



# Centre for Air Power Studies (CAPS)



## A REPORT ON EIGHTH INTERNATIONAL CONFERENCE ON AEROSPACE INDUSTRY

*Organised by:* Centre for Air Power Studies (CAPS)

& Confederation of Indian Industry (CII)

In association with Indian Air Force (IAF)

*Date:* 06-07 November 2013

*Venue:* Gulmohar, India Habitat Centre, Lodhi Road, New Delhi





# Centre for Air Power Studies (CAPS)

## A REPORT ON EIGHTH INTERNATIONAL CONFERENCE ON AEROSPACE INDUSTRY CONDUCTED ON 06 & 07 NOV 2013 AT NEW DELHI

### General

1. The 8<sup>th</sup> International conference on Aerospace Industry jointly organised by Centre for Airpower Studies (CAPS) and Confederation of Indian Industry (CII) was conducted at India Habitat Centre, New Delhi, from 06 to 07 Nov 2013. The conference was inaugurated by Air Marshal P P Reddy, VM, D G (I & S), Air HQs.

2. The theme of the conference dealt with greater involvement of Indian Industry towards meeting the equipment and technological requirements of Indian Air Force in Aerospace sector. The conduct of the conference was divided as under:-

(a) 06 Nov 2013

- (i) Inaugural Session
- (ii) Emerging Trends in Aerospace Power
- (iii) Aerospace Industry

(b) 07 Nov 2013

- (i) Defence Technologies in Aerospace Sector including Design and Development
- (ii) Defence Procurement Procedures and Offsets
- (iii) Closing Session

3. There were around 150 participants from Services, members of strategic community and industry. A detailed programme of the conference is attached. The deliberations of the two





# Centre for Air Power Studies (CAPS)

days and the recommendations made during the deliberations are given in the succeeding paragraphs.

## Inaugural Session

4. In his opening remarks Air Marshal Vinod Patney, Director, CAPS mentioned that the recommendations of the conference will be forwarded to all concerned. He expressed his concern over the delays in achieving the goals of indigenisation and self reliance by Indian aerospace industry. He emphasised that there should be greater interaction and



understanding between the users and the makers. The process of acquiring the critical technologies in aerospace sector should be hastened. Space is an important factor in the modern world. We must prepare for the possibility of the weaponisation of space. With regards to MSMEs he mentioned that they could become the backbone of indigenisation and their potential should be exploited. He also suggested that along with raising FDI we should go for more joint ventures with foreign companies. In this regard proposal to deal with Transport Aircraft for Indian Air Force through a joint venture between the Foreign OEM and private sector company in India was a step in the right direction. In the end, he emphasised the need for out of the box thinking, for change of business models, to tap the market for MRO and engineering support, to increase the FDI limits and attend to tax regimes. He insisted that Transfer of Technology and licensed manufacture as systems must be viewed as a stop-gap arrangement and not an end unto itself. He stressed the need





## Centre for Air Power Studies (CAPS)

for better research, better plans, processes and products directed towards user needs. He said the government, the industry and the users must view each other as partners.

5. Mr S K Mittal, General Manager, Business Development, Hindustan Aeronautics Limited (HAL), highlighted the achievements of HAL. He, however, mentioned that India has not done enough in the field of aerospace manufacturing. He further mentioned that the Indian aerospace industry is energised basically by customer demand and briefed the gathering about the



various programs that HAL is working on such as MMRCA, FGFA, LCA, IJT, HTT 40 trainer and UAVs. He made the audience aware of the developments on the civil aviation front as well. He told about the new project to develop and manufacture civilian aircrafts in the 70-100 seat range. He pointed out some problem areas such as the fragmented nature of domestic industry, the gap in university curriculum and requirements of aerospace industry, and the severe deficiency of raw materials.

6. Mr Satish Kaura, Chairman, Samtel Group in his address stressed that Indian industry is keen to have a more active partnership with DPSUs. He pointed out that initiatives like the defence offsets and procurement reforms have created more opportunities for private sector. He mentioned the need for making Indian SMEs part of global supply chain. Manufacturing capability is very critical for



minimising production cost. He stressed the need to promote a culture of spending more on R&D. He said MROs are critical for facilitating the life cycle extension of the existing fleet and keeping operational cost in check.





## Centre for Air Power Studies (CAPS)

7. In his Inaugural address, Air Marshal PP Reddy began by stressing the need to become a net exporting country in defence rather than an importing one. He emphasised the need for private industry to invest in R&D. He pointed out on the lack of private industry participation in the aerospace sector, increasing the restriction of 26 percent FDI in defence and aeronautics not being a preferred field of study in institutions. The



government, he said, to promote indigenisation has introduced the Technology Perspective and Capability Roadmap. He suggested that the FDI limit should be raised and public-private partnership model should be encouraged. In conclusion he said that it is pertinent to reduce our extreme dependence on imports. He also mentioned that domestic capabilities cannot be built merely by giving RFPs to Indian companies. Multiple areas need attention such as funding the R&D, raising the FDI ceiling, saving intellectual property, tax incentives etc.

8. In his vote of thanks, Mr Anjan Das, Executive Director, CII, raised points to include that the highest level political will is very important, time bound goals must be set, work through mission mode as it is efficient and government support for private sector in research is needed. He also said that R&D by private sector needs more funds and encouragement from govt. He further mentioned



that global collaboration for co-development and co-manufacturing is needed.





# Centre for Air Power Studies (CAPS)

## SESSION I: EMERGING TRENDS IN AEROSPACE POWER



8. The session was chaired by Air Chief Marshal Vinod Patney SYSM PVSM AVSM VrC (Retd), Director CAPS.

9. Dr Tamil Mani, DG (Aero), DRDO, was the first speaker and he spoke on “Quality System for Aerospace Industry in Future”. He elaborated on how quality contributes to the improvement of airpower. He pointed out that civil aeronautics have achieved a fleet reliability of more than 99 percent. However, in defence the reliability is only 60 percent. He said that we have to address this mismatch. He then went on to list the achievements of HAL such as the IJT, LCA, ALH and the achievement in composites and glass cockpit technology. He further stated that HAL has reached a maturity in terms of flight safety and flight testing. He mentioned that Licence production gives enough of





## Centre for Air Power Studies (CAPS)

knowledge to translate a design into production. He then highlighted some of the problem areas as under:-

- (a) ToT to development to production is an isolated affair and lacks proper interface
- (b) There is currently no pre-planning in setting up production facility
- (c) There is no proper simulation study on the requirements placed by the services
- (d) Accurate modelling is not done for simulation
- (e) Multi-disciplinary optimisation is not there in the design process
- (f) Maintenance aspect in the design process is not taken care at all
- (g) Interface of maintenance people to the aircraft is not appropriate
- (h) Tailoring the requirements is very important
- (i) Essential test facility is not present. Government needs to create test facilities
- (j) There is no flying test bed for high altitude engine tests and have very few wind tunnels
- (k) Self certification is to be focused
- (l) Tool design is a neglected area which needs attention and automation is missing
- (m) Quality assurance is a weak area
- (n) In ToT, absorption has become a major problem because there should be people who understand this
- (o) There are very less trained engineers in this field

10. Air Marshal Matheswaran spoke on “Transformational Trends in recent wars – Air Power”. He started by saying that a national level strategy is required for creating the ecosystem for the aerospace industry. He elaborated on the Clausewitz’s concept of war and mentioned its two components, an essential nature and dynamic nature. He highlighted on the need for a flexible organisational structure that should adapt to changing technologies,





## Centre for Air Power Studies (CAPS)

strategies, time and environment and the need for Industry and military to work together to bring about this change. He brought out the fact that economy and war are interlinked. He further stated that wars have been driven by the Westphalia model which is in the receding mode. He observed that post 1945, all the wars that have taken place were on the periphery of developing regions. He opined that if the inter-state wars recede, it gives way to unconventional and sub-conventional wars, where non-state wars come into picture. He said that almost all states in South Asia have a problem with its democracy and hence India lives in an environment where war is always a distinct feasibility. Hence he stressed that India should be at the top end of technology. He pointed out that China's war concept has realistically changed to local war which is aerospace intensive. PLAAF's doctrine has got a well integrated air and space component.

11. He then focused on the transformational trends in war. He opined that the introduction of air power has itself been a transformational trend and highlighted the role of the Blitzkrieg bringing a change in the strategy of war. He also highlighted the role of technology in this aspect and the need for flexible organisational restructuring as required by the changing environment. Aerospace technology has moved the war capability into the realms of conventional deterrence. He listed some of the key campaigns to study the change in warfare trends, they are, Beka valley, Gulf war, Kosovo, 9/11 Afghanistan and Russian and Georgia conflict. He emphasised the importance of C4ISR, precision weapons, NCW, UAV and information warfare in the modern warfare.







## Centre for Air Power Studies (CAPS)

12. Lt. General Markus GYGAX, Former Commander of Swiss Air Force, spoke on the “Tactical Needs of Future Aerospace Power”. He stressed on the importance of energy in the contemporary time. He stresses the importance of aerospace in an event of natural disasters. He said nearly 1000 aircrafts fly daily and they are monitored by civil Radars. Air traffic management and air policing is also being done



by air force. In the Swiss Air Force, they have fighter aircrafts like F-18 and short and long range radars. He emphasised on the need for having an affordable fleet and stressed on reliability, affordability and sustainability. He said that there is a close association between air force and aerospace industry. He illustrated that in Switzerland, for the past two decades, air force and industry have been working in tandem. As a consequence of this synergy, fleet availability for F18 is about 50 percent, F5 is 70 percent and Jaguar is 69 percent. He mentioned that amongst three aircrafts Eurofighter, Raffale and Gripen, Switzerland had chosen Gripen for current modernisation of existing fleet because it is the most suitable aircraft meeting the requirements of Switzerland. He also divulged that in July 2013, Gripen was the first-ever aircraft to fire meteor missile. He illustrated that Switzerland’s main objective for acquiring UAVs was reconnaissance. Amongst the options, HERON I, Boeing X45 and Predator RQI, the HERON I was chosen. He mentioned that Switzerland has moved from propeller powered aircraft to first line aircraft and has plenty of experience in this area. In his concluding remarks, he stated that Switzerland is a success story of rising airpower focusing on the tactical needs.





## Centre for Air Power Studies (CAPS)

13. Dr. Shyam Chetty, Director, NAL, focused on the civilian aerospace sector. He observed that only recently has there been a shift towards civil aeronautics. He went on to elaborate on the various issues in the civil aeronautics segment HAL is going through. He iterated that affordability is an issue with advanced technology. He described the work undertaken



in NAL on Modular avionics, integration of GAGAN which he said will reduce the cost of ground infrastructure in airports and Fly-by-Wire for LCA. He stressed the need for building core teams to develop advanced technology. He highlighted challenges in graduating from defence to civilian space like ADC conversion, the need for design tools and the augmented engineering environment. He said that focus has to be given to data fusion that will enable better situational awareness. He highlighted the role of modelling and simulation in product design and said that it starts from the beginning of the design phase. He further said that this is a weak area in the country. He integrated that Health monitoring is another area to enable need based maintenance attention.





# Centre for Air Power Studies (CAPS)

## SESSION II: ENERGISING AEROSPACE INDUSTRY



14. The session was chaired by Air Marshal PK Mehra PVSM AVSM VM (retd) Former AOC-in-C, SWAC.

15. Air Vice Marshal Upkarjit Singh spoke on the “Present Air Force capability in space and future prospects”. The importance of compressing the “sensor to shoot time” and the key requirements for achieving that, such as accurate navigation, precision weapons, data fusion and an efficient C4ISR to achieve effective operations were stressed. The importance of the space domain in enhancing the capability of the air force in future was elaborated. The efforts and achievements of the country in space based navigation technology such as GAGAN project and IRNSS were discussed. The future market potential of the satellite launch sector and the opportunity for the private players in it was highlighted.





## Centre for Air Power Studies (CAPS)

16. Cmde S Samaddar (retd), CEO and Director ShinMaywa Industries India Pvt Ltd spoke on “A case for incentives and benefits” with regards to involvement of Industry in Aerospace sector”. He informed the audience on the huge domestic demand, from both military and civilian sector, for aerospace products in the country. An argument was put forth during this session to convert this high



demand to our advantage. He pointed out that India still does not have an aerospace commission. A lot of solutions were suggested to help local industry and to support indigenisation. Some of the key suggestions were:-

- (a) Pro active govt support with required policy interventions
- (b) Some key changes suggested to the DPP 2013 are:-
  - Inclusion of a Price variation clause so as to share the burden of price fluctuation between the contractor and the customer
  - Inclusion of Exchange rate variations down to the SMEs and MSMEs
  - Inclusion of certain physical service sectors like MRO, upgrades, life extensions and engineering design
  - Permitting Indian bidders to bid in foreign currency and this should be extended up to the Tier 2 and Tier 3 suppliers
- (c) Exports have to be allowed and the procedure for approval should be eased
- (d) Purchase preference for Indian bidders and there has to be delivery concessions
- (e) Providing tax and other incentives to the aerospace sector industries and sharing of investment risks between the industry, government and buyers
- (f) The MI-17 upgrade programme and the AVRO upgrades should certainly be “Buy Indian”, since this is completely possible in India
- (g) Emphasis should be placed on making engines in India





## Centre for Air Power Studies (CAPS)

- (h) We have a huge aircraft acquisition list worth several billion dollars, therefore we have to push the aircraft and engine manufactures to locate in India on these bulk orders. We should leverage these orders to build local industry
- (i) Risks in R&D investments have to be covered by both industry and the customers
- (j) There has to be an 'Entrepreneurship Promotion Plan'
- (k) It was suggested that offsets have to be buyer driven and not vendor driven
- (l) There has to be 100 percent FDI in this sector to enable investment in immovable assets (infrastructures/facilities)
- (m) Technology infusion will be smooth and effective only when the lab and test facilities exist. This has to be created by allowing FDI instead of the government making these huge investments
- (n) The contracting process should be the latest

17. Ms Leanne Caret, Vice President and General Manager, Boeing Military Aircraft, emphasized the critical need to capture the hearts and minds of the people who work in the aerospace sector. She mentioned three critical points - first knowing the destination where we are heading with well defined path, second need to invest in innovation and new technologies to let the workforce know they are part of something that matters and third, open lines of communication and opportunities to appeal to personal ambitions of the workforce. She also mentioned of project collaboration between Boeing and Sikorsky to develop new generation of army helicopters that would fly twice fast and would be more capable than any conventional helicopter that flies today. She concluded with saying that as leaders, it is our responsibility to lead by personal example and contribute to the aerospace industry by leaving it better than we inherited it.





## Centre for Air Power Studies (CAPS)

18. Dr. Vivek Lal, President and CEO, New Ventures, Reliance Industries Ltd, spoke on “Indian Aerospace Industry”. He stressed that India must aim to become part of the global aerospace supply chain as it will help in acquiring class technologies and skills. It was brought out that the trend in the aerospace industry was towards building partnerships, building infrastructure and network capability. The way forward for the Indian aerospace industry is to develop competitiveness, particularly across the lower end of the value chain. The hurdles faced by SMEs in India were high capital cost, low volumes and long gestation period of projects. The key suggestions made were:-



- (a) Improving quality of technical personnels and the adoption of the SEZ model for the aerospace sector
- (b) A central organisation to coordinate and guide the aerospace industry to be established
- (c) Improving the quality and robustness of the certification organisation
- (d) Creation of clusters of the supply chain to reduce transport cost, cut down on transportation time, etc.
- (e) Research on new materials
- (f) Certification process should be speeded up





# Centre for Air Power Studies (CAPS)

## SESSION III: DEFENCE TECHNOLOGIES IN AEROSPACE SECTOR INCLUDING DESIGN AND DEVELOPMENT



19. The session was chaired by Air Marshal PV Athawale PVSMAVSM VsM (retd) Former AOC-in-C Maintenance Command.

20. Mr Muralidaran from Tata Power SED focused on communication in a digitised and Net Centric battle field environment. He noted that in digital mode, security of communication becomes a concern. With communication equipments becoming wireless, he raised the question of spectrum utilisation. He also questioned on how we could synergies the future systems used in



the battlefield with the changing technology in the field of communication. He emphasised the need for the communication system being interoperable between the services and laid emphasis on interfacing between modern and legacy systems. He stressed that the communication systems should be based on an all IP network but pointed out that the IP





## Centre for Air Power Studies (CAPS)

system has vulnerabilities, too. For the modern day mobile warfare he emphasised the need for the communication systems to be based on ad hoc and nomadic frame. He further stated the need for wideband and the requirement for large bandwidth to enable transfer of large data to include video and audio in real time.

21. He said that the systems should be based on Open Standard Architecture for enabling future scalability and upgradability. To meet the future requirements he proposed Software Driven Radio (SDR) and cognitive radio. SDRs he said would use Open Standard Architecture hardware but will be driven by software to produce several frequencies and different waveforms as per the requirement at the time. The cognitive radio, he said, would automatically lock on to the frequency used by the friendly forces. He further looked at futuristic concepts like incorporating self-healing capacity to the systems. He pointed out one critical area i.e. the need to import hardware component as we don't produce them in the country.

22. Mr. Naresh Chandra Sharma, Head Production, Tata Advanced Materials Limited (TAML), focused on the production of composites and applications for the Aerospace sector. He highlighted the significance of using composites in terms of improving the payload and range. He mentioned some civilian aircrafts use composites extensively such as the A350 (52%), Boeing 787



(50%). He also mentioned some of the major projects in which TAML is involved supplying composites for platforms such as A350, Dhruv helicopter and LCA project. He highlighted some of the necessities that need to be done in this area, as well highlighted some of the problems and challenges. He brought out the need for high investment, establishing facilities and procuring equipment, the requirement of trained and skilled human resource. He further said that the return on investment takes too long in the aerospace sector. In this







## Centre for Air Power Studies (CAPS)

sector, he said, understanding of the composite business is vital. He stressed the importance of maintaining low cost, high quality and prompt delivery in this segment. To maintain efficiency, he laid emphasis on the Cross Function Team system, robust tool hand over and identification of risk and its mitigation through team effort. The critical problem areas he identified in this segment were the high cost of imported material and the long and cumbersome certification process.

23. Mr Ashok Atluri, Chairman and Managing Director Zen Technologies Ltd, said that the present defence set up in the MoD is one of the most MSME friendly ever. However, self reliance is still a distant reality. He noted that the benefit of all the govt policies have been limited only to a few large industrial houses and have not percolated down to the MSMEs and that MSMEs with strong capabilities are struggling to make any meaningful contribution, especially in high innovation and critical technology area. He made a number of recommendations for helping the MSMEs to make meaningful contributions in the field of Defence. They are as follows:-



- (a) Look at SME not only as part of a supply chain, but also whether they can deliver the complete product.
- (b) Separate department should be created in the MoD that focuses on self reliance.
- (c) In the “Make” category, the criteria for empanelment are financial. MSMEs have strong objections to this. It should be the technical capability and ability to deliver.
- (d) Another category that should be included is the “Buy MSME” category. This should be a high priority category. This can be done especially for the low value procurements if it is within the Vice Chief’s powers.





## Centre for Air Power Studies (CAPS)

- (e) There is a single vendor clause in the DPP; in this the RFP is retracted if there is only a single vendor at the Technical Evaluation stage. Suggestion is, make an exception, if and only if, the indigenous content is more than 70%, the product successfully clears the trials and the vendor is an MSME.
- (f) Another problem is, in some of the tender where Indian MSMEs have developed the technology by investing so much money; they get competition from DPSUs tied up with foreign suppliers. This kills indigenous technology. MoD has to take note of this and make stringent mechanism to prevent this.
- (g) Relax procedures to make MSMEs the lead bidders.
- (h) Financial criteria should be relaxed.
- (i) R&D support should be given to the MSMEs.
- (j) Break down the project into smaller manageable chunks and then give it to other suppliers.
- (k) Invite MSMEs for larger projects, let them form consortia. Let there be no lead bidder requirement in that.
- (l) Support the MSMEs financially if the company has the capability to deliver.
- (m) Increase the number of "Make" projects. Don't leave them only for strategic projects, include low value products also.
- (n) Even in the large "Make" projects, 20 - 30 percent should be given to MSMEs.

24. Wg Cdr Vishal Nigam, CAPS, made a comparative study on the Chinese and Indian Aviation Industry. He attributed China's success in the field to the institutional evolution which was backed by emergence of capitalism, creation of markets and all this was supported by an efficient ecosystem, where the private industries were sphere heading the global supply chain and SOE sphere heading the logistics and financial supply chain. He mentioned that structural changes were made to increase





## Centre for Air Power Studies (CAPS)

interaction between the industry and the PLA. China's short term aim was to embrace high end tech to bring in technology through partnership and alliances. The long term aim was to upgrade capability through internal R&D. In the area of investments he stated that, China's aggregate expenditure on defence R&D increased to 13 percent of the total defence outlay and that the share of spending on R&D in GDP was 1.7 to 1.8 percent. As a result China's defence industries are able to generate capital from the stock markets.

25. On the role played by the external factors, he said that most of the equipment and knowledge was sourced from Russia. He also highlighted some key weapon acquisition programs like the Su-35, IL-76 and programmes on aero engines. He elaborated on China's quest to develop aero engines indigenously such as the WS-10, WS-13 and WS-15. He further pointed that most of these engines are derivatives of Russian engines. On the Indian side he said that the main problem was short term goals over riding long term plans. He pointed out that there was a 25 years gap between Marut project and LCA. He stated that, in R&D spending the government's share is 70 percent and 30 percent by private industry. He also highlighted that there has been no innovation so far from the 39 Ordnance factories and that their order books were overflowing while the potential of private industry remains unused. He stressed that the primary problems were - One, inadequate policy interventions and Two, inability to carry all stakeholders onboard.





# Centre for Air Power Studies (CAPS)

## SESSION IV: DEFENCE PROCUREMENT POLICY AND OFFSETS

26. The session was chaired by Air Chief Marshal Vinod Patney SYSM PVSM AVSM VrC (Retd), Director CAPS.

27. The main theme of Air Marshal (retd) Tyagi's presentation was how to energise Indian aerospace industry in conjunction with DPP. He remarked that India has a very well-defined DPP. He notified that the core of DPP-06 had been retained in DPP 2013 and the changes have mainly been made in the offset policy. He stated that DPSU and DRDO combination has failed to deliver and also failed to leverage India's "Big buyer" status. The speaker mentioned that the general perception about the DPP is that it is a cumbersome procedure which leads to delays. He mentioned that the procurements are based on user's long term plans and qualitative requirements. Technical evaluation and field trials are conducted independently by the users. The major change in DPP-13 was the procurement categories i.e. Buy (Indian), Buy and Make (Indian), Make, Buy and Make and Buy (Global). In the opinion of the speaker, the change was only cosmetic in nature. He pointed out that there are no nominations for maintenance of ToT and delegated financial power has been enhanced. Moreover, procedure for Buy and Make (Indian) has been further streamlined in DPP-13.



28. The speaker mentioned that the biggest problem with DPP is the nomination of production agency. Second obstacle is the rigidity of SQR. He further said that the problem is at the implementation level. Secondly, there is a lack of knowledge base. Third, all provisions that are being made available are still not put to use.





## Centre for Air Power Studies (CAPS)

29. He mentioned that India's technological self-sufficiency is not in the interest of foreign vendors. Another problem vis-à-vis ToT is that entire ToT linked with procurement has gone to DPSUs due to nominations and DRDO is emerging as a buyer of technology. He recommended that policies should be drafted while keeping this point in mind and the difference between 'know-how' and 'know-why' need to be considered. DPSUs prevent development of a suitable ecosystem. Pointing out the shortcoming of the offset management, he said that OEM has some concerns vis-à-vis current offset management policy. As far as government's role is concerned, there is total reliance on the public sector. He put forth a few policy recommendations:-

- (a) He suggested that targets for indigenous contents for Buy (Indian) and Buy and Make (Indian) cases should be set at realistic levels.
- (b) Procedure for change of offset offerings and IOP need to be simplified.
- (c) He strongly recommended downsizing DRDO and making R&D an integral part of the industry.
- (d) He urged to free aerospace sector of industrial licensing requirement.
- (e) Government roles should only be restricted to policy formulation and its implementation.
- (f) Procedure for change in offset proposal should be further liberalised.
- (g) Lastly, the recommendation put forth by the speaker was that the transfer of offset credit should be permitted.





# Centre for Air Power Studies (CAPS)

## Closing Session

30. The keynote address at the closing session was delivered by Air Marshal VM Khanna, AVSM VSM, Director General (Aircrafts). He mentioned that in the recent years numerous equipment procurement contracts of Indian Air Force have been finalized. He stated that India was the eighth largest defence spender in the year 2013 with IAF receiving a hiked share. This has led to increased opportunities in the aerospace sector for industry, especially for private industry, in the field of development, production and sustainment support for the aerospace sector. He emphasized the need to combine the capabilities of public and private sector for achieving self reliance in defence production. He also talked about existing challenges such as limited access to defence technologies especially in areas of advanced avionics, metallurgy, composite materials and armament systems which are closely guarded by foreign OEMs. However, recent acquisitions by Indian companies have brought know how otherwise not accessible to Indian companies. He stated that the aerospace industry is capital intensive as in initial high growth phase capital needs to be injected rapidly. Hence Industry needs to be prepared for the long gestation program, stringent airworthiness certifications and quality requirements.



31. The closing remarks were given by Air Marshal Vinod Patney, Director, Centre for Air Power Studies. He thanked all organizers, participants and attendees. He laid emphasis on capacity building through a strategic partnership between private and public sector as well as between industry and IAF. In his remarks he mentioned that foreign participation was welcome as the aim of the conference





# Centre for Air Power Studies (CAPS)

was energizing and not indigenizing aerospace industry.

32. The vote of thanks was given by Shri Gurpal Singh, Principal Advisor, CII. He mentioned that since the opening of defence sector to private players, there have been phenomenal changes. He listed out a few points that emerged from the conference. He mentioned the need for tax holidays, relaxing FDI regulations and an industry friendly export and import regime. He also



emphasized need for R&D funds being made available to the private sector. He mentioned the importance of developing certifications for airworthiness of ordnance. He concluded by saying that co-development and cooperation should be the keywords for the aerospace sector and there was a strong need to develop capacity building for India to emerge as an aerospace and defence export hub in the future.

## **Recommendation**

33. The salient recommendations made during the two day seminar are as follows:-

- (a) Foreign Direct Investment (FDI) in Aerospace sector could be increased but determined on case by case basis.
- (b) Emphasis should be on Technology development rather than buying technology. In this regard Government should invest, encourage and support R and D in Defence sector.
- (c) More investment should be made by Industry both public and private sector in R and D. Government should financially support the R and D in Aerospace sector by private industry.





## Centre for Air Power Studies (CAPS)

(d) Government should encourage the joint venture and co development between the foreign Original Equipment Manufacturers (OEMs) and Indian Private Industry. In this regard proposal to deal with the Transport Aircraft for Indian Air Force through a joint venture between a Foreign OEM and private sector company in India is a step in the right direction.

(e) Government should offer tax incentives.

(f) Encourage export in Defence products through favourable policies.

(g) Efforts should be made to make Indian MSMEs part of global supply chain in the aerospace sector as it will help in acquiring technologies and skills.

(h) The hurdles faced by MSMEs in India in Aerospace sector were high capital cost, low volumes and long gestation period of projects. Support the MSME financially. Further, enabling policy environment should be created by the Government.

(j) Nomination of a production agency in defence procurement should be done away with.

(k) Transfer of offset credits should be permitted in Defence Procurement Procedures (DPP).

(l) A national level strategy is required for creating the ecosystem for the aerospace industry. In this regard establishing an Aerospace Commission at National level should be considered.

(m) Aerospace sector is not a preferred field of study at university level. There is a gap in the university curriculum and the requirement of the Aerospace Industry. Government should initiate measures to counter that.







# Centre for Air Power Studies (CAPS)

(n) Government should leverage the big buyer status in the Aerospace sector to its advantage. Policies be framed accordingly and the role of government thereafter should be restricted to implementation of policies.

## **Conclusion**

34. This is the only seminar which focuses on the military aerospace sector in general and aerospace sector in particular, which is conducted annually. This conference was eight in the series and the next one will be conducted in the year 2014, for which dates will be announced subsequently on the website of Centre for Air Power Studies.

The report was prepared by the following:-

- (a) Lt Col (Retd) R K Verma
- (b) Mr Arjun Subramanian
- (c) Ms Prerna Gandhi
- (d) Ms Sana Hashmi
- (e) Ms Simrat Virk
- (f) Ms Debalina Rahul Ghoshal
- (g) Mr Ankit Kumar

Designed By:  
Kriti Singh





# Centre for Air Power Studies (CAPS)

## 8<sup>th</sup> International Conference

on

**Indian Aerospace Industry: Challenges and Opportunities**

(Organised by Centre for Air Power Studies and CII in association with Indian Air Force)

**Wednesday -Thursday, November 06-07, 2013**

Venue: *Gulmohar* India Habitat Centre, Lodhi Road, New Delhi

### Wednesday, November 6, 2013

- 0900-0930 Registration & Tea
- 0930-1030 **Inaugural Session**
- 0930-0945 Opening Address: Air Marshal **Vinod Patney** SYSM PVSM AVSM VrC (retd)  
Director, CAPS
- 0945-0955 Address Mr **S K Mittal**, General Manager, Hindustan Aeronautics Limited
- 0955-1005 Address Mr **Satish Kaura**, Co-Chairman CII National Committee on Defence and Aerospace
- 1005-1025 **Inaugural Address:** Air Marshal **PP Reddy** VM DG(I&S)
- 1025-1030 Vote of Thanks Mr **Anjan Das** Executive Director, CII
- 1030-1100 Tea
- 1100-1330 **Session I: Emerging Trends in Aerospace Power**
- Chairman** : Air Marshal **Vinod Patney** SYSM PVSM AVSM VrC (retd) **Director, CAPS**
- Aerospace Power :Transformational Trends in Recent Wars - Air Marshal **M Matheswaran** AVSM VM DCIDS (PP&FD)
- Quality System for Aero Industry in - Mr **Tamil Mani** DG (Aero) DRDO





# Centre for Air Power Studies (CAPS)

Future

Technical needs of Future Aerospace Power - Lt Gen (retd) **Markus GYGAX**,  
Former Commander Swiss Air Force

Overview Indian Aerospace Industry - Dr **Shyam Chetty**, Director, NAL

1330-1430 Lunch

1430-1630 **Session II: Energising Aerospace Industry**

**Chairman** : Air Marshal **P K Mehra** PVSM AVSM VM (retd)  
Former AOC- in- C, SWAC

Current Air Force Capability in Space and Future Prospects : Air Vice Marshal **Upkarjit Singh** AVSM  
ACAS (Ops) Space

A case for incentives and benefits : Cmde **S Samaddar** N/M (retd), CEO and  
Director ShinMaywa

Energising the Aerospace Industry : Ms **Leanne Carret**, Vice President and General  
Manager Lift, Boeing Military Aircraft

Indian Aerospace Industry : Dr **Vivek Lall**, President and CEO, New  
Ventures, Reliance Industries Limited

1630 Tea

1815 Cocktails (By invitation)





# Centre for Air Power Studies (CAPS)

Thursday, November 7, 2013

0900 Tea/Coffee

0930-1130 **Session III: Defence Technologies in Aerospace Sector including Design and Development**

**Chairman** : Air Marshal **PV Athawale** PVSM AVSM VSM (retd)  
Former AOC-in-C Maintenance Command

Technologies in Aerospace Sector - Mr **Muralidharan**, Tata Power SED  
including Design and Development

Production of Aerospace Composite Parts - Opportunities and Challenges Mr **Naresh Chandra Sharma**, Head Production, Tata Advance Materials

Inclusive Participation of SMEs in Aerospace Sector - Mr **Ashok Atluri**, Chairman CII Sub Committee on SMEs for Defence and Aerospace, CMD Zen Technology Limited

Decoding China's Aviation Industry - Comparative Narrative with India Wg Cdr **V Nigam**, Centre for Air Power Studies

1145-1230 **Session IV: Defence Procurement Procedure & Offsets**

**Chairman** : Air Marshal **NV Tyagi** PVSM AVSM VM VSM (retd)  
Former Deputy Chief of the Air Staff





# Centre for Air Power Studies (CAPS)

Defence Procurement Procedure - Air Marshal **NV Tyagi** PVSM AVSM VM VSM (retd),  
and Offsets Former Deputy Chief of the Air Staff

1230-1300 **Closing Session**

Closing **Keynote Address:** Air Marshal **VM Khanna** AVSM VSM  
Director General (Aircraft), Air HQ

Final Comments Air Marshal **Vinod Patney** SYSM PVSM AVSM  
VrC (retd)

Vote of Thanks: Mr **Gurupal Singh**, Principal Advisor, CII

1300 Lunch

