum air operations. The biggest disadvantage of them – the distance from Kaliningrad. From the boarder of Russia, it takes only 100 km to Antaversiai radar and 20 km to Degučiai. Both of them are relatively easy to destroy with a regular or tactical artillery rocket systems that are stationed in Kaliningrad.
- (6) Furthermore, the other necessary purchase in the list of LAF is anti-drone systems. In 2019, the Lithuanian MOD signed an agreement with the US to supply LAF with anti-drone systems, which according to official documents are worth just slightly more than one million euro. These assets had been critically required for a long time and eventually supplied in the summer of 2020. According to MOD, such system establishes new military capabilities within LAF. The sum of a purchase shows that it is either one advanced system or several weaker ones that are able to tackle only commercial type drone systems. Currently not all military battalions and strategic objects are secured from drone surveillance or attacks.

All acquired equipment increased not only a capacity and a fire power but also shifted *modus operandi* of LAF. The period of 2015–2017 was mostly occupied by anti-green men exercises where LAF battalions were practising how to respond to occupied governmental facilities and to deal with dissatisfied dwellers. Contrary, in 2017 the arrival of NATO allied forces (Enhanced Forward Presence) strengthened not only the defence of Lithuania, but during the multilateral exercises (the grey tactics were gradually replaced by conventional ones) helped to synchronize joint activities and to integrate a new purchased equipment in conjunction with allied forces. Furthermore, in 2019, with the appointment of the new

chief of LAF Valdemaras Rupšys the tactics totally swung back to “green tactics”, where professional service soldiers and NVDF started again to practice conventional skills, fire and manoeuvre tactics.

Overall, in a period of 2015–2020 MOD and LAF initiated and arranged significant critical projects that eventually enabled armed forces to upgrade military equipment and tactics. A huge variety of purchased assets have shaped different branches of LAF. Eventually, in 2020, LAF with the Lithuanian MOD signed agreements that will allow purchasing light utility/combat multi-role vehicles Oshkosh L-ATV (200 units) and four UH-60 multi-purpose helicopters from the US in a near future. It proves once again that political and military planners are on a right track. However, as this analysis will present later it is not enough to catch up with various purchases but it is crucial to supply LAF with the most efficient equipment that brings the best outcome towards a potential foe.

The build-up in Kaliningrad since 2015

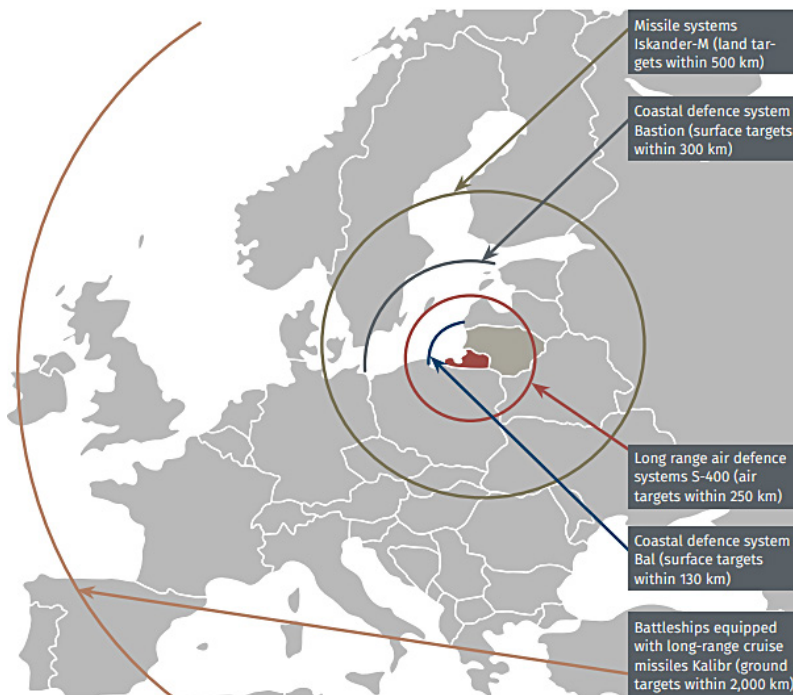
When it comes to estimation and evaluation of a potential adversary, LAF faces difficulties in various fields and parameters. Even though Lithuania has a direct boarder with Kaliningrad exclave, there are additional Russian units in Belarus as well. However, this article pays only a close attention to **military personnel, equipment** and **exercises** that are in the Kaliningrad region. The Russian troops that are stationed in Belarus are mostly occupied with Signal and Early warning radar duties. The exact number of the Russian Special force units are unclear in Belarus. In a case of conflict, most likely Belarus will be used as a safe passage of the Russian Western military district units from a mainland towards Kaliningrad.

The Kaliningrad Baltic Fleet, which is subordinated to Russia’s Western military district, consists of naval aviation units, Navy Fleet units, 11th Army Corps and two Anti-Aircraft Missile Regiments. According to Roundeli Foundation, Russian military personnel in Kaliningrad exclave are estimated to 18000 from which 8500 are part of 11th Army Corps (Roundeli Foundation). In the last five years, the number is constantly growing due to the establishments of new military units. The development of larger units in the Kaliningrad region demonstrates the long-term intentions of Russia’s political and military leadership to continue gradual build-up of military capabilities in this exclave (VSD report, 2020). An ambition to establish a new military division in Kaliningrad secures an extra space for a further military development and a personal growth.

Besides annually increased numbers of troops stationed in Kaliningrad, the upgrade of advance weapon systems could be noticed as well. In the last five years, ten significant changes could be noticed in Kaliningrad rearmament (VSD report, 2020).

- (1) Most of anti-aircraft systems S-300 (active range up to 120 km) were replaced by advanced S-400 that are capable to detect aircrafts up to 250 km range. Two Anti-Aircraft Missile Regiments consist of six battalions of S-400 and two battalions of S-300PS. The Russian-built anti-access/area denial (A2/AD) systems pose an

- increased threat to the Baltic Sea region countries and deny access to the Baltic States. The S-400 system is capable to reach targets up to Gotland Island.
- (2) The rearmament of 27th Coastal Missile Brigade with Bastion-P and BAL mobile coastal defence missile systems additionally strengthened the Russian A2/AD. Bastion-P missiles extended the operational zone up to 500 km. In other terms, the Russian missiles might hit any vessel near Copenhagen, Stockholm or Tallinn. These missiles are mobile, therefore this complicates their interception by counter attacks.
 - (3) Four vessels that are part of the Baltic Fleet are armed with SS-N-30 Kalibr cruise missiles which increased the operational range up 2000 km. These types of missiles are capable to hit ground targets and to carry nuclear warheads. It is one of key strategic assets that the Baltic fleet has obtained recently. Moreover, it is a game changer and direct threat to most of NATO countries.
 - (4) In 2017, the delivery of Iskander-M systems to Kaliningrad raised discussions among neighbouring countries. This mobile strategic asset can use ballistic, cruise or nuclear missiles up to 415 km (theoretically up to 500 km) and hit ground targets. Once launched it can manoeuvre and relocate in order to avoid anti-ballistic retaliation. Currently in 152nd Missile Brigade there are 12 Iskander-M short-range ballistic missile systems (Rondeli Foundation).



Picture 1. **The A2/AD weapon systems and their capabilities in Kaliningrad.** Source: VSD report 2020

- (5) In the autumn of 2018, most of fighters and bombers were relocated in Chkalovsk air base. Along to it a new modification of fighters was delivered. The Su-30SM is considered a 4th generation jet fighter that was designed to gain an air supremacy and to target an adversary on the ground while using a wide range of weapons including air-to-air and air-to-surface missiles. The exact number of fighters is unclear, however, according to official production numbers, it could not exceed more than ten in Kaliningrad. Additionally, there is a disclose number of the Russian reconnaissance and combat drones Forpost, Orion and Corsair that are able to monitor a coast line, Baltic sea, surface and eventually conduct a striking mission to ground targets.
- (6) Khrizantema-S is a Russian anti-tank guided missile whose operational range is up to 10 km (must be used in parallel with radar). This system could be mounted on armoured vehicles and eventually it reinforces anti-tank capabilities. In 2019, this system was supplied to 244th Artillery Brigade.
- (7) Msta-S is a self-propelled howitzer that uses 152.4 mm artillery rounds. According to manufacturer, the shooting range is up to 25 km. (up to 30 km with rocket-assisted rounds). The upgraded version is able to use automatic regime and shoot up to 6-8 rounds per minute. In 2019, 11th Army Corps received 10 upgraded versions of Msta-S and strengthened mid-range firepower capabilities.
- (8) T-72B3 is a refurbished and upgraded version of older version B2. T-72B3 tanks are fitted with new engine, a new gunner's sight, new fire control system and have some other improvements. T-72B3 tanks were delivered to the Russian Army in 2013. By 2020, a total of 558 tanks were upgraded to the T-72B3 standard (Military Today, 2020). Overall, these battle tanks have better characteristics and performance. In Kaliningrad the number of them is estimated to one hundred. It is expected to rise in upcoming years due to the formation of new mechanized units.
- (9) In December all BM-21 Grad MLRS were replaced by more capable BM-27 Uragan MLRS that expended the operational range to 35 km. This system is better in accuracy and firepower than BM-21.
- (10) TorM2 is a short range surface-to-air system that is able to eliminate objects up to 12 km range and 6 km above surface. System is mobile, therefore can relocate after simultaneously launching four rockets. This system strengthened A2/AD bubble in tactical level.

Last but not least, with constantly increasing military personnel and rearmament of equipment, the training and military drills grow respectively. Unexpected high readiness exercises become norm in the Baltic Fleet. Most of these trainings are based on offensive attacks towards NATO, especially the Baltic States and Poland. The unexpected April 2020 drill is particularly relevant for trying to track and evaluate the build-up of forces in Kaliningrad Oblast over the last several years (Jamestown, 2020). Moreover, the regular military activity is especially intense at the Dobrovolsk military range which is used for training by the units of the 11th Army Corps and the Baltic Fleet aircrafts (VSD, 2020). Dobrovolsk range is not only intensively used by tanks but also works as a platform for a

show force. Loud shootings and activities of tanks could be physically felt across a border of Lithuania. These exercises are one of psychological warfare tools where civilians are constantly reminded about the strong power right across the river Nemunas. Eventually, since 2014 *modus operandi* of Russia has shifted to network-centric, radio-electronic and information warfare. According to Revaitis, *hybrid* is becoming a new and popular term in Russia's military vocabulary after the outbreak of the Ukrainian conflict (Revaitis, 2018).

To sum up the recent grouping of the Russian military in Kaliningrad, it is essential to stress out that Russian officials seek to achieve several strategic goals. Firstly, to deny the Western countries access to the Baltics States and the Baltic Sea (Pic. 1); secondly, they seek to switch the defence capabilities to offensive ones (it is already partly achieved); and thirdly, to use a show force and deterrence towards Western countries in order to gain political gains in the international arena. All in all, Kaliningrad Oblast is developing from a neglected province to a military bastion (Westerlund, 2017).

Recommendations to LAF for a near future

For a small state it is considerably complicated to maintain a balance of power with a technologically advanced adversary. The constant build-up in Kaliningrad and a relatively free passage via Belarus threaten Lithuania to deal with a two-front war that would be devastated for LAF and sovereignty of a country. The Russian conflicts in Ukraine and Syria and especially the 2020 autumn war in Nagorno Karabach taught that a conventional war is stepping up into other stage of modern warfare.

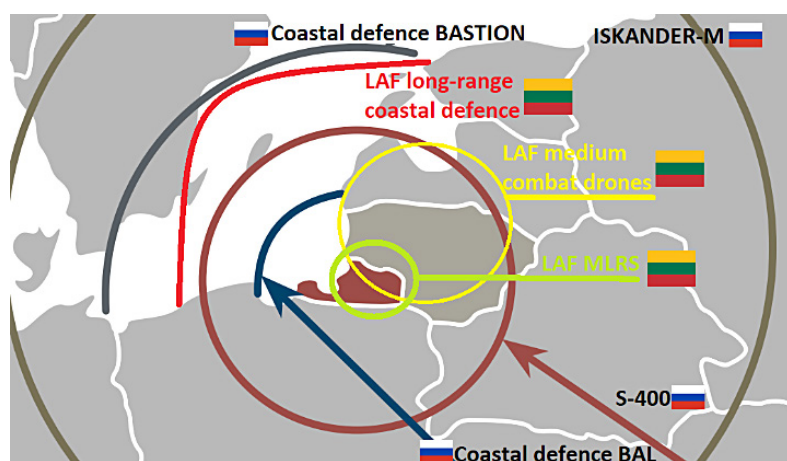
For instance, during a recent Nagorno Karabach war the Azeri military wildly used drones in order to destroy Armenian armoured vehicles, tactical artillery units, air defence and EW systems. Within two weeks, 60 pieces of Armenian SAM systems – mostly 9K33 OSA and 9K35 Strela-10 short-range air defences and at least one S-300 component that was sent to the frontier – were destroyed by the Azerbaijani Armed Forces (Jamestown Foundation, 2020). Within six weeks, Armenians lost 230 tanks, 67 armoured fighting vehicles, 73 infantry fighting vehicles, 215 towed artillery pieces, 24 self-propelled artillery pieces, 76 multiple rocket launchers, 88 anti-tank guided missiles, 31 surface-to-air missile systems, 16 radars, 3 jammers (Oryx, 2020). Most of these military assets were directly or partly destroyed by drones. For instance, a gathered intelligence by drones were immediately transferred to Azeri artillery units that were able to destroy Armenian heavy armoury.

The Lithuanian MOD and LAF should pay attention to Kaliningrad region and take into consideration lessons from recent conflicts (especially where Russians are directly involved) and implement several counter measures that would prolong a potential conflict with a foe. The extended time is critically necessary for allied forces to become fully operational capable in order to redeploy to Lithuania. In upcoming years, LAF should develop these assets and tactics:

- (1) Due to technologically advanced enemy artillery, it is crucial **to decentralize** strategic assets and ammunition from **Linkaičiai central storage**. Every battalion

should be capable to maintain and secure high value resources, ammunition and food rations that are crucial to maintain combat power as long as possible.

- (2) Drones and anti-drone systems. According to the Lithuanian MOD, only surveillance drones are planned to be purchased and delivered to LAF no later than 2026. Taking into consideration that the Russian electronic warfare and the air defence are technologically advanced, it is questionable whether future surveillance drones will be used by LAF as effectively as possible. On the other hand, **to purchase semi-autonomous or fully autonomous attack drones** (unmanned combat aerial vehicle - UCAV) that could be operated further away from Kaliningrad and could inflict an additional damage to advancing enemy tanks deeply inside the territory of Lithuania. UCAV are way cheaper than regular jet fighters. Furthermore, it is necessary **to supply anti-drone systems to every LAF battalion**, thus these systems could bring satisfactory safety from enemy's drones surveillance and attacks.
- (3) In 2020, Lithuania, together with other five NATO countries established Rapid Cyber Reaction Teams that would be able to deal with unexpected cyber-attacks. This international cooperation also works as a platform to share experience, knowledge and valuable information (Lithuanian MOD, 2020). Despite this multinational cooperation, **LAF must recruit cyber conscripts** who will increase or support cyber capabilities in armed forces, ranging from IT support to cyber defence. A cyber conscription would not only contribute to LAF itself, but also it might promote a conscription service. LAF could recruit experienced people to armed forces and after nine months of service young people obtain knowledge that could be useful in their careers. Moreover, in a case of conflict cyber reservists could contribute to armed forces both directly and remotely. Eventually, recruited specialists could provide LAF with up-to-date innovative knowledge from civil society.



Picture 2. Potential LAF assets versus A2/AD system in Kaliningrad. Source: completed by author.

- (4) Strategic assets – a mobile long range MLRS artillery and coastal defence systems. Even though it requires more financial investment, LAF should try **to obtain mobile MLRS artillery and coastal defence systems**. The long range artillery could provide wider freedom of movement of units on a ground and to neutralize enemy strategic assets before they cross a border of Lithuania. Moreover, a mobile long range artillery and coastal defence systems disrupt the adversary manoeuvre and fire tactics, therefore LAF can efficiently limit the advance of attacks on land and sea.
- (5) Resistance tactics. One of the main LAF goals is to prolong a fight as long as possible. It is obvious that a potential adversary is not only technologically advanced but also contains larger quantities of military equipment and personnel. **Non-conventional tactics is a key to a potential success. LAF should seriously take this tactics into consideration and implement** among most units. It is crucial to comprehend that non-conventional tactics are not equal to guerrilla warfare that was widely used against the Soviet Union in 1944–1965 in occupied Lithuania. If LAF is not capable to fight a regular war then its units must possess knowledge how to mobilize society, arrange non-violent protests, halt the legitimation of an occupational regime, spread pro-Lithuanian news among local dwellers, maintain alternative communication with a combat resistance network, collect and transfer information to upcoming allied forces. Violent resistance should be implemented only by a certain field of experts, for instance, the Lithuanian Special operations forces. These and similar non-conventional tactics brought a considerable outcome when a technologically advanced country invades smaller state which uses non-conventional tactics. The decisive victory blurs away, therefore the occupational forces cannot fully consolidate the power.

Conclusions

One is clear, the offensive Russian military build-up in Kaliningrad is becoming a constant threat to the Baltic Sea region, especially to Lithuania. LAF purchases of the military equipment is a good start, however it is not enough. It is crucial to continue the same path and to supply as effective strategic assets as possible (to obtain combat drones, MLRS artillery, the coastal defence and anti-drone systems, to develop cyber conscripts, to train non-conventional warfare skills among regular troops). Thus, LAF could eventually ensure that the Russian A2/AD system in Kaliningrad will not be fully operation capable and the Russian offensive forces will be struggling with every kilometre within the territory of Lithuania (Pic. 2).

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