

Military Drones in India

New Frontier of Warfare

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A new phase of drone warfare has come, involving several actors and the usage of Unmanned Aerial Vehicles (UAVs) has progressed beyond counter-terrorism and counter-insurgency operations to full-scale conventional battles. Moreover, as technology advances and is linked to artificial intelligence, a new third era of drone warfare is on the horizon. It is therefore pertinent to analyse the global proliferation of military drones, the indigenisation of military drones in India and to examine where India stands in the context of military drones.

GLOBAL PROLIFERATION OF MILITARY DRONES

The usage of drones is expanding quickly. It requires advanced technology and access to the precise armament that can be discharged from an autonomous vehicle to build drones, especially armed drones. Armed drones are becoming a vital component of modern warfare, and governments are more inclined towards investing time and money to acquire or manufacture them. The military technology of the 21st century has been epitomised by drones, since they don't put pilots or ground troops in danger of being killed or kidnapped.

Drones have become a prominent feature of warfare, especially the proliferation of military drones acquiring significant positions in

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exporting and importing drone technology among several countries. Dan Gettinger, in his work, stated that ‘Of the 101 countries, 95 are believed to have an active inventory’.¹ For instance, in terms of UAVs or drone capabilities, the United States, Russia, China and India have Class I and Class II categories of UAVs. China also has Caihong 5 (CH-5) or Rainbow 5, which comes in the Class III category of UAVs. In addition, the US has also developed Class III UAVs like the Air Force’s RQ-4 Global Hawk and the Air Force’s MQ-9 Reaper. Class I UAVs, which are less than 150 kgs, are used for surveillance missions and do not carry weapons. Class II UAVs, between 150 kg to 600 kg, are of a ‘tactical’ nature and can be employed for carrying multiple payloads. In addition, they are largely unarmed but some can be loaded with lightweight ordinance. Class III UAVs, which are more than 600 kg in weight, are considered to have better endurance in terms of surveillance and payloads, and can carry multiple weapons. In 2010, about 60 countries had military drones; the number increased to 90 in 2019.² There are many countries with an active military drone inventory (see Figure 1).

The increase in the number of drones has resulted in more incidents being carried out with the help of drones or UAVs (See Table 1). More and more bombs, missiles and other armaments are being added to drones. While air-to-ground anti-tank missiles like the ‘Chinese Blue Arrow-7’ and the ‘US Hellfire’ are still widely used, guided bombs of various sizes,



Figure 1 Countries with an Active Military Drone Inventory

Source: Dan Gettinger, *The Drone Databook*, p. viii, available at <https://dronecenter.bard.edu/files/2019/10/CSD-Drone-Databook-Web.pdf>, accessed on 15 July 2022.

air-to-air missiles, and rockets have also become popular.³ A new class of portable, reusable armed drones, such as the ‘Chinese Blowfish A3’ and the ‘Turkish Songar’, may carry different mortar, grenade and light machine gun payloads.⁴ The creation and commercialisation of drone-specific guided munitions are being driven by the increase in strike-capable drones.

Table I Major International Incidents Involving Drones

<i>Date</i>	<i>Incident</i>
April 2008	Russia downs a Georgian Hermes 450 in the lead-up to war
December 2011	Iran says it downed a US RQ-170 on a spy mission from Afghanistan
October 2015	Turkey says it downed a Russian drone near Syria
June 2017	A North Korean drone crashes in South Korea
June 2017	Pakistan downs an Iranian UAV in Balochistan
May, June 2017	US fighters down two Iranian Shahed-129s in Syria
December 2017	The US accuses Iran of supplying drones to Houthi rebels in Syria
February 2018	Israel downs Iranian drone in Golan Heights
June 2019	Iran downs a US Global Hawk in the Gulf of Oman
July 2019	The US downs an Iranian drone in the Persian Gulf

Source: Dan Gettinger, *The Drone Databook*, p. xiv, available at <https://dronecenter.bard.edu/files/2019/10/CSD-Drone-Databook-Web.pdf>, accessed on 15 July 2022.

MILITARY DRONES IN INDIA

Some countries now have the opportunity to purchase drones independently of global suppliers because of the falling cost of drone componentry and government initiatives to support indigenous manufacturing. India is getting into the race for indigenisation of UAVs or drones, which is fast becoming a priority in this technology-driven world. India is also working on several drone projects, which are mentioned in Table 2. Some are prototypes like DRDO Imperial Eagle, Aeronautical Development Establishment Laboratory (ADE) and CSIR’s National Aerospace Laboratories (ADE/NAL) Golden Hawk, National Aerospace Laboratory (NAL) Slybird and NAL/ADE Pushpak, etc., while a few are in the development phase like HAL CATS. It is worth noting that some drones come in the ‘target drones’ category like DRDO Abhyas and DRDO Lakshya.

Table 2 Drones and their Development Authority

DRDO Abhyas	Aeronautical Development Establishment (ADE) laboratory by Defence Research and Development Organisation (DRDO)
DRDO Ghatak	DRDO's ADE laboratory
HAL CATS	HAL and a private Indian firm (Newspace R&D)
Rustom- 1	DRDO
TAPAS-BH-201	DRDO's ADE laboratory
DRDO Imperial Eagle	DRDO's ADE and CSIR's National Aerospace Laboratory
DRDO Kapothaka	DRDO
DRDO Lakshya	DRDO's ADE laboratory
DRDO Netra	The Research and Development Establishment (R&DE) and IdeaForge, a Mumbai-based private enterprise
DRDO Nishant	DRDO's ADE laboratory
NAL/ADE Golden Hawk	DRDO's ADE and the CSIR's NAL
NAL/ADE Pushpak	DRDO's ADE and CSIR's NAL
NAL Slybird	NAL

Source: Compiled by the author from various sources.

It is important to note that none of the India-made drones are in service however, India is trying to import drone technology from various countries like the US and Israel. India had also attempted to acquire 'MQ-9B Predator' armed drones from the US. The deal has not been finalised yet; it is at an advanced stage though.⁵

Looking at the operation part of UAVs or drones, they have been often used by India to monitor its borders, particularly those with China and Pakistan. For instance, in December 2017 'an Indian Heron crashed on the Chinese side of the border near the Doklam Plateau, where India and China have competing for territorial claims.'⁶ China protested this 'air intrusion' after the incident. In response, 'Indian troops "immediately alerted their Chinese counterparts" about the crash of the UAV, which was on a regular training mission, in keeping with 'standard protocol' between the two countries.'⁷ Meanwhile, 'Indian Herons have been deployed to at least four bases in North East India—Tezpur Air Force Station in 2015, Bagdogra Air Force Station in 2017 (and possibly to this day), Chabua Air Force Station in 2018, and Kumbhirgram Air Force Station in 2019'.⁸ Moreover, 'Indian Searcher Mk IIs have been

deployed in Jaisalmer and Nal air bases along the border with Pakistan. In 2015, the Indian Navy dispatched a Heron and Searcher Mk II to Port Blair to monitor maritime traffic around the Andaman and Nicobar Islands.⁹

Drones have also been used by India in Jammu and Kashmir. According to the reports, the air force stations in Jammu and Awantipora are home to two Indian Air Force UAV units. Moreover, 'In the early 2010s, Indian Air Force personnel and Herons participated in National Technological Research Organization operations against Maoist groups in central India'.¹⁰

The use of military drones in India highlights the significance of having robust drone technology and the need for a policy in the context of military drones.

WHERE DOES INDIA STAND IN THE CONTEXT OF MILITARY DRONES?

UAVs or drones have acquired a significant space in modern warfare due to their usefulness in various military operations including surveillance and target killings and combating terrorism. India's quest for drones started in 1990 with DRDO's project to build Nishant Unmanned Aerial Vehicle. Although four Nishant UAVs were built, however the Indian Army was not satisfied with this project. Moreover, the wheeled version 'Panchi' was made from Nishant but it was not inducted. India's UAV requirements are mostly dependent on imports from Israel. Indian Military has acquired Heron I, the Searcher Mk II, and the Harop loitering munition from Israel. In 2021, India procured a new set of UAVs including the latest versions of Heron for surveillance purposes.

In recent years, India has witnessed an increased use of drones, which are helpful for the military in reconnaissance, imaging, damage assessment, payload delivery, etc. Given India's geopolitical position, its rivalry with Pakistan, the prevalence of terrorism in the region, and stand-offs with China, a suitable policy on drones is required.¹¹ Moreover, robust counter-drone policies are needed, considering the increasing number of incidents along the international border (see Tables 3 and 4). The international border along Punjab continues to be the most affected part with the innumerable cases of drone sightings, intruder captures, and drug and weapon recoveries reported in this area over the past year. 'Around 67 of the 100 drone sightings cases reported by the Border Security Force (BSF) in 2021 occurred in Punjab Frontier, followed by 24 in Jammu Frontier.'¹²

Table 3 Drone Intrusions in India (2022)

<i>Date</i>	<i>Location</i>	<i>Sector</i>	<i>Type</i>
2 August 2022	Jammu and Kashmir, India	Borders	Smuggling
27 July 2022	Ajnala, India	Borders	Smuggling
1 July 2022	Ferozepur, India	Borders	Smuggling
29 May 2022	Jammu and Kashmir, India	Borders	Attack
28 May 2022	Jammu and Kashmir, India	Borders	Smuggling
9 May 2022	Amritsar, India	Borders	Smuggling
29 April 2022	Dhanoe Kalan, India	Borders	Smuggling
12 April 2022	Havelian, India	Borders	Smuggling
19 March 2022	Purbapara, India	Borders	Smuggling
12 March 2022	India	Borders	Smuggling
7 March 2022	Ferozepur, Punjab, India	Borders	Smuggling
24 February 2022	Balakote, India	Borders	Smuggling
24 February 2022	Jammu and Kashmir, India	Borders	Attack
9 February 2022	Panjgrain, India	Borders	Smuggling
6 February 2022	Gurdaspur, India	Borders	Smuggling
18 January 2022	Amritsar, India	Borders	Smuggling
3 January 2022	New Delhi, India	Borders	Smuggling

Source: Drone Attack and Incident Tracker (D-fend solutions).

Most of the incidents happened for smuggling purpose, which is a major bugbear along the India–Pakistan border. Consequently, the use of drones for smuggling and surveillance purposes is the easiest way to hamper any section of the population in any country and Pakistan found this a very useful way to ‘bleed India with a thousand cuts’. Since 2019, the Indian security forces have documented around 250 drone sightings on the international border along the Pakistani side.¹³ This emphasises the need for a robust drone policy in India.

As regard the drone policy framework, in March 2021, the Ministry of Civil Aviation (MoCA) initiated The Drone Rules, 2021. They were later replaced with liberalised drone rules in 2021.¹⁴ Due to its historical strengths in innovation, information technology, cost-effective engineering, and high local demand, India has the ability to become a worldwide drone hub by 2030. Moreover, Indian start-ups are anticipated to contribute significantly to the indigenisation of drones. Numerous Indian start-ups, such as Botlab Dynamics and Alpha Design, are creating innovative native solutions powered by cutting-

Table 4 Drone Intrusions in India (2021)

<i>Date</i>	<i>Location</i>	<i>Sector</i>	<i>Type</i>
26 December 2021	Firozpur, India	Borders	Smuggling
17 December 2021	Punjab, India	Borders	Smuggling
16 December 2021	Amritsar, India	Borders	Smuggling
11 December 2021	Kathua, India	Borders	Smuggling
6 December 2021	Amritsar, India	Borders	Smuggling
1 December 2021	Amritsar, India	Borders	Smuggling
6 November 2021	Punjab, India	Borders	Smuggling
29 October 2021	Punjab, India	Borders	Smuggling
20 October 2021	Tarn Taran, India	Borders	Smuggling
19 October 2021	Jammu & Kashmir, India	National Security and Homeland Security	Smuggling
20 July 2021	New Delhi, India	National Security and Homeland Security	Attack
18 March 2021	Punjab, India	Borders	Smuggling
18 January 2021	Vijaypur, India	Borders	Smuggling

Source: Drone Attack and Incident Tracker (D-fend solutions).

edge technology like edge computing and artificial intelligence.¹⁵ India has also developed approaches to detect these aerial systems using various technologies such as radar, video/electro-optical (EO), audio acoustic, etc.

THE WAY AHEAD

India has prohibited import of drones to boost indigenous companies for production and investment in this industry. For instance, the Indian Directorate General of Foreign Trade (Ministry of Commerce) notified that the ‘import policy of drones in CBU/CKD/SKD form under HS Code 8806 is “Prohibited” with exceptions provided for Research & Development, Defence, and Security purposes. Import of drone components shall be “Free”. This shall come into force with immediate effect’.¹⁶ Although this regulation has a limited impact on military purchases, it is mandatory that drones with intelligence, surveillance, and reconnaissance (ISR) functionality must be purchased from domestic sources. The Indian army in collaboration with the Drone Federation of India has given a push for indigenous production of drones through the project ‘Him Drone-a-thon’.¹⁷

It is in line with the 'Make in India' projects in defence and manufacturing to be self-reliant in this technology. The Government of India has identified drone technology and its applications as a sunrise sector. India is placing more emphasis on the indigenisation of drones, which is the need of the time in this contemporary world, and to promote it further, India has opted for a liberalised regulatory framework and manufacturing incentives.¹⁸

NOTES

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