CENTRE FOR JOINT WARFARE STUDIES

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TOWARDS BATTLEFIELD AGILITY IN THE HIMALAYAS

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"It aintabout how hard you can hit, its about *how hard you can get hit and keep moving forward"*

1. Mobility is defined as the ability of forces to move freely and rapidly over the terrain of interest, generally hostile to accomplish a host of combat objectives. Agility on the other hand, is the capacity to respond quickly, effectively and efficiently to a wide variety of unpredictable demands. More than mere strength, speed, power or endurance, agility implies a capacity to employ any of these competencies individually or in combination and to switch between employment patterns to accomplish a goal with a minimum waste of time or energy. In the athletic realm, while sprinters are fast, full backs are agile; weightlifting demonstrates strength, but wrestling and kabbadi demands agility. Regarded as a vital component of the modern battlefield, it is the ability to deliver weapon systems or combat units to their objective quickly, fully mission capable with clarity of aim and focus on winning. In mountains and high altitude areas (HAA), mobility of platforms gets severely denuded due to environmental effects and terrain, yet there is an operational necessity to respond swiftly and effectively when and where

it matters most. Hence the basic need is to improve mobility of the mind and the platform.

2. The evolving battlefield of this century will necessitate employment of self sufficient, distributed and dispersed manoeuvre groups from several directions to secure a break through. There will be increased focus on smaller, signature controlled forces, with small foot print supported by precision fires. New threats demand a novel approach and different set of capabilities. Operational capabilities are shaped essentially by two factors viz. own war fighting doctrine and significant changes in the adversary's capability. On the future battlefield, if you stay in one place longer than two or three hours, you will be dead. With enemy satellites, drones and sensors constantly on the hunt for targets, force survivability will be a challenge. The PLA`s capability is something that requires a deeper analysis, specially in terms of what it intends to achieve at the LAC and how.

3. For a country of India`s dimensions, budgetary cuts and acquisition delays are inevitable as means are shrinking while tasks are rising. No one could have foreseen the nature and scale of the threat up North a few months back. It was great going with CI operations in cruise mode and things stabilizing in the Valley. Suddenly, the Chinese have rekindled the threat of conventional war in HAA forcing us to react and deploy additional forces to match force ratios. **There is a mention that troops are fully acclimatized for such operations; but are they ready for the agile nature of operations in store, what about weapon systems? Merely by redeployment, will these systems deliver mission capabilities as envisaged?** We need to be honest with ourselves about the level of threat which we are facing and those advocating all kinds of actions need to be asked` **at what cost'**. Yes there is certainly a need to confront the threat, but it would be better to pragmatically evaluate operational capability and fill in capability gaps before moving forward. It is time to look at agility of forces deployed at the tactical level and provide means to respond quickly and effectively to unforeseen situations which could emerge. This would need a comprehensive understanding of agility both tactical and strategic. Mere speed and endurance like a sprinter may not be adequate, one needs to be

agile as a wrestler to seize an opportunity – a combination of mental and physical mobility. We have got used to reacting to predictable threats in a templated manner; time to change tack as PLA operations may be agile, multi domain in the real sense. Let us see why.

4. In the ongoing modernization of the PLA, it is reported that the thrust for land forces has been on acquiring equipment comparable to other militaries with capabilities to generate combat power across a wide spectrum of war fighting and a special focus on high quality human resource to carry out remote multi dimensional manoeuvres and special operations using a host of breakout technologies in areas such as nuclear deterrence, power projection, cyber, space and electromagnetic spectrum. There is a discussion on new concept of operations emphasizing an effects based application of combat power to neutralize key nodes, degrade enemy's capabilities and achieve operational objectives in quick time frames by producing mass effects on the adversary. The substantial buildup of forces; visible systems like guns, light tanks, rocket systems, wheeled combat vehicles in the immediate vicinity of LAC in Ladakh as well as certain invisible capabilities is reflective of this change. The transformation of armoured and infantry units as combined arms brigades is nearing completion, as are doctrinal changes on the employment of ground forces. There is a growing focus on extracting increased equipment capability from weapon systems deployed on ground by developing systems specifically for combat in mountains and HAA with a strong focus on understanding and executing best maintenance practices.

5. Two of the most talked about system are the ZBL 08 series of WCVs with close to 25 variants and the Type 15 light tank crafted for operations in HAA. ZBL reflects a revolutionary change in the employment of Infantry in mountains, which will be accompanied with its own higher caliber direct fire support. Type 15 even with its derated power to weight ratio of over 20 in areas like Depsang and Demchok will certainly prove to be more agile thanour40 /50 tonne tanks. Likewise numerous weapon systems have been developed in house with greater ranges and lethality like the A-100 multiple launch rocket system. The strategic intent is evident.

ZBL08: ST 11 TANK DESTROYER

ZBL08: IFV

Components of Agility

6. Going by text book definition, agility is defined as the ability to identify and capture relevant opportunities faster than our rivals, to rapidly adjust priorities and shift resources to the main effort. It comprises **physical capability, organizational dexterity & leadership and decisiveness & risk management.** Physical capability relates to well trained and acclimatised troops, front line equipment, sufficient stocks, excellent physical infrastructure and the like. But sheer superiority in numbers is not agility. One does not have to be the strongest and fastest but fast and strong enough; implying seamless integration of man machine combination to produce the desired effect, sustained mission capability over a period, manpower quality, training and ability to innovate on the fly. Organizational dexterity requires knowledge of operational environment and ability of leaders to think and act quickly and intelligently. One can draw a parallel with a back in game of hockey who reads the attackers game plan, stymies moves and creates openings for his forwards through quick change of direction. For military purposes knowing the environment or game plan implies sustained availability of intelligence at strategic, operational and tactical level. Unfortunately it is here that we have a dismal track record since 1962. The Army has been perpetually under preemption. It is time this singular, could be fatal capability gap is addressed through strategic acquisitions and a push for indigenous capability development. It is then that an emerging window of opportunity can be made use off and exploited. Decisiveness is the third constituent of agility and perhaps the most critical. This implies ability to evaluate information, intelligence, calculate risk and decide in the stride. It calls for combat force self sufficiency and robust command and control systems . Decisiveness comes through a culture of clarity—getting clear on winning, decentalised execution and trust. So if it is defined what winning is with clarity, then all elements get to work in unision to get to that end state. Clarity of purpose (what is to done) and capability assessment (how it is to be done) are two enablers that can shore up decisiveness.

Physical Capability

7. For the past 50 years or so the Armed Forces have enjoyed a big advantage over our western neghbour interms of physical capability, enabling us to work on proactive strategies like the cold start. However with respect to the North this is not the case. What then is the way forward? Possibly, **transforming into an agile force - big enough, strong enough, fast enough.** Going by stark figures alone of number of soldiers, tanks, aircraft, ships, etc it may appear that there exists a wide capability gap but then it would be unwise and possibly unaffordable to attempt matching the sheer numbers. It may be prudent to go in for dominance or parity in more impactful areas like air power, special operations, cyber, space and precision strike capability.Of course not to mention surveillance and reconnaissance capabilities. We have a unique competitive advantage of a highly motivated volunteer force with an enviable culture of courage and gallantry on the battlefield. This advantage has to be transformed in to a campaign winning factor not left at the level of meeting engagements.

8. There is a need to focus on the hardware i.e. systems deployed in the Himalayas and systems to be acquired. Firstly, there is a genuine need to assess the combat capability of systems deployed and inducted in these areas through a formal equipment capability assessment exercise. **Most commanders have an impression that all weapons will perform on all cylinders when required and where ever required.** This orientation has set in the last three decades with limitated participation in training exercises as a consequence of budgetry cuts and could prove to be fatal. It may be worth the effort to atleast measure the battle endurance of these systems by rehearsing a few missions in HAA as they are planned; **an ability to operate failure free for certain period of time, to move uphill for certain kilometres without a breakdown, to fire certain number of second lines failure free.** More importantly, this would give an insight on the individual competencies of the soldier, crew and maintainers and help hone skills through focussedon the job training. Weapon crews will need to acquire added skills to attend to class 1 and 2 failures in weapon systems on their own, as these will come in handy while operating in island mode in

these areas. As on date they seem to have got used to raising their hand and looking rearwards; for a gun fitter, armourer or technician. **A MMG detachment located at 15000 feet for a delaying action needs to be 110% certain that the weapon will not have a chalta rukta and if it happens they will be able to address it.**

9. There is a need to focus on all issues that will help prevent the existing force from graduating to a hollow force - waiting for spares, technicians, ammunition, expendibles. **The raising of the Strike Corps needs to be analysed in this context—do not create a force structure which you cannot sustain, train and equip.** If seeking boots on the ground is the raison d`etre, then obtaining a few divisions worth of manpower from paramilitary forces in times of emergency may be resorted to. These could be used to relieve combatants from CI grid or hardened through participation in operational alerts and exercises.

10. A word about new acquisitions. There is no need to go for panic procurements of light tanks, assault rifles etc. as happened post Kargil. The general impression that tracked combat vehicles (TCVs) offer low ground pressure and hence are more mobile may be revisited. In a number of contingencies, Wheeled Combat Vehicles (WCVs) perform more effectively such asriverine, mountains & high altitudes, obstacle ridden terrain where lateral move of TCVs is restricted. WCVs are superior for missions that require tactical moves involving more than 70% road moves and limited off road moves as in mountains. Tracks get dislodged easily, are difficult to repair and have shorter life. If a track gets blown off by enemy action the TCV is immobilized, however WCVs can still travel 40-50 kms. Hence a family of WCVs may be worth the acquisition, through indigenous efforts alone. Infantry needs to enhance it tactical agility i.e. mobility and survivability; hence would need 4x4 and 6x6 WCVs with reasonable ballistic protection. It also needs heavier calibre organic fire support 30/40mm and 105mm to cater for effective response and staying power when defences are cut off and isolated as indirect fire may not be effective. A 8x8 platform on wheels similar to ZBL08 would be handy here.

FAMILY OF WCVS: FIRST RESPONDERS VEHICLES

11. In mountains and high altitudes moving equipment heavier than 25-30 tonnes may not be of great operational significance from the physical agility point of view. **Our tracked systems will lose power by 35 to 40% in super HAA and with power to weight ratios in the region of 10--13, these would be more like lumbering machines. These certainly require mobility upgrades to operate. If new systems are planned to be acquired, these need to come with India specific enhancements like twin engine configuration, power to weight ratio of 30 plus, mechanical transmissions, battery heating, all electric drives, APUs, crew heating and the like.** Similarly, acquisition of systems like missiles, guns, PGMs, etc needs to be done after a hardnosed analysis of terminal effects on targets and electronic redundancies rather than claims of OEMs. Krasnapol, Kornet E missiles, locating radars proved to be less effective or failure prone when operated in mountains after hasty induction. Even the T90 turned out to be an upgraded avatar of the T72. Multifarious malfunctions in super HAA are bound to happen in imported weapons and if close engineering support is not available during the combat pulse, mission outcomes could be adversely impacted. It is the country`s organic industrial base that will help address this long term security challenge and deeply enhance physical agility.

12. The unprecedented deployment of tracks in Eastern Ladakh should be taken as an opportunity to reassess the efficacy of combat systems in mountains and high altitudes and identify capability gaps. In all probability, the deployment is likely to continue through winter and it is in extreme hostile weatherthat a realistic assessment of sortie reliability of these

systems would be desirable. **At least, one will get to know how far can one run or jump.** Unfortunately over the last three decades, with closer focus on counter terrorism operations, equipment maintenance protocols related to complex systems got sidelined so much that it became fashionable to question even OEM mandated readiness protocols and medium reset. Past two decades has seen regular actions, often unilateral to curtail maintainer capability. The current winters can provide a test bed to validate those actions.

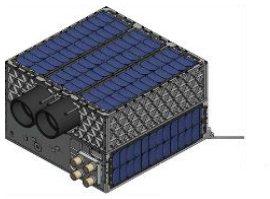
Organizational Dexterity and Leadership

13. It is all about an organization`s ability to respond quickly and nimbly to challenges thrown up, concomitantly retaining balance without onset of chaos. **Stability is sine quanon for agility** and difficult to sustain in times of adversity. Towards the West, at the LC and IB it was mostly a predictable game much like a 100m hurdler sprinting forward always aware when and where the next obstacle will have to be negotiated. With British origin organizations and similar battle procedures, predictability of actions and counters was obvious. The same kind of predictability had set in counter insurgency operations too. Towards the North, the game plan will be opaque and ambiguous; preemption and disruption needs to be taken for granted till hardened all weather day night surveillance capabilities get created and electronic intelligence measures optimized. Intel needs to be collected, transformed into data and plumbing done for leads. There is an immediate need to go in for acquisition of a constellation of low cost, low earth orbit satellite (LEOS-- medium resolution) with hourly revisits to stymie preemption and augment limited high resolution capabilities. This should be scaled up gradually to all weather high resolution capabilities.

LEOS- COMPLEMENT HIGH RESOLUTION SATELLITES

Satellites with wide swath (LEOS) complement high resolution satellite systems. In addition, their small size and cost allows manufacturing in large numbers, enabling fast revisit and large area coverage.

	4 Satellites	36 Satellites	
GSD	4.6m	4.6m	
Swath	70km	70km	
Imaging Capability	>5 mio km²	>45 mio. km²	
Daily Coverage of Area of Interest	10%	100%	Area of Interest
Global Revisit	1 day	1h	Daylight Hours
Orbit Planes	1	9	
Task	Change Detection	Change Detection	



LEOS-50MR Satellite

A constellation on LEOS offers key capabilities for large area surveillance.

14. The enemy could use high powered microwaves, jamming, info overload with a view to impact national will, instill fear and uncertainty, aiming to achieve decision dilemma. It could be taken as an opportunity by the PLA to test bed multi domain operational capabilities in preparation for the grand challenge ahead i.e. US. In specific terms, one can assume that Strategic Support Forces (SSF) counter space capabilities to be active. Jamming of GPS signals, satellite communications, counter network operations and the like. There is a need to develop a system to sense changes that are taking place externally and within the organization; evolve new technology aided protocols to respond quickly and develop leadership tools facilitating innovative ways to conduct operations in super HAA. The all pervasive one size fits all approach may crumble under some unconventional actions carried out by the adversary. Jointness and strategic partnerships will add to our overall ability to shape the internal and external environment. I will recommend a new concept of leadership viz. Knowledge and Competency based Leadership; a competency of innovating and tweaking battle procedures in the stride with a strong focus on winning. Philosophy of shallowness that has that has found strong roots; a black box view on everything may not work. Senior leaders could scale up their Adversity Quotient as their principal responsibility will be to sense opportunities within the chaos and provide stability to units to self organize and pursue the aim.

Decisiveness& Risk Management

15. Ability to analyse, decide and execute in the stride provides the critical mass for agile operations and indecision at higher levels could severely impact mission outcomes. It is important to remain connected with units on ground and communicate as to how winning is still possible in the face of adversity, if new pathways are created in response to an adverse situation like General K Sunderji`s Operation Chequerboard. It requires intentional thinking and getting comfortable with risk. A comprehensive knowledge cache about own and enemy`s operational capabilities and limitations is vital to mission planning. Various options against PLA, from employment of composite task forces for ingress routes to outright eviction have been talked about in the media. Some have opined that T 90s are the optimal equipment for super high altitude areas. It is again a case of not being aware of enemy or own equipment capabilities. **With a power to weight ratio of 12 or lower, the T90s will be out maneuvered by the agile Type 15 with a power to weight ratio of 18 plus in super HAA, same as what the T72 provides at mean sea level!** Such misconceptions could end up giving a false sense of capability. It was similar ignorance that resulted in tanks available in Chushul in 1962 suffering critical failures a few days before the Chinese attack at Rezangla on 18 Nov, leaving the Kumaonese to fight it out on their own with no fire support. I can suggest urgent repowering of all tracked vehicles that have been deployed to boost up the power to weight ratio in super high altitudes to at least 16. Then only will these machines possess the tactical agility against enemy systems or assist Infantry to hold vital ground. It is important to deploy these systems sans ERA explosives incase mission entails employment of foot Infantry alongside.

16. The Army needs to push down to division, brigade and battalion levels hardened and encrypted command, control, and intelligence assets like remote terminals that allows commanders access through satellites to communication and intelligence assets. Autonomous terminal to control low orbit satellites and their payloads within the Commands need to be planned in the mid term. It is here that decentralized decision making post mission

planning and operating in island mode will save the day; force self sufficiency being critical. Risk represent an unseized opportunity and leaders need to incorporate the ability to see risk, calculate risk, and decide what appropriate action to take as it relates to risk. Risk should be managed, not feared. It should be treated as another calculated go or no go decision point with no place for emotions.

17. Another issue that can help favorably shape the operational environment is the availability of financial resources to Army Commander North and East for specific enhancements, technology insertion and purchase of theatre specific equipment and systems to plug operational capability gaps. The sheer latency of central procurement has embedded a belief that resources may not be available in pragmatic time frames. If a theatre commander needs snow scooters or over snow vehicles, specialized ammunition and critical spares, rubberized tracks, auxiliary power unit or decides to carry out a mobility upgrade or fire power or electronic upgrade of systems to boost agility or mission capability, he should be able to do so in quick time. Introduction of such decentralized and flexible processes will greatly augment decisiveness as there will be a certain degree of confidence and consistency in availability of resources. One has experienced ideas, innovations and prototypes moving along quickly and getting stalled the moment they hit the Army HQ—because no one knew what to do with them. Adequacy of resources at theatre level will greatly assist decisiveness.

Stand out competency

18. The Army possesses a standout competency in the soldiery and junior combat leaders, unparalled anywhere in the world. This is sheer physical courage and gallantry, demonstrated in ample measure during Kargil operations. **The ability of junior leaders to rally their outfit and achieve mission impossible.** Regimental tradition acts as a moral compass to follow examples set by elders in the battalion, who have given the ultimate sacrifice in service of the motherland. This competency may be difficult to emulate in an all conscript PLA. The Soviet experience in Afghanistan would

substantiate this argument. **This tradition of soldiering combined with highly reliable, durable weapon systems can help transform this man machine combination in to a formidable war fighting duo.** The emotional connect to the motherland is partly due to the fact that Indian peasantry worships his land and will not part with it at any cost. The soldier coming primarily from rural India carries with him this gene of attachment with mother earth. The Indian Army refines and expands this connect to encompass Bharat Mata. The spiritual environment that prevails in rural India also shapes this competency. In addition, the love and trust of countrymen who have repeatedly given a thumbs up to the armed forces, provides a unique motivational force. This organizational culture and exceptional competency of the Indian soldier as well as traditions built around him are something very special and have to be preserved.

19. There is an indispensible need to incubate a few more strengths which will help fortify both strategic and tactical agility besides providing the country with required competitive advantages. **There are several areas to develop but I would single out special operations, space and a robust defence industrial base.** It is because in these areas, certain base level capabilities already exist. It would be easier to build upon these. A competency of special operations that allows going outside of systems, structures and processes, enabling small teams to achieve loosely defined missions will fortify strategic agility. Similarly the strategic advantages of space based systems and an industrial base are obvious.

20. In conclusion I will reiterate that Agility is an organization’s ability to think ahead of the adversary, quickly mobilize, adapt, fill capability gaps, get into a position of advantage and strike at the enemy`s weakest spot. Agility needs speed (decisions and responses), clarity of the end state and stability (goal and committed resources) and more importantly calls for deleting organizational memories like 1962. There is a need to approach operations in Himalayas without attaching to past failures. It is all about getting the technology, timing and core competencies right before meeting the challenge head on.

21. Finally I will end by quoting the amplification of the supreme word of the Gita, the Gospel of Duty--Kartavyam Karma --its mahavakya, given by Shri Aurobindo---- *to do the work that is to be done*. The first step is Karmayogai.e insistence on action. The second is Gyanyoga i.e. insistence on knowledge about self and the world, here action gets reinforcedby knowledge. The third is Bhaktiyoga i.e. insistence on devotion, here knowledge is not subordinated, but raised and vitalized. This is the triune way of knowledge, devotion and action or what I call **knowledge based operations executed with passion and commitment. This in essence is Battlefield Agility.**