

CENTRE FOR JOINT WARFARE STUDIES



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ARMED FORCES SHOULD PUSH COLLABORATION BETWEEN INDIAN ARMED FORCES ACADEMIA AND INDUSTRY

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BACKDROP

Fast paced advanced technological changes in today's world are constantly forcing the modern Armed Forces to keep pace with challenging opportunities to innovate new forms of warfare. Paradigm shifts are already taking place from the hitherto fore three dimensional land, sea and air warfare to five dimensional warfare to include space and cyberspace dimensions as well.

Technology is also shrinking the world necessitating expansion of strategic reach of the armed forces. This is throwing newer challenges in the field of communications and logistics infrastructure management.

There is a new technological race on to develop and harness new sources of unconventional energy and directed energy weapons.

Synthesis of the triad of nanotechnology based robotics, information technology and biotechnology is the way to breach the barriers in future frontier technology research and development in quantum computing and

Artificial Intelligence weapon platforms. Lethal swarms of self-propelled, Artificial Intelligence capable nano platforms and robotic soldiers are likely to be fielded in the future battlefields, revolutionising Special Forces operations.

This necessitates the Indian Armed forces to invest in technologically savvy manpower, fielding cyber and space warfare capable state of the art equipment, with enhanced communications infrastructure, furthering its strategic reach to defend core national interests.

However, the all too well known weakness of India's current R&D setup compels the nation to meet its need for state of art weapons and equipment through recourse to foreign suppliers. But this path has its own severe demerits of reliability in supplies of equipment and spares, heavy economic outflow **and most critical factorsusceptibility to embedded malware in weapon software programmes.**

Reforming the current state of affairs would be a tedious and time consuming process and will fall under the purview of Department of Defence R&D in the MOD.**The CDS on the other hand has been assigned the responsibility for all defence related acquisitions other than Capital Acquisitions. Under the circumstances it would be best for the Indian Armed Forces to simultaneously undertake parallel steps, at CDS level, to move forward towards self-sufficiency.**

Academia and Industry in India are increasingly engaged in high end research capable of innovating nano satellites, IT security network programmes and remotely controlled platforms. Developing knowledge partnerships with them would be the first step in this direction.

HUMAN RESOURCE INTERFACE

Internship for University Students and Industry Interns

Students undertaking defence related R&D projects as part of their curriculum, and Industry R&D Interns, may be offered 3 to 6 months internship with concerned equipment holding unit to understand equipment exploitation requirements of Armed Forces.

Cyber Security TA Units Raising/Conversion

Cyber Security TA Units may be created through New Raisings/ Conversion of certain existing TA Units. Such **Cyber Security TA Units may be affiliated to reputed Indian IT organisations.** It will provide the Armed Forces access to highly specialised manpower for meeting its specialised requirement of Cyber security.

Pre-Retirement Settlement Leave for Service Personnel

Highly qualified, trained and disciplined manpower in the prime of their life is released annually from the Armed Forces. A good number of such personnel, though having a low command profile, are otherwise highly qualified experts in their chosen field of interest. **Government approval should be obtained to grant 3 to 5 years pre-release settlement leave to selected service personnel for meeting manpower requirements in identified roles in Indian Academia& Industry.**

RESEARCH & DEVELOPMENT OPPORTUNITIES

R&D Option in Offset Clause

The Indian armed forces are slated to spend enormously on equipment purchases during the coming decade. The new defence equipment procurement policy offset clause requires foreign companies to invest minimum 30% of contract cost within India, and raising of FDI limit to 49% in defence industry. **Proposal should be pursued for investing percentage of these funds with Indian Academia and Industry for R&D.**

Interface with Unit/Regimental Training Centres/Line Directorates

Mechanised Forces and other equipment intensive fighting units, training centres and Line Directorates have annual training grants of approximately INR 10 Lakhs to 50 Crores each. Same holds true for infantry fighting units. **Academia/Industry Start up organisations may be encouraged to collaborate with them to gain entry into this low budget sector,** albeit at lower scales of revenue. It will enable their organisations to gain valuable

experience as also earn credible reputation within the defence establishment.

Whereas the formation Headquarters at various levels are engaged in directing, marshalling and deploying force combat potential, it is at the unit level that the battles are won and lost in the ultimate analysis. The area of interest of a combat unit ranges from 20 to 60 square kilometres. 30 % of the fighting field force is actively deployed in counter insurgency operations at any given point of time. Under given circumstances **Academia/Industry can offer the following:-**

- Miniature land based robotic surveillance vehicles.
- Static and mobile detection sensors for deploying along camp parameters.
- Miniature UAVs in surveillance role.
- Compact All-Terrain Vehicles.
- Alternative energy sources.
- Weapon simulators.
- Portable bunkers.

Formation Level

Availability of funds at the formation level is incrementally higher from the unit level.

Service Headquarters

Availability of funds at the Service/Command Headquarters is exponentially higher. **Some options that may be explored:-**

- Systems for optimum management of surface transport.
- Satellite based real time monitoring and control over critical lines of communication.
- Information Warfare systems.
- Aerial vehicle engines.
- Alternative fuels.
- Applied nuclear science field.
- Aerostat radars.

KNOWLEDGE RESOURCE CENTRE

Cyber & Energy Security Think Tank

Currently there is a void in serious academia based think tank related to defence affairs. This void is currently being filled by United Services Institute, Institute for Defence and Strategic Affairs and other, recently set up, Government funded think tanks such as Centre for Joint Warfare Studies, Centre for Land Warfare Studies, and the forthcoming Indian National Defence University.

Cyber & Energy Security coupled with planned growth and development of national communication infrastructure will be the central key for enabling India to realise its economic potential. **Academia& Industry, in conjunction with the Armed Forces, have the potential to actively contribute towards this nation building effort by establishing Cyber & Energy Security and Communications Infrastructure Management think tank as a special purpose vehicle.**

Affiliation with Armed Forces Knowledge Centres

Indian Academia& Industry can seek affiliation and/or understanding with some or all of the following Defence knowledge centres:-

United Services Institute, New Delhi
Centre for Joint Warfare Studies, New Delhi
Centre for Land Warfare Studies, New Delhi
Institute for Defence and Strategic Affairs, New Delhi
National Defence College, New Delhi
College of Mechanical Engineering, Pune
Military College of Telecommunication Engineering, Mhow
College of Defense Management, Secunderabad
College of Material Management, Jabalpur

Sharing of Faculty Resource

Arrangements for **sharing of Faculty resource with above institutes** can be entered into in fields of mutually acceptable expertise.

MISCELLANEOUS ASPECTS

Following miscellaneous aspects may also be pursued:-

Endowments

Consultancy/survey/project reports in **disciplines of mutual interest**.

Industrial Tours in Armed Forces Establishments

For **select educational institute students** in port and shipping infrastructure/airfields/ ship building yards/aircraft assembly plants/vehicle manufacturing establishments.

R&D Industry Internship for Service Personnel

Industry Internship **for Service Personnel** in association with DRDO/MOD (Defence Production) at armaments, vehicles, ship, aircraft assembly plants.

CONCLUSION

A comprehensive two way engagement between the Armed Forces and Indian Academia & Industry would leverage the strengths of both the organisations for mutual gains.

Disclaimer: Views expressed are of the author and do not necessarily reflect the views of CENJOWS.