What Lessons can be Drawn from Russia-Ukraine Conflict by Indian Army with respect to Modernisation and Capital Procurement

Colonel Ashish Dutta[@]

"*Tactics are based on weapon-power and not on the experiences of military history. The commander who grasps the true trend of any new, or improved, weapon will be in a position to surprise the adversary who has not*".

~ Capt JFC Fuller

Abstract

The long-drawn Russia-Ukraine conflict has shaken up geo-political narratives. Whether the conflict will result in changing the unipolar world order and brings about multi polarity is yet to be known. The conflict has largely been covered by the media through a prism of ideology, with a few independent sources covering the event from neutral perspective. While it is too early to analyse geo-political aspects, the conflict has brought forth important lessons related to weapons performance, especially as this is the first conflict involving use of advanced weaponry of both western and Russian origin by well-trained belligerents. This paper discusses lessons that can be drawn by Indian Army with respect to force modernisation and capital procurement.

[@]**Col Ashish Dutta** was commissioned into Armoured Corps in Dec 1999. He is an alumnus of Rashtriya Indian Military College and a graduate of Defence Services Staff College and Higher Command Course. The officer is presently serving as Col Capability Development in Acceptance of Necessity & Categorisation Section/Capability Development Directorate at IHQ of MoD(Army).

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Introduction

Russia launched a special military operation against Ukraine on 24 Feb 2022, reaching the outskirts of Kyiv and withdrawing. This was branded as failure of Russia and largely attributed to failure of logistics. It has now emerged that this withdrawal was part of Russia's commitment under the draft ceasefire agreement.[1] While Russia upheld its part, Ukraine reneged on its commitments. Moot point being that many aspects of the conflict are shrouded in midst of information warfare. Any meaningful lessons from the conflict can only be drawn only when factual details are available to scholars.

Apropos, this article is based on the coverage of the conflict by news agencies and YouTube channels not only from both sides of the conflict but also neutrals.

Conduct of Operations

The conflict commenced using Eastern Bloc equipment and few drones. Military aid flowing into Ukraine comprised of Eastern Bloc equipment supplied by former Warsaw Pact nations. Subsequently, modern western equipment was provided. The conflict has provided good analysis of performance of equipment developed based on different operational philosophies and operated by trained and motivated belligerents.

Success of Bayraktar drones against Russian Armoured Fighting Vehicle (AFV) led to successful development of mobile high-powered microwave countermeasures.[2] Subsequently, Russia employed its own drones along with missiles and rockets to attrit Ukraine military and civil infrastructure. Hypersonic missiles rendered Patriot Systems ineffective, though few missiles may have been intercepted.[3] Extensive use of missiles, Long-Range Vectors (LRVs) drones and air supremacy have turned the operational situation in Russia's favour.

Large numbers of modern western equipment were delivered to Ukraine Army for the planned spring offensive. Despite modern weapons and training abroad, the offensive has not made any headway while many western equipment have been destroyed.

Russians are conducting slow, methodical and attrition-based operations with focus on avoiding collateral damage. While military casualties are extensive on both sides, civilian casualties have been low.

Key Observations

It would be prudent to analyse performance of various equipment or arms and visualise the trajectory to be followed for equipment procurement by Indian Army (IA).

Drones. Drones have been employed for tactical as well as strategic targeting by both sides, though less successfully by Ukraine. Effectiveness of drones in shaping the battlefield and the psyche of adversaries and global audience has been established. Initial success of drones led to development of mobile elctro-magnetic counter measures. Based on evolutionary trajectory, Indian Airforce should focus on development and procurement of futuristic drones and counter measures. As strong domestic industrial base for drone and counter drone manufacturing exists, systems already procured should be extensively exploited to develop a cogent employment philosophy rather than preserving these for future conflicts.

AFVs. While LRVs and drones have inflicted heavy attrition, need to physically traverse large distances on battlefield has made AFVs a weapon of choice. Based on emerging threats, review of design philosophy to optimise the Iron Triangle needs to be undertaken. Deliberations on whether protection is to be achieved by heavier armour, active or passive protection or through better agility must be undertaken. As videos of tank engagements indicate that tank battles have taken place at shorter ranges, need for powerful guns with ranges of four to five kms may be reconsidered. Empirical data from the conflict and meticulous analysis of terrain obtained along India's borders should be the basis of legislating desired effective ranges as bigger guns result in weight and size penalty. Engagements beyond 1500 to 2000 m may be planned using drones and Loiter Munitions (LMs). Effectiveness of KA-52 Alligators in blunting Ukraine's summer offensive suggests the need to provide air defence resources down to troop level.

Indirect Fires. Missiles, rockets, guns and weapon locating radars were critical in shaping the battlefield.[4] LMs, if used in counter bombardment role, can free guns for other tasks. Considering need for rapid relocation, strike corps may be equipped with mobile gun systems and pivot formations with towed guns. Sensors that can see through clouds, foliage etc are needed for targeting as well as providing real time updates to decision makers. Robust sensor-shooter links will help achieve desired effects with better efficiency. Multi barrel rocket systems with precision strike capability have proved very effective, hence greater numbers should be procured. Hypersonic missiles were effective in shaping the conflict, or at least the narrative, hence, it is imperative to focus on developing hypersonic missiles.

Air Defence (AD). Counter drone capability with a mix of hard and soft kill systems should be available at troop and platoon levels as well as all logistics echelons either by suitable groupings or changes in war establishments. In addition, AD systems capable of interdicting hyper-sonic missiles need to be inducted, especially along northern borders. With high manoeuvrability of missiles, aircraft and drones, capability to destroy launch sites should be enhanced.

Communications. Ukraine was provided Starlink Satellite Service for seamless internet connectivity which proved useful in planning, coordination and operations.[5] Starlink connectivity remained unaffected due to easy portability of light weight, battery powered ground terminals. It's versatility and inbuilt redundancy presents a strong case for India to deploy her own swarms of satellites with similar capabilities. There were reports of effective strikes against Russian positions subsequent to interception of unsecure communications,[6] highlighting the importance of multi layered secure communications, particularly in enemy territory.

Electronic Warfare (EW). Russian EW capabilities were central in destruction of drones and spoofing GPS guidance of LRVs.[7] IA may also focus on developing EW capabilities to spoof or destroy adversary's satellite communication, navigation and guidance systems as well as autonomous systems. These capabilities need to be developed specific to each theatre based on terrain, environmental conditions and adversary's capabilities.

Infantry. Till commencement of the the summer offensive, media coverage of infantry operations was restricted to fighting in built-up areas with greater attention to Wagner militia. There may have been few pitched battles involving infantry, however, details are not available. From the limited coverage, effectiveness of flame throwers and thermobaric bombs emerged as an important lesson. It also appears that infantry was largely used to exploit initial success of armour. This presents a strong case for infantry to be provided with good mobility, communication and battlefield situational awareness suites to exploit fleeting opportunities. During the summer offensive, ability of Russian defences to inflict heavy casualties on Ukraine Army,[8] highlights the need to equip defenders with mechanical and remotely delivered mining capabilities along with dedicated artillery and air power for stalling and destroying enemy columns.

Engineers. Bulk of the destruction of AFVs seems to have occurred when static. Therefore, enhancement of tactical mobility in obstacle ridden terrain has to be a focus area. While each formation fabricates crossing expedients, additional carrying capacity needs to be provided through induction of additional vehicles capable of carrying greater volumes of stores. Further, for the engineer task forces to be effective, support vehicles must be of same class and vintage as the main AFV. Accordingly, phased procurement should be based on family of AFVs which include AFV variants like bridges, trawls, ambulance etc. An important lesson drawn from Ukraine's stalled offensive is the need to equip strike corps with large number of mine breaching systems. It would also be prudent to develop robotic/drone based mine clearance systems to enhance flexibility and save lives.

Logistics. Vulnerability of logistics dumps to LRVs and aircrafts underscore need for engineers to acquire capability to construct underground infrastructure in field including for strike formations for storage of ammunition, fuel oil and lubricants, field hospitals etc. Containerised logistics including maintenance bays should be provisioned at all levels. In peace time, this would lead to huge savings by doing away with the need for brick-and-mortar infrastructure while speeding up mobilisation. There is a need to induct trucks with good cross-country mobility in first and second

line fleets. High-capacity heavy-duty trucks should be inducted in third line fleets.

Obsolete/Vintage Equipment. As the war progressed, both sides resuscitated and employed obsolete equipment.[9] Russia, reportedly employed T-55 tanks in artillery role in light of its limited mobility and protection.[10] With domestic defence industrial base at nascent stage and low production capability, IA may formulate discard policy which involves preservation of certain equipment for contingencies.

Lessons and Recommendations.

Deterrence. North Atlantic Treaty Organisation's open support against the largest nuclear power in the world put a question mark on nuclear deterrence. Russia has maintained a strategic ambivalence. The term 'Existential Threat' has been repeatedly used. It is possible that this ambiguity has been a factor in ensuring that battles have generally been fought on Ukrainian soil and limited efforts have been made towards fomenting internal turmoil in Russia or to exploit brief window of the short-lived Wagner mutiny. Beyond the current conflict, United State's limited resolve to go beyond sanctions against North Korea does indicate that direct wars between nuclear powers are not likely. Being surrounded by two nuclear powers, India should expand her nuclear arsenal and diversify delivery triad. In order to minimise threat from the adversaries, anti-ballistic missile systems should also be inducted in an accelerated manner.

Equipping Philosophy. A two front war remains a distinct possibility precluding move of dual-task forces or re-location of equipment in such scenario. Therefore, each theatre must be equipped with theatre specific equipment. Qualitative requirements for equipment to be employed in rarefied high-altitude areas, hot and humid obstacle ridden or riverine terrain and dry and hot deserts should be different. This would make equipment development and mass production easier and most likely cheaper. It would be prudent to procure equipment as per operational concept. For example, a tank of strike corps would be used for manoeuvre battles, hence, would need better mobility and a fire control system that enhances accuracy while firing on the move. On the other hand, tanks employed for counter attacks or break

in battles would require higher rates of fire in static mode, (hence less powerful engine and less sophisticated fire control system would suffice) but would require enhanced protection due to ease of targeting by adversary against static AFVs. Similarly, assault rifles required by infantry sections in occupation of defence could be heavier and have longer ranges as compared to requirement of a section undertaking assault.

Synchronisation of Requirements and Availability. In context of IA, close coordination between the 'Strategic and Capability Development & Sustenance' (CD & S) verticals is critical to achieve desired outcome from limited capital budget. At present, Line Directorates initiate proposals for 10-year Integrated Capability Development Plan which is approved by the strategic vertical. The Five-year Defence Capital Acquisition Plan and the the two-year Annual Acquisition Plan flow out of this. Battles are won by synergistic application of all arms and equipment; hence, procurement process must flow from a doctrine wherein the strategic vertical defines envisaged capabilities and CD & S completes procurement in a time bound manner. While there may be a mismatch between requirements and what the industry is capable of delivering in a finite timeframe, trial directives could be made flexible to allow for certain tolerances in parameters. It must be remembered that any equipment inducted in service, even as part of hand holding or limited series production will remain in service for many years. Therefore, such procurement should be based on quantity required for facilitating exploitation and product development rather than for filling voids.

Developmental Timelines. Operationalisation of any cutting-edge military equipment is a complex and long-drawn process. Even the most advanced military-industrial nations take many years to develop next generation systems. Russia took 18 years to develop Pantsir system as a replacement of Tunguska Gun Missile System.[11] T-90 tanks, despite being an upgrade of T-72 tanks were developed in six years. It took 20 years from conception to induction of M-142 High Mobility Artillery Rocket System in the US Army.[12] AH-64 Apaches were inducted more than 10 years after commencement of development.[13] Indian defence sector is still at nascent stage; hence, the services need to cater for more time for Research and Development (R&D) and should be prepared on

case to case basis in consultation with R&D organisations as well as industries. Considering the vast requirement of the three services and the government in sync with various industry chambers could earmark private industries for specialisation in specific equipment and sub-systems. This would facilitate focused R&D and better investments, thereby achieving economy of scales and faster development of cutting-edge technology.

Atmanirbharta. Russia's self-reliance in defence sector and its 'No Limits Friendship' with China have been a major factor in its ability to produce requisite weapons and ammunition despite numerous economic sanctions. Western countries on the other hand have not been able to supply adequate weapons and ammunition to Ukraine due to limited stocks and inability of the defence industries to increase the output to meet immediate needs.[14] Indian industry is still finding its feet in the defence sector. Its annual production capacity is limited and industries remain heavily dependent on foreign countries for critical military material as well as components. The Russia-Ukraine conflict has broken the chimera of short and swift wars in future. It is imperative that stocking of 100 per cent War Wastage reserves be made up on priority. Further, the Govt should lay down a stocking policy, akin to that for petroleum reserves, for military material, electronics and components required for production of defence equipment.

Conclusion

Any meaningful change comes from in-depth deliberations. For improvement in the capability development process, a cognisant decision needs to be taken at the strategic vertical of the IA with respect to force structure, organisation, concept of operations, equipment and training philosophies. Regular firing and large-scale manoeuvres are necessary to maintain operational sharpness as well as to draw realistic lessons on performance of equipment. Expenses need to be managed by restricting inventory and drawing a balance between basic equipment and niche technology within all families of equipment.

Domestic defence production, self-sufficiency in raw materials and military materials must be achieved at the earliest. Promulgation of a realistic strategy (pro-active or incremental operations) would facilitate equipment preservation by means of

mothballing, thereby freeing up funds for better maintenance of equipment. An optimum balance between sustenance and modernisation can be achieved by enforcing a policy on holding of vintage, current and state of the art equipment. It may be prudent to place capability development and sustenance verticals under Deputy Chief of the Army Staff (CD & S) as per original plans.

The lessons from the conflict need to be analysed and incorporated in light of changes in global as well as regional strategic scenario. Fresh strategic planning with an open mind, independent of current way of thinking, may be essential to enable incorporation of the lessons in Indian context.

Endnotes

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Bibliography

1. Based on media reports and discussions on reputed YouTube channels, certain analysis can be drawn with reasonable assurance of correctness with respect to performance of various arms and equipment. It is from analysis of these reports and discussions that I have drawn out certain lessons from the conflict related to capability development.

2. Russian media whose reports have been followed are:-

   (a) RT.com.

   (b) TASS.com.

   (c) English.pravda.ru.

3. Western media whose reports have been followed are:-

   (a) DW.com.

   (b) France24.com.

   (c) BBC.com.

   (d) CNN.com.

   (e) Foxnews.com.

4. Neutral agencies include:-

   (a) Aljazeera.com.

   (b) You Tube channels include:-

      (i) Talks and interviews of Professor John Mearsheimer (American political scientist, International Relations Scholar and an author).

      (ii) @Jeffery Sachs Official (Jeffery Sachs is an American economist, academic and public policy analyst).

      (iii) Interviews of Seymour Hersh (Investigative Journalist and Pulitzer Prize winner).

(iv) @stephangardner (Stephan Gardner is an author from USA).

(v) @scottrittershow (Scot Ritter is a former US Marine intelligence officer and UN Weapons Inspector)

(vi) Douglas Macgregor Straight Calls (Col Douglas Macgregor is a decorated veteran of Yugoslavia and Gulf Wars, author and former Senior Advisor to Secretary of Defence USA).

(vii) @judgingfreedom (Andrew Napolitano is a former New Jersey Superior Court Judge and syndicated columnist).

(viii) @Defense TV (USA based channel).