

PROCEEDINGS OF WEBINAR : **UAS INDIA 2020 CIVIL AND MILITARY**

BY

BRIG RAJAT UPRETI, SENIOR FELLOW CENJOWS

Introduction

1. CENJOWS and Indian Military Review jointly conducted a webinar titled **UAS India 2020: Civil and Military**. The webinar was conducted on 26 and 27 Sep 2020. The web exhibition of products was done on 28 & 29 Sep 20.

UAS WEBINAR 26 SEP 2020 : MILITARY UAVs

SESSION 1 - INAUGURAL SESSION

Welcome Address

2. Lt Gen Vinod Bhatia, PVSM, AVSM, SM (Retd), Director of CENJOWS commenced the proceedings with the welcome address. He welcomed all the delegates and the speakers to the webinar and highlighted the major disruptions seen in the current times involving the situation along the Indo-China border as also the COVID 19 pandemic. He highlighted the need for the Armed forces to do more with less in view of the state of economy and the significance of the UAS in being a viable low cost force multiplier for the forces. He explained that the use of UAS would significantly change the nature of future wars by opening new domains which reduce the asymmetry as it offers economical and potent option for action at all levels of war. The Chinese have moved ahead in this domain and there is a need for India to expand its use and manufacture of UAS for which the Industry and the forces must work in unison. He reiterated the importance of UAS systems in times to come and explained the aim of the webinar which was to bring all users on a common platform for discussing the use of UAS in the Indian context and come out with an action plan on the way ahead.

Inaugural Address

3. Air Marshall Rajeev Sachdeva, AVSM, Dy Chief of Integrated Defence Staff (PP&FD) gave the inaugural address wherein he gave an overview of the multiple domains where UAS can be used by the armed forces and further highlighted that the use of this technology is only restricted by our imagination. He dilated on the innovative technologies being developed in this field by countries like USA, China, Israel etc and the multifarious roles of the UAS and their immense application in the civil fields as well. He also discussed the advances in Indian being undertaken by DRDO and the other private players as also the DPSUs. The need for a good regulatory framework and the necessity of control and regulation on flying of the drones in view of the security hazards posed was explained and the dangers posed by non state actors and rogue agencies highlighted. He concluded by stating that the UAS will be an inseparable part of future wars which may evolve to pilotless aircrafts as demonstrated by USA.

Keynote Address

4. Lt Gen Sanjay Verma, AVSM, VSM**, DG Weapons & Equipment, Army HQ gave the Keynote address and described the historical background of the UAS starting from the need to look over the hill as explained by Sanjay to Dhritrashtra in the Mahabharat. He emphasised the unpredictable nature of the geo-strategic environment as seen in the present times with the Chinese threat and COVID pandemic being the main focus, however these threats change and we need to evolve capabilities and systems which are responsive and can cope with these challenges. He highlighted the need to procure systems which will allow flexibility like the UAS as it has multiple uses in various domains both in military and civil fields. He highlighted the utilisation of drones in all domains of wars especially at the tac and operational level and described how the boundaries of battlefield have changed with the changing nature of wars. He gave an overview on the requirement of UAS in the Indian Armed forces and highlighted the change in mindset in the MoD to carry out timely procurement especially in the current paradigm of Indo-China tensions. He exhorted the Industry to come up with indigenous solutions especially in view of the thrust towards Atmanirbhar Bharat.

Theme Address

5. Maj Gen AK Suri, Offg DG Army Aviation gave the Theme address in which he highlighted the different types of UAVs in the market today, their applicability in various scenarios and the strides being taken in this field in India. He also stated that the use of UAS in the army is now under the aegis of the Army Aviation. He emphasised on the critical nature of tasks being performed by the UAS and the need to recognise the importance of the man behind the machine as these systems are becoming complex with increasing weaponisation of the platform, long ranges and endurance. The Army aviation will thus use the nomenclature of RPAs which highlights the aspect of piloting the UAS. He further explained the current capabilities of the UAS in service and the desired ones in the future. He asked the Industry to come up with solutions which will meet the future needs of the forces.

Industry Perspective

6. Col KV Kuber, Director, (Defence and Aerospace) Ernst and Young gave the industry perspective on the UAS. He stated that the global UAV market has exploded with expectations of more than 10% growth in CAGR and India will be a key player in this. He gave an overview of the technological evolution in the UAS highlighting the importance of testing standards like the ASTO standards and the need to make equipment which is modern and meets all the required standards. He also gave an insight into the requirement of UAS in the Indian Defence Forces and the capability of the industry, DPSUs and DRDO to achieve the same. He also gave an overview of the various procurement programmes on UAS, the new trends in various UAS systems and the need for indigenous production of these systems.

SESSION -2 : EMERGING TECHNOLOGIES AND ROLES OF THE UAV'S

7. This session was chaired by Air Cmde PK Vohra, AVSM, VM, Air Cmde O&S, Air Ops Branch, Air HQ. He was assisted by representatives from the industry as the co-panellists. He gave an overview of the evolution of the UAS with a historical perspective and vast potential of their use with the exploitation of AI, IOT, Stealth technology, swarm technology and hypersonic drones in times to come.

First Speaker

8. Mr Kushagra Agrawal, VP Roter Precision Instruments Pvt Ltd gave an overview of manufacturing of the Roter Group of companies with special reference to their collaborations with quantum systems for producing state of art drones, especially in the new and emerging technologies.

Second Speaker

9. Sqn Ldr VS Srinivasan from TATA Advanced System spoke on the various types of UAS being developed and their use both in military and civil fields. He highlighted that the Indian Industry is at the development stage of UAS and giant strides have to be taken to match up with the leaders. He also highlighted the development of various UAS by TASL. He spoke about the emphasis being given to Indigenous design and development and the multiple fields where the UAVs can be employed.

Third Speaker

10. Mr Ravi Hazarika, Sales Director PBS India Ltd gave an insight on the products and business model of the company. He highlighted the design and development of engines for UAS being undertaken by their company.

SESSION -3 : UAV CAPABILITIES AND REQUIREMENTS

11. This session was chaired by Maj Gen KV Jauhar, ADG, Army Design Bureau, Army HQ. He was assisted by representatives from the Services as the co-panellists.

First Speaker

12. Gp Capt Piyush Dhawan, Gp Capt Offensive Ops, Air HQ spoke on the Indian Air Forces requirement of UAS. He gave an insight on the use of UAVs by the IAF, the need to induct modern technologies like swarm tech, increased protection, reduce sensor to shooter time, greater ranges etc. He also gave an overview of the current holding and the future requirements with the payloads and other capabilities desired.

Second Speaker

13. Lt Col George CV Kalathoor, GSO1 RPAs, Army Aviation Directorate gave an overview of the requirements of the UAS in the Army, the future technologies desired and the anti UAV measures being thought of to deny enemies UAVs from achieving their aim. He also spoke on the need of interoperability of the three services in this important area.

Third Speaker

14. Cdr Raul Verma, Cdr (AW) RPAs, ACNS (Air), Naval HQ gave an insight on Drone operations across Maritime domain, its utility and its impact on Naval operations. He highlighted the strategic importance of the IOR and the use of UAS to increase the reach of the Indian Navy in this area. The aspects of use of technology to overcome challenges of the maritime domain were also highlighted.

SESSION -4 : INNOVATIONS AND COUNTER UAVs

15. This session was chaired by Lt Gen AP Singh, AVSM, DG Army Air Defence, Army HQ. He was assisted by representatives from the Services as the co-panelists. He gave an insight on the humungous growth of the UAS and the challenges posed by these in the Air Defence domain including the hinterland and other strategic assets. The need for counter UAC measures and synergy amongst all stake holders is imperative.

First Speaker

16. Col S Rajeev, Col Training army AD Dte, Army HQ spoke on Counter UAV technologies. He highlighted the Air Defence perspective and gave an overview of the AD Battle which is time critical and technology intensive. He gave an insight on the challenges of UAV engagement, current means for the same and the need of developing low cost new technologies for effective engagement like High Power microwave, Laser, guns and other soft kill mechanism like jammers etc. The Indian industry must produce these along with the UAS also as the technologies are linked and common.

Second Speaker

17. Wing Cdr G Srinivas Prasad, Ops IV, Air HQ spoke on the IAFs search for innovative ideas and highlighted the use of UAVs in remote and far flung areas in various parts of the country. He also gave insights on requirements of the IAF in this area and their support to innovation and indigenous technology.

Third Speaker

18. Maj Gen G Shankarnarayanan (Retd) gave an insight on the wide spectrum of UAV ops and their limitless applicability in contactless warfare. The use of armed drones have enlarged the envelop of warfare and will further improve the quality of payload and increase ranges. This will be the future of UAS.

UAS WEBINAR 27 SEP 2020 : CIVIL UAVs

SESSION 5 : INAUGURAL SESSION

Welcome Address

19. Lt Gen Vinod Bhatia, PVSM, AVSM, SM (Retd), Director of CENJOWS welcomed the delegates once again. He highlighted the tense situation on the Indo-China border and emphasised on the need to be self sufficient in our requirements as highlighted in the Atma Nirbhar Bharat initiative. He further stated that the proliferation of Chinese hardware and software in the world and especially in India is a security risk which must be countered by using indigenous technology. He appreciated the informative discussions of the previous day and encouraged the participants to continue to discuss and highlight the way ahead for the Industry especially the civil applications which were on the agenda for the day. He also welcomed Dr VK Saraswat, Member Niti Ayog and thanked him for his continued support and guidance.

Inaugural Address

20. Mr Amber Dubey, Joint Secretary, Ministry of Civil Aviation gave the inaugural address and highlighted the tremendous potential of the drone industry especially during these challenging times as these can be used for numerous purposes enabling non contact transactions. He further highlighted the initiatives taken by the ministry in supporting the indigenous industry in achieving their potential and reducing the import of drones and their parts especially from China. He informed that the draft UAS 2020 guidelines have been formulated after detailed interaction with all stake holders and should be promulgated soon after due vetting by the Law ministry. He explained the challenges of security and the need to create an enabling framework which allows maximum exploitation of the UAS while ensuring safety and security of the important establishments especially in view of the security hazards posed by rogue agencies. He also gave an overview of the utilisation of drones in day to day governance and other activities like land record digitisation, law and order, disaster relief, agriculture, railways etc. He assured the gathering that a number of actions are being taken in earnest to support, encourage and develop the industry and the ministry is seized with the challenges and is fast resolving them.

Keynote Address

21. Dr VK Saraswat gave the keynote address and highlighted the multifarious utility of the UAVs which is fuelling their impressive growth, both abroad and within the country. He highlighted the application of UAVs in all areas of activity enabling reduction in the human involvement by use of high end technology. He gave an overview of the emerging technologies like AI, IOT, improved performance and reduced cost, increasing precision, accuracy and quality in payloads, sensors and navigation. He also highlighted the future needs of UAS in the country, the regulatory environment and actions being taken to resolve all issues. He encouraged the industry to take up the challenge for being self sufficient in UAS needs aligned with the Atma Nirbhar Bharat policy.

Special Address

22. Lt Gen Girish Kumar (Retd), DG Survey of India gave the special address wherein he gave an overview of the steps taken to upload digital maps on a common platform and enable digitisation of land records for which drones were used and were found to be very cost effective. He highlighted that the Industry has been guided on the requirements and they are putting in the desired effort in making indigenous products. There is a need for creating an eco system in this area which will constitute manufacture of parts & spares, completed products and payloads. The payloads will be critical in times to come and accuracy and miniaturisation will be way forward. He gave an overview of the govt digitisation schemes like SWAMITVA & ABAD and informed that there are multiple areas of applications and drones will be the mode for executing these.

SESSION -6 : SMALL, MINI AND MICRO UAVs FOR DEFENCE AND CIVIL USES

23. This session was chaired by Maj Gen (Dr) GD Bakshi (Retd) SM, VSM. He was assisted by representatives from the Govt and PSUs as the co-panelists.

First Speaker

24. Mr Sajid Mukhtar, Chairman and CMD Roter Group of Companies gave an overview of the company and highlighted the advances done in mapping over the years and the use of modern techniques like Drones for professional survey and mapping which is the way forward.

Second Speaker

25. Mr Akkiraju Chandrashekhar, GM (IT), NHIDC gave an overview of the development of infrastructure being carried out by NHIDC in the North East India, Uttarakhand, J&K & Andaman & Nicobar Islands as well as other strategic and difficult areas. He explained that drones are the major platforms in the infrastructure development in these areas as they are cost effective, allow access to remote areas, are flexible in use and have multiple applications which are increasingly becoming accurate.

Third Speaker

26. Mr BP Awasthi, Executive Director (Track), Railway Board spoke on the use of UAS in various fields in the railways which include areas like track laying, reece, survey, construction work and project monitoring. The use of drones in asset life management cycle is increasing as the technologies and payloads improve thus giving a great opportunity to the UAS industry.

Fourth Speaker

27. Mr Sunil Agarwal, ED (Asset Management), Power Grid Corporation gave an overview of Power Grid Corporation and highlighted the use of drones in the power sector. He also highlighted certain regulatory aspects and technologies required for the enabling use of drones in this area.

Fifth Speaker

28. Mr Rahul Kapoor, Director Smart Cities, Ministry of Housing and Urban affairs gave an overview of the Smart Cities Mission which will enable the creation of culture of data and technology in various fields. The urban population of 24% contributes 75% to the GDP and as the efficiency rises it will impact the economy of the nation positively. He highlighted the numerous challenges in this field and the use of technology including drones to overcome these.

SESSION -7 : UAVs FOR LAW AND ORDER AND SECURITY

29. This session was chaired by Brig Vinod Nambiar, SM, DDG Army Aviation Directorate. He was assisted by representatives from the CAPFs as the co-panelists. The Chairman highlighted the current security paradigm and the challenges of UAV operations in this milieu.

First Speaker

30. Mr. HS Bains, DIG (Equipment), CRPF HQ spoke about the CRPF experience in the use of UAVs especially in the Counter terrorism and anti naxalite operations where these are being used extensively. He highlighted the various categories of UAVs being used by CRPF for both, offensive and defensive operations and described the tremendous success achieved by the CRPF by using drones and advanced payloads.

Second Speaker

31. Mr. Ajay Dahiya, Sr. Commandant, IGI Airport, CISF spoke on effect of drone menace at airports. He highlighted the extensive disruption to aviation being caused by drones. The extensive growth of drones and an uncertain regulatory environment is posing a serious security hazard for

airport operations. He highlighted the need to put in place improved regulatory mechanism and using counter measures against unknown and rogue drones in order to ensure security.

Third Speaker

32. Mr SK Singh, DCP Communications Delhi Police gave an overview on the use of UAS in maintenance of law and order. He described the challenges of VIP security especially in Delhi and the tremendous use of drones for this purpose. He requested the Industry to come up with innovative solutions to meet the needs of law enforcement agencies.

SESSION -8 : DRONES FOR DISASTER MITIGATION AND RELIEF

33. This session was chaired by Brig Vinod Nambiar, SM, DDG Army Aviation Directorate. He was assisted by representatives from the Government departments as the co-panelists.

First Speaker

34. Grid Kuldeep Singh, Retd, Senior Consultant NDMA gave insight on the use of UAVs in disaster mitigation. He highlighted the stages of disaster management and the application of UAVs in this area in order to provide relief as has been the case in many cases in the recent past. He highlighted that the use of UAS in this arena will only increase thus giving a great opportunity to the industry.

Second Speaker

35. Dr K Alagusundaram, DDG (Agriculture Engineering) ICAR gave a detailed presentation on the use of Drones for agriculture and pest control which is both cost effective and saves labour requirements.

Third Speaker

36. Smt Rama Devi Lanka, OSD ITE&C Dept, Govt of Telangana gave an overview of the medicine from the Sky Initiative and the tremendous use of drones in the future success of such projects.

Closing Address

37. Maj Gen Ravi Arora gave the vote of thanks and thanked all the delegates and participants for their presence on the two days and invigorating discussions carried out. He informed that virtual exhibition by the participants would continue on the next two days to enable better understanding of the products.