Armoured Vehicles India 2018

Defstrat Team

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A rapt audience

In keeping with the convention of conducting an annual symposium on Future Armoured Vehicles, South Asia Defence and Strategic Review conducted the ninth edition of the seminar,in concert with the 'Centre for Joint Warfare Studies' on 14 and 15 Nov 2018 at the DRDO Auditorium New Delhi.

The symposium has been providing a platform to bring together concerned stake holders viz the user, DRDO, the industry, both indigenous and foreign and the PSUs and encourage participative discourse about future armoured vehicles. The takeaways from the seminars held during the past years have helped give direction to many important issues related to future AFVs but since the entire process is highly dynamic, a continual dialogue is imperative so that course corrections can be done where necessary and thus be able to achieve a very satisfactory end result.

Deliberations during the seminar were greatly enriched by the participation of veterans, who contributed through their vast experience, during the discussions, which were wide ranging and included issues related to equipping the mechanised forces to deal with potential threats, future armoured vehicle design ,sustenance of the existing fleet and the important aspect of optimising training methods to enhance combat potential.

Opening and Keynote Session

Chairman's Address. This was delivered by Lt Gen Vinod Bhatia, PVSM, AVSM (Retd), Director CENJOWS. He stated that the seminar affords an opportunity for convergence of views thus enabling focus on the right kind of capability development. AFVs are an essential component of our war fighting capabilities, therefore it is important for us to get the right platforms as they would serve us for three to four decades. We need to carry out an objective analysis of or operational requirements both on the western and northern fronts. It also imperative that we endeavour in earnest to achieve strategic autonomy.We must evolve implementable plans to optimise force modernisation keeping budgetary aspects and processes in mind.

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Special Address

Lt Gen SS Hasabnis, VSM, ADC the DCOAS (P&S) spoke on 'Building Future Capacity: Strategy for Equipping the Mech Forces within Budgetary Constraints.' He said that the Indian Army is on the cusp of identifying platforms for future mechanised elements, so that we are appropriately equipped to fight future wars. Conflicts in the future will be fought in varied terrain, multi domain and will be technology driven. The two fronts on which we may have to fight are varied types of terrain. Mechanised forces will play a pivotal role and thus it is thus imperative that we maint optimal operational readiness. To maintain a technological/qualitative edge we must aim at focused modernisation and upgradation keeping budgetary constraints in mind. We are looking at an indigenous wheeled platform to meet our multi terrain requirements. This would come through the Industry or as a colloborative effort between the industry and DRDO.

Keynote Address

Lt Gen MJS Kahlon, AVSM, DG Mech Forces spoke about 'Future Conflict Scenarios and Equipment Requirements for Mech Forces' and stated that tanks have evolved immensely since they were first employed in the battle of Somme in France in 1916. Due to enhanced lethality levels in the battlefield protected combat vehicles will be a necessity in the battlefield of the future. As far as the Indian scenario is concerned we have been able to achieve high levels of selfsufficiency in the T series of tanks and the BMPs, with the T 72 and BMP 2 having an indigenous content of more than 80% and the T 90 having about 70%.

Theme Address

Lt Gen Sanjay Verma, VSM**, DG WE dwelled on 'Balancing Capability and Acquisitions: New Platforms vs Upgrades.' As far as a mechanised equipment is concerned we have to have a long term perspective as the equipment has to last 30 to 40 years. Therefore the road map needs to be prepared very carefully to include upgrades to keep pace with changing technologies. However, upgrades pose several challenges like availability of infrastructure, vehicle downtime etc which would impact operational effectiveness. A holistic view therefore needs to be taken.

Special Address

Yogesh Singh, Senior Partner TRILEGAL gave details of 'Legal Services & Support to Defence Manufacturing with Focus on Strategic Portending.' This subject was broached upon for the first time during a seminar and some very important facets came out. There are lots of issues in defence procurement and the need to balance confidentiality with transparency poses challenges which are difficult to understand for the layman.

*Lt Gen Sanjiv Verma, VSM**, DG WE*

Yogesh Singh, TRILEGAL

Distinguished Inaugral Panel

SESSION 2: Equipping Mech Forces to meet with Future Threats

Lt Gen AB Shivane, PVSM, AVSM, VSM (Retd), former DGMF chaired the session and stated the following:-

- Important to understand the future battle space and equip ourselves accordingly with a mix of medium/light/wheeled and tracked vehicles.
- Modernisation strategy must be based on the strategic security environment keeping fiscal aspects in mind and paying due attention to indigenisation.
- We must calibrate our modernisation as per need and accord due priorities.

Brig Anuraag Chhibber, DDG Eqpt, DGMF spoke about 'Augmented Firepower: A Tk Missiles Current and Future.'He explained the following

- Peculiarities of employing ATGMS in the Indian context with reference to varying types of terrain and weather conditions.
- With tanks being equipped with stealth and protection systems there has to be a corresponding change in the missiles.

Brig Gavin Thompson of the British Army spoke about 'Future Technologies in Armoured Vehicles.' He stated the following:-

- UK has provisions for an urgent equipment acquisition system for operational requirements, in addition to the deliberate procedures.
- The British Army's Strike Concept is one of the cornerstones of its regeneration plan. It is pitched between the heavy and light levels. Strike has features as mentioned below.
- The need to project power at distance (up to 2,000 km).
- The need for units to deploy rapidly and independently with a reduced logistical footprint and still be able to operate upto 10 days.
- Strike harnesses the potential of digital communications and battlefield management systems.
- Strike does not replace heavy tracked armour, but reduces dependency on it.
- The General Dynamics Ajax family of vehicles will equip the Strike formation. The AJAX is equipped with a 40 mm cannon.

Ravi Kataria and Guerin Regis of the L&T and MBDA combine spoke about the Fifth Generation Anti Tank Missile and stated that the technology of the present missiles is dated and the fifth generation missile is far superior with the ability to lock on before and after launch as also have the ability for top attacks in addition to a flat trajectory. ATGM 5 is smokless with minimal signature and is ideally suited for ops in restricted urban areas.

In the same context Patrick Sweeney of Lockheed Martin spoke about ATGMs in the combat zone and described

the capabilities of the Hellfire II. It assumes significance in the light of induction of Apache as Hellfire missile is the main fire power of the attack helicopter.

A brief presentation was made by Mr Haley Donoho, International Business Development, Javelin on the 3rd generation anti tank missile. Haley was emphatic about the Javelin performance in operations as the missile is highly accurate an lethal against armoured vehicles.

Javelin is one of the most popular anti tank missile systems in the world today on account of its superior characteristics.

Special Address. A special address on 'Indigenous Solutions for Modernising the Mechanised Forces' was given by MV Gowtama, CMD, BEL. He spoke about the contribution of BEL in various upgradation projects of the mechanised forces.

SESSION 3: Optimising Training Methods to Enhance Combat Potential.

The session was chaired by Lt Gen AS Bhinder, VSM, DGMT. He stated that training is an inescapable and recurring cost and training of mechanised elements is complex because many systems are involved, there is wear and tear of equipment, training areas are shrinking and instruction/coaching has to be imparted in an enclosed space

> *"Use of simulators for cost effective and realistic training is an imperative"*

Ashok Atluri, CMD, Zen Technologies dwelled on ' Integrated Training for Mechanised Forces: Cost Effective Yet Realistic.' He brought out the advantages of the systems developed by them and said that they are useful for Live, Virtual, Instrumented & Constructive Training. These also enhance combat readiness at a fraction of the cost of live training and also give out measured/scored performance capability.

Sunil Prem, Director, Navyug Infosolutions spoke on 'Exploiting Emerging Technologies for Training Mechanised Forces.' He spoke about how Artificial Intelligence can facilitate training in the mechanised forces. Augmented reality coupled with the ability to provide instantaneous feedback has a huge potential in mechanised forces.

Panel Discussion: Optimising Training Philosophy and Methods

The discussion was chaired by Lt Gen AS Bhinder and the the panel comprised Brig Gavin Thompson, Col Ketan Prakash, Director Training, DGMF, Ashok Atluri and Sunil Prem. There was active participation from the audience and it was concluded that the induction of simulators and training aids of the ilk is imperative as it would greatly enhance combat readiness.

SESSION 4: Fleet Management

The session was chaired by Lt Gen NB Singh, PVSM, AVSM, VSM (Retd), Former DG EME. He stated that fleet management is the least understood subject in the Indian Army. We should take cognizance of fleet readiness view instead of garage availability (numbers) into account. Thereafter there were presentations as given in the succeeding paras.

Maintenance and Upgrades of Fleet: Extension of Life of In-Service Platforms by Brig Amit Loomba, DDG (Eqpt), DGMF. He brought out the following:-

- Prioritise eqpt schemes to conform to current resource and budget envelope – focus on upgrades which contribute directly to combat effectiveness.
- Efforts to put in place a robust fleet sustenance plan for T 72 fleet; likely to remain in service, in combat units, well into 2040s.
- Impetus on limited upgrades for 'capability enhancement' for T 90 tks to enhance combat efficiency (FRHP and speed of engagement etc).
- Tailor made sustenance model for low population eqpt like MBT Arjun.
- A study on intervention norms is under progress.

A presentation was given by Maj Gen SS Suhag, ADG EME (A) on Fleet Mmanagement, Upgrades and Modernisation.

He stated:-

- Objective of fleet management is essentially mission reliability; less than 50% is in tolerable.
- Planned life of an AFV - 32 -35 years which includes two medium repairs (MR), one mid life overhaul which are followed by life extension (LE), if required.
- Contemporary experience however indicates that due to NA of new replacement eqpt, the retention has gone beyond 45 yrs in certain cases.
- An OH-2 is required for equipment which has to remain in service beyond 35 years. A MR3 is accordingly done for the eqpt which have undergone OH-2 and expected to serve upto or beyond 40 years.

A presentation was also given on Indigenising Upgrades and Overhauls by Maj Gen Sanjiv Khanna (retd), Principal Advisor,Bharat Forge. He stated that the policy with regard to use of ranges and labs should be stream lined by the government so that the industry does not face issues in this regard. He also spoke about the indigenous components that Bharat Forge is making for various AFVs.

SESSION 5: Futuristic Armoured Vehicles Encompassing Threats, Technologies and Cost Effectiveness

The session was chaired by Lt Gen Lt Gen Ajai Singh, DGFP wherein a panel discussion was conducted on 'Design Considerations and Parameters for a Modern AFV' and 'Process and Best Practices.' The discussants were Sh J RajeshKumar, Scientist G', CVRDE, Brig Vikrant Nayyar, Brig QA (Wpn), Brig Amit Loomba and Col SDS Hayer(retd) of Mahindra Defence Systems. The following points were brought out:-

- Doctrine must dictate capabilities.
- Industry perspective is that numbers are important as creating the infrastructure for small numbers is difficult and un productive and that the operational requirements should be spelt out clearly.
- No open ended RFPs must be issued.
- Feasibilty study must be done with the industry in concert, prior to making the qualitative requirements.

Valedictory Address

The address was delivered by Lt Gen Ajai Singh. He summarised the proceedings ande stated that We must develop capabilities which enhance and contribute to our strategic autonomy and create self sufficiency . There is a need to balance our finite resources with our requirements.

KEY TAKEAWAYS

Strategic Autonomy. As India is not a part of any alliance it is of the utmost essence that we must aim to achieve strategic autonomy so that we are not dependant on foreign OEMs. Indigenisation is therefore an imperative. To facilitate this we must maintain a vibrant and dynamic relationship with the industry. We have the Army Design Bureau, which is the single point of contact with all concerned.

Extension of Life of T 72. As per the original plan the T 72 tanks were to be phased out in 2017, but in the absence of equipment to replace the same, a considered decision has been taken to give the required numbers of the said equipment a life extension. T-72 (U) after life extention & upgradation would have near similar operational performance to the T 90 tk, less the missile firing capability. The upgrades would include the fitment of a 1000 HP engine and enhanced night fighting capability amongst other things.

FRCV. Willl be made through the strategic partnership route. We wil import 15 to 20 from the OEM and thereafter DRDO will help absorb technology for further production.

Fleet Mangement. We should take cognizance of fleet readiness instead of garage availability (numbers). Planned life of an AFV is 32 -35 yrs to include two medium repairs (MR), one mid life overhaul;followed by life extension (LE), if required. Contemporary experience however indicates that due to NA of new replacement eqpt, the retention has gone beyond 45 yrs in certain cases another overhaul for eqpt reqd to serve beyond 35 yrs is required. MR-3 is accordingly done for the eqpt which have undergone the second overhaul and is expected to serve upto or beyond 40 yrs. It is important to collect data about the performance of vehicles during exercises, so that appropriate interventions can be planned .

Training. Ttraining is the lynch pin around which hinges the combat effectiveness of any force. Therefore the aspect was discussed in detail during the seminar. The impact that AI and Augmented Reality could have on training was discussed. There is also a need to introduce learning management systems in units. Synthetic training is a need of the hour.

Industry. There is great scope for the industry to provide indigenous spares ans sub assmeblies as we have a large requirement in the mechanised forces.

Feasibility Study. The industry brought out a point that the forces must clearly articulate their requirements and to this end feasibility studies must be done jointly. There should be no open ended RFPs. DRDO brought out that a feasibility study has been done for the FRCV.

Family of Vehicles. It is important to go in gor a family of vehicles as this would facilitate easy modifications for employment in various types of terrain as also go in for a wheeled version, where required.

Legal Aspects. The seminar focused on the assistance that qualified lawyers could provide to balance confidentialy and transparency The lawyers could also help in various issues connected with strategic partneships. SA