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## RUSTOM-II FIRST FLIGHT SHOULD SPUR FASTER FINALISATION OF DRONE REGULATIONS

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India's indigenously developed Tactical Airborne Platform for Surveillance-Beyond Horizon-201 (TAPAS-BH 201), Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle (UAV) took off for its first test flight on November 16, 2016, however, India's Unmanned Aircraft (UA) regulations are still awaited. The long awaited first test flight of TAPAS 201, a technology demonstrator of Rustom-II MALE UAV took place from newly developed Chitradurga Aeronautical Test Range (ATR), which is located 250 Km from Bangalore.<sup>1</sup> ATR is the newly developed flight-test range of Defence Research and Development Organisation (DRDO), which has been established for testing of UAVs and manned aircraft. TAPAS 201 is designed and developed by Aeronautical Development Establishment (ADE), a DRDO laboratory, which has also been involved in the development of Nishant, Panchi and Rustom-I UAVs. Rustom-II is one of the first UAVs, which

was simultaneously tested by Centre for Military Airworthiness & Certification (CEMILAC) and Director General of Aeronautical Quality Assurance (DGAQA), which are designated organisations in India for certification of military aircraft in India.<sup>2</sup>

The successful flight of Rustom-II is a commendable achievement of India's Public Sector R&D organization, DRDO. The development of ATR would provide enabling environment for testing of manned and unmanned aircraft within the country. However, India's private sector entities and individual innovators involved in the design, development and use of UAVs do not find an enabling environment within India. There have been instances in the past, where private sector entities and individuals had to migrate abroad for an enabling environment or sell their innovations or join hands with leading aviation giants or even change their business. India has



been facing brain drain for decades in the high technology and aviation sector. Leading aviation giants and countries with enabling environment have benefited from this migration. Similar trend appears to be emerging in the civil unmanned aviation sector despite the ongoing Make in India campaign. India's private sector involved in the development and use of UAVs is also going through a difficult phase due to the ban. The indigenous UAV designers and individual innovators also face challenges in getting certification for innovative designs in the absence of independent agency to certify their products.

India had earlier banned the use of UAVs for civil applications on October 07, 2014.<sup>3</sup> Thereafter, it came up with draft guidelines for obtaining Unique Identification Number (UIN) & Operation of Civil Unmanned Aircraft Systems (UAS) on April 21, 2016, however, operations of UAVs for civil applications continues to remain banned.<sup>4</sup> It has been more than two years since the ban was imposed and the final regulations for operations of UAVs by civil users are still awaited. The apprehension about the use of UAVs for undertaking terror strikes has been the major concern. Similar apprehensions exist in the US, Europe, China, Pakistan and other parts of the world. However, they have not banned them and rather gone on to formulate regulations and enabling policies with necessary security measures to encourage participation of private

industry in design, development and use of UAVs by the civil industry. The US Congress despite 9/11 incident, had passed the "Vision 100-Century of Aviation Reauthorisation Act" on December 12, 2003 and "FAA Modernisation and Reform Act of 2012", which proposed integration of UAVs in the National Airspace. It formulated a policy on July 30, 2013<sup>5</sup>, which allowed operations of small UAS under Section 333 and had issued 5309 licenses between July 2013 and May 2016.<sup>6</sup> Its final small UAS Operations Rule (Part 107) came into effect on August 29, 2016 and number of small UAVs is likely to increase manifolds in the US.<sup>7</sup>

The European Union (EU) too has been encouraging design, development and use of UAVs by civil users. It formulated Regulation (EC) No 216/2008, which mandates regulation of civil Unmanned Aircraft.<sup>8</sup> The EU came up with a Road map for integration of civil RPAS into the European aviation system in June 2013.<sup>9</sup> It came up with "Riga Declaration" on March 06, 2015, which committed to allow businesses to provide drone services in entire Europe from 2016 onwards.<sup>10</sup> China been allowed civil UAV operators and regularized their operations by publishing interim Provisions on Light and Small Unmanned Aircraft Operations in December 2015.<sup>11</sup> Pakistan too has provided enabling environment to private entrepreneurs to design, develop and use UAVs for civil applications with necessary security precautions. Integrated Dynamics, a Karachi based, civil UAV

manufacturing company has been selling mini UAVs to domestic as well as foreign clients<sup>12</sup> subject to clearance by the Pakistan government.

The civil industry had shown a promising trend in the Indigenisation of UAVs prior to the ban. The absence of enabling regulatory framework has become a major hurdle in the development of UAVs by the private sector as well as for their use by the civil industry within the country. The security concerns need to be addressed by formulating strict monitoring mechanisms to facilitate indigenous design, development as well as to prevent their misuse by terrorists. Indian government's "Make in India" policy in the unmanned aviation sector will bring much better results if UAV regulations are finalised early to facilitate development of UAVs by the private sector as well as encourage their use for civil applications. Therefore, UAV regulations need to take off at the earliest if India has to develop indigenous capability in the unmanned domain.

*(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])*

## Notes

<sup>1</sup> Successful Maiden Flight of Rustom-II, November 16, 2016, [http://www.drdo.gov.in/drdo/English/dpi/press\\_release/rustamII\\_161116.pdf](http://www.drdo.gov.in/drdo/English/dpi/press_release/rustamII_161116.pdf), accessed on December 2, 2016.

<sup>2</sup> Successful Maiden Flight of Rustom-II, November 16, 2016, [http://www.drdo.gov.in/drdo/English/dpi/press\\_release/rustamII\\_161116.pdf](http://www.drdo.gov.in/drdo/English/dpi/press_release/rustamII_161116.pdf), accessed on December 2, 2016.

<sup>3</sup> Use of Unmanned Aerial Vehicle (UAV)/ Unmanned Aircraft Systems (UAS) for Civil Applications, October 07, 2014, [http://dgca.nic.in/public\\_notice/PN\\_UAS.pdf](http://dgca.nic.in/public_notice/PN_UAS.pdf), accessed on December 02, 2016.

<sup>4</sup> Guidelines for obtaining Unique Identification Number (UIN) & Operation of Civil Unmanned Aircraft System (UAS), April 21, 2016, [http://www.dgca.nic.in/misc/draft%20circular/AT\\_Circular%20-%20Civil\\_UAS\(Draft%20April%202016\).pdf](http://www.dgca.nic.in/misc/draft%20circular/AT_Circular%20-%20Civil_UAS(Draft%20April%202016).pdf), accessed on December 02, 2016.

<sup>5</sup> Unmanned Aircraft Systems (UAS) Operational Approval, July 30, 2013, [http://www.faa.gov/documentlibrary/media/notice/n\\_8900.227.pdf](http://www.faa.gov/documentlibrary/media/notice/n_8900.227.pdf), accessed on July 09, 2016.

<sup>6</sup> [https://www.faa.gov/uas/legislative\\_programs/section\\_33/333\\_authorizations/](https://www.faa.gov/uas/legislative_programs/section_33/333_authorizations/), accessed on June 14, 2016.

<sup>7</sup> Becoming a Pilot, [https://www.faa.gov/uas/getting\\_started/fly\\_for\\_work\\_business/becoming\\_a\\_pilot/](https://www.faa.gov/uas/getting_started/fly_for_work_business/becoming_a_pilot/), accessed on September 07, 2016.

<sup>8</sup> Regulation (Ec) No 216/2008 Of The European Parliament And Of The Council dated February 20, 2008, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02008R0216-20130129>, accessed on June 10, 2016.

<sup>9</sup> [http://www.sesarju.eu/sites/default/files/documents/news/European-RPAS-Roadmap\\_130620.pdf?issuysl=ignore](http://www.sesarju.eu/sites/default/files/documents/news/European-RPAS-Roadmap_130620.pdf?issuysl=ignore), accessed on June 10, 2016.

<sup>10</sup> "Riga Declaration" on Remotely Piloted Aircraft (Drones) "Framing the Future of Aviation" on March 06, 2015, <http://ec.europa.eu/transport/modes/air/news/doc/2015-03-06-drones/2015-03-06-riga-declaration-drones.pdf>, accessed on June 10, 2016.

<sup>11</sup> Regulations of Drones: People's Republic of China, <https://www.loc.gov/law/help/regulation-of-drones/china.php>, accessed on December 04, 2016

<sup>12</sup> Integrated Dynamics, <http://www.idaerospace.com/>, accessed on December 02, 2016.

