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# DRONES IN ASYMMETRICAL WARFARE: LESSONS & IMPLICATIONS FOR PAKISTAN COUNTERTERRORISM STRATEGY

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# DRONES IN ASYMMETRIC WARFARE: LESSONS AND IMPLICATIONS FOR PAKISTAN'S COUNTERTERRORISM STRATEGY

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# Abstract

Since 9/11, Unmanned Aerial Vehicles (UAVs), or drones, have emerged as a pivotal technology in asymmetrical warfare owing to their affordability, accessibility, and tactical advantages. This qualitative study investigates the growing use of drones in asymmetric warfare and its impacts on Pakistan's counterterrorism strategy. Through various case studies, the research examines both the benefits and challenges drone technology offers to Pakistan which is grappling with well-equipped internal and external threats. Moreover, by exploring these case studies, the study offers lessons for Pakistan and emphasises the need for Pakistan to enhance its security apparatus by effectively leveraging drone technology in counterterrorism operations while simultaneously devising proactive strategies to mitigate threats posed by their use among non-state actors.

**Keywords:** Asymmetric warfare, Drones, UAVs, Counterterrorism, Pakistan, National Security, Non-state actors

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# 1. INTRODUCTION

Over the past two decades, the landscape of warfare has transformed, with the rise and proliferation of asymmetric conflicts where state and non-state actors with vastly different capabilities engage in violent confrontations. Be it the ongoing Russian-Ukraine War, or the ongoing war against terrorism by many countries, one can see the footprints of asymmetric war everywhere. In the said asymmetric conflicts, the warring parties, both the state and non-state actors, are using a wide range of the latest weaponry and tools, however, recently, UAVs, commonly known as drones, have emerged as a game-changer. Their affordability, manoeuvrability, and diverse applications have made it a preferred choice in asymmetric conflicts.

This paper studies the growing employment of drones in asymmetric conflicts, specifically focusing on the lessons and implications for Pakistan's counterterrorism strategy. By examining case studies of asymmetric conflict in various scenarios such as state vs state and state vs non-state actors, this paper explores the advantages and potential pitfalls associated with drone technology within asymmetric warfare for Pakistan, which is facing persistent internal threats from well-equipped terrorist organisations. The central research question guiding this study is twofold:

1. What key lessons can Pakistan draw from the expanding use of drones in asymmetric warfare, particularly concerning its counterterrorism efforts?

2. How does the growing utilisation of drones in asymmetric conflicts pose a challenge to Pakistan's national security?

To comprehensively address the research question, this study adopts a qualitative research methodology for which wide arrays of sources have been consulted. These sources include mainly scholarly books and articles published in reputable academic journals, magazines, and newspapers focusing on security studies, and drone technology. Furthermore, reports from reputable think tanks such as RAND have also been consulted, along with some documentary films and YouTube videos produced by credible news organisations.

As far as the significance of the study is concerned, this study holds significant relevance for Pakistan's counterterrorism strategy and its broader security landscape. For instance, by examining the experiences of other nations, both those employing drones in counterterrorism operations and those facing attacks from drone-wielding non-state actors, the study offers valuable lessons for Pakistan. This includes understanding the tactical advantages of drones for targeted strikes and intelligence gathering, alongside the ethical and legal considerations surrounding their use. Additionally, the study also discussed challenges associated with countering drone threats, highlighting the need for robust and proactive defence mechanisms and strategies.

Last but not least, the study follows thematic arrangement. It begins by explaining the evolution of drone technology, from its origins to its contemporary status as a disruptive force. The focus then shifts to the exploration of various case studies of

drone deployment within asymmetric conflicts. From these case studies, crucial lessons and recommendations emerge for Pakistan's counterterrorism strategy vis-a-vis drones.

# 2. EVOLUTION OF DRONE TECHNOLOGY

UAVs, or drones, are normally seen as a modern invention. For instance, just ten years ago, the idea of ordering a reliable flying camera online would seem more science fiction than science fact. This is especially true for easily accessible drones with payloads capable of producing thermal, multispectral, and LIDAR-based imagery. However, the readers might be surprised to learn that the origin of UAVs can be traced back to 1783.[1] Modern technology moves at a somewhat rapid pace which is why it is easy to forget the building blocks that brought the UAV industry to where it is today. An appreciation for the historical evolution that helped to give birth to the modern drone era is essential for understanding the contemporary relevance of drones and thus will be subsequently explored.

## 2.1 Early Beginnings: Drones as Aerial Target Practice

It was the need for effective pilot training in aerial combat that drove the first steps towards drone development. Just to put things in perspective, during World War I, crude towed gliders used to serve as target practice for aircraft, however, they lacked the necessary realistic scenario to simulate actual dogfight exercises. To address this challenge, the United Kingdom developed De Havilland DH.82B Queen Bee in 1935.

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[1] Dave Sloggett, *Drone Warfare: The Development of Unmanned Aerial Conflict* (Pen & Sword Aviation, 2014).

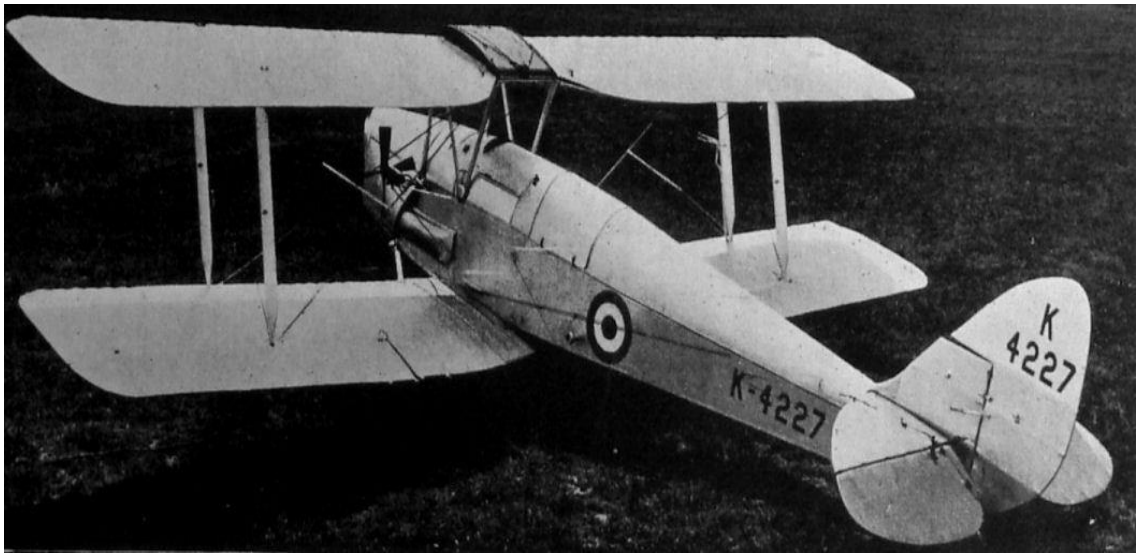


**FIGURE 1: DH.82B Queen Bee**

This low-cost, radio-controlled aircraft is widely recognised as the first modern drone and became the primary aerial target for the Royal Air Force in exercises simulating near-to-real air combat scenarios.

Inspired by a demonstration of the UK's Queen Bee, the United States under the supervision of Admiral William Harrison Standley of the United States launched its own UAV programme in 1936. The programme was led by Lieutenant Commander Delmar Fahrney who is also believed to coined the term "drone" for these aerial platforms.[2]

## 2.2 From Aerial Targets to Surveillance and Combat Role

After serving as targets for the aircraft, drones experienced a breakthrough in their role during the Cold War era. During the said period, many countries started to

[2] Steven J. Zaloga, *Unmanned Aerial Vehicles: Robotic Air Warfare 1917–2007*, Illustrated edition (Oxford ; New York: Osprey Publishing, 2008).

employ drones for surveillance, and combat roles.[3] The United States, for instance, during the Vietnam War, employed Ryan 147-J drones for surveillance. These early drones were repurposed from target practice models. They proved significant in gathering intelligence on enemy troop movements, identifying potential Viet Cong base camps, and monitoring supply lines. This information from UAV reconnaissance missions significantly enhanced battlefield situational awareness for American forces.[4]


**FIGURE 2: Ryan 147-J**

Similarly, during the 1973 Yom Kippur War Israel actively deployed Tadiran Mastiff and BQM -74 Chukar UAVs for surveillance which significantly enhanced situational awareness of Israel Defence Forces.

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[3] Zaloga.

[4] Richard M. Clark, 'Evolution of Uninhabited Combat Aerial Vehicles (UCAV)', Uninhabited Combat Aerial Vehicles (Air University Press, 2000), https://www.jstor.org/stable/resrep13976.7.


**FIGURE 3: Tadiran Mastiff**

**FIGURE 4: BQM-74 Chukar**

However, during the same war, Israel also employed drones for combat purposes making it the first time when the platform was employed in active combat. For instance, during the 1973 October War, to reduce the losses, the IAF's commander,

General Benyamin Peled, employed UAVs as a way of breaking through the Egyptian defences along the Suez Canal. His approach involved deploying UAVs such as Brunswick model 290P, as decoys, simulating the flight patterns of manned aircraft to trigger the activation of Egyptian radar systems. These UAVs were followed by Fighter bombers that were ready to strike once the defenders disclosed their locations by turning on their guns after defensive missiles were prematurely launched at false targets.[5]

Besides its employment in state vs state combat situations drones have also been increasingly employed by a state against non-state actors. The most classic example in this regard is the US. For instance, following the 9/11 attacks, the US extensively used modified Predator drones which carries Hellfire missiles along with Reaper, a specialized armed drone for counterterrorism operations, particularly in Afghanistan, Pakistan, Iraq, Libya, Syria, and Yemen.[6]

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[5] John F. Kreis, 'Unmanned Aircraft in Israeli Air Operations', *Air Power History* 37, no. 4 (1990): 46–50.

[6] Christine Sixta Rinehart, *Drones and Targeted Killing in the Middle East and Africa: An Appraisal of American Counterterrorism Policies* (Lexington Books, 2018).

**FIGURE 5: MQ-1 Predator**


**FIGURE 6: MQ-9 Reaper**

## 2.3 The Current Developments

Today, drones have acquired a range of roles both in military and civilian spheres.

### a. Drones in Military Sphere

There will be no exaggeration in asserting that today, Drones have revolutionised the military sphere by offering a versatile and cost-effective platform for various applications. Their ability to operate remotely, gather intelligence, and precisely conduct strikes has transformed modern warfare. Nowadays, drones are extensively employed in the military sphere for Intelligence, surveillance, and reconnaissance (ISR), targeted strikes, border security, logistics and supply, deception and distraction, and search and rescue. It is worth mentioning here that just a few days back, Turkey's high-altitude and long-endurance drone Bayraktar Akinci played a key role in locating the crash helicopter of late Iranian President Ebrahim Raisi.[7]

### b. Drones in the Civilian Sphere

Far beyond the traditional military roles normally associated with the platform, drones are increasingly used in civilian spheres as well. It has acquired a range of roles in the civilian sphere. For instance, nowadays, drones equipped with high-resolution cameras and LiDAR (Light Detection and Ranging) systems can efficiently map construction sites, monitor infrastructure health, and survey agricultural fields. This real-time data collection empowers businesses to optimise operations. Additionally, the

[7] Ezgin Akin, 'Turkey's Fastest Drone Plays Key Role Locating Iran Helicopter Crash Site', AI-Monitor, 20 May 2024, https://www.al-monitor.com/originals/2024/05/turkeys-fastest-drone-plays-key-role-locating-iran-helicopter-crash-site.

ability of drones to perform aerial photography and videography has revolutionised fields like filmmaking, real estate marketing, and event management. Their manoeuvrability allows for capturing breath-taking aerial perspectives that were previously unattainable.

This evolution of drone technology is an interesting story of innovation driven by both military and civilian needs. As technology continues to advance, it will be interesting to witness the next chapter in this on-going transformation and its impact on various spheres of human activity. For this paper, however, our focus will be narrowed to the specific application of drones within the military sphere, particularly their implications for asymmetric warfare, as explored in subsequent sections.

## 3. DRONES IN ASYMMETRIC WARFARE

Asymmetric warfare refers to a type of conflict where warring sides possess unequal military capabilities, resources, and strategies. While, there are multiple definitions of the term asymmetric warfare, for this paper the researcher has opted for the definition of RAND which defines it as “conflicts between nations or groups that have disparate military capabilities and strategies.”[8] It is pertinent to mention that the term disparate implies that one nation or group in said conflict possessed higher military capabilities or power in comparison to the other group or nation.

In asymmetric warfare, the warring sides can be states and alternatively, it can be state vs non-state actors. The weaker party in such a conflict often uses innovative

[8] ‘Asymmetric Warfare’, RAND, accessed 28 March 2024, https://www.rand.org/topics/asymmetric-warfare.html.

strategies, and technologies to offset the strengths of the superior opponent. One such technology that has emerged in recent years as an effective tool in the arsenal of weak parties in asymmetrical warfare is drone technology. However, this is not to argue that it is only the weaker parties that are using drones in asymmetrical conflict. Over the past two decades the platform has been increasingly used in the context of asymmetrical conflict in two main scenarios i-e state vs state scenario and state vs non-state scenario. While this study will briefly touch upon the state vs state scenario, its major focus will remain on the state vs non-state scenario.

## 3.1 State vs State Scenario

In a state vs state scenario, as the name suggests, drones are being employed by both states engaged with each other in a war, more specifically in the context of asymmetric warfare. The Russia-Ukraine War is a classic example in this regard where both states are using drones against one another. Ukraine, for example, employs a diverse array of drones, ranging from models like the Norwegian-made Black Hornet, which can be held in the palm of a hand due to its small size, to larger platforms such as Turkey's Bayraktar TB2, equipped with missiles and weighing over 1,000 pounds.[9]

The Black Hornet weighs just 32 g, has a flight endurance of 25 minutes, and can fly at speeds of 21 km/h. This particular drone is mainly used by Ukraine for

[9] Stephen Witt, 'The Turkish Drone That Changed the Nature of Warfare', *The New Yorker*, 9 May 2022, https://www.newyorker.com/magazine/2022/05/16/the-turkish-drone-that-changed-the-nature-of-warfare.

reconnaissance and target identification roles.[10] Similarly, the Bayraktar TB2, with its impressive 27-hour flight endurance, 150 kg payload capacity, and a maximum speed of 120 knots, has also been used by Ukraine for conducting precision strikes against Russian armoured vehicles, artillery positions, patrol boats, and supply lines, owing to its payload capacity of laser-guided missiles and bombs. Notably, in September 2023, the Ukrainian Ministry of Defence released a video depicting the destruction of a Russian KS-701 Tunet-class patrol boat in the Black Sea by a Bayraktar TB2, further highlighting the drone's operational significance in the conflict.[11]

In addition to conventional military drones, Ukraine has also employed commercial drones typically designated for civilian use. These civilian drones, considered game changers in the conflict, have been acquired through grassroots crowdfunding initiatives. Available at a relatively affordable price of one thousand dollars per unit, these small drones are rapidly amassed and repurposed by operators to fulfill specific objectives. For instance, popular first-person view (FPV) drones commonly used in racing or filmmaking are modified with makeshift explosives and utilised to strike fixed targets with precision, offering a cost-effective approach to conducting single-use strikes. This utilisation of civilian drones enables Ukrainian forces to execute precise attacks while remaining less vulnerable to Russian air defence systems owing to its

[10] Olivia Savage, ‘Ukraine Conflict: Ukraine to Receive Large Batch of Black Hornet nUASs’, 2023-07-12, Janes.com, 12 July 2023, https://www.janes.com/defence-news/news-detail/ukraine-conflict-ukraine-to-receive-large-batch-of-black-hornet-nuass.

[11] Sakshi Tiwari, ‘Bayraktar TB2 Drone Makes A ’Grand Re-Entry’, The EurAsian Times, 5 September 2023, https://www.eurasiantimes.com/bayraktar-tb2-drones-make-a-grand-re-entry-destroys/.

small size, contributing significantly to the protraction of the conflict by complicating matters for Russia despite its numerical superiority in troop strength.[12]

Conversely, Russia also employs drones in the conflict, although not to the same extent as Ukraine. Moscow predominantly deploys indigenous drone models such as the Orion, Eleron-3, Orlan-10, and Lancet. Additionally, Russian forces utilise Iranian-made Shahed-136 drones. Shahed-136 drones' flying range varies from 1,000 kilometres to 2,500 kilometres. They weigh about 200 kilograms with a maximum flight speed of about 185 kilometres per hour. Since the inception of the Russia-Ukraine war, Shahed-136 drones have been regularly employed by Russians to target Ukrainian artillery armour positions, particularly in Kharkiv Oblast.[13] These drones serve various reconnaissance and tactical purposes, providing Russian forces with enhanced situational awareness and operational capabilities in the conflict theatre.[14]

## 3.2 State vs. Non-State Actors Scenario

Contrary to the state vs state scenario, in the state vs non-state actors scenario, drones are being employed by both the state and non-state actors against each other. The scenario can further be divided into two:

1. State using drones against non-state actors, especially in the context of counter-terrorism efforts.

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[12] Dominika Kunertova, 'Drones Have Boots: Learning from Russia's War in Ukraine', *Contemporary Security Policy* 44, no. 4 (2 October 2023): 576–91, https://doi.org/10.1080/13523260.2023.2262792.

[13] Asami Terajima, 'Iran's Cheap, Effective Shahed Drones and How Russia Uses Them in Ukraine', The Kyiv Independent, 17 April 2024, https://kyivindependent.com/explainer-irans-cheap-effective-shahed-drones-and-how-russia-uses-them-in-ukraine/.

[14] Kunertova, 'Drones Have Boots'.

2. Non-state actors using drones against states.

### 3.2.1 States using Drones against Non-State actors

Over the past two and a half decades we have seen a growing use of drones by the states against non-state actors, especially in the context of counter-terrorism operations. This growing use of drones by states in counter-terrorism operations has mainly to do with the effectiveness of the platform in counter-terrorism operations.

The effectiveness of drones in counter-terrorism can be understood by understanding the cycle of counter-terrorism. Counterterrorism involves two phases. Firstly, nations must actively seek out enemy combatants through intelligence gathering. Subsequently, in the second phase, aggressive action is taken against these combatants, compelling terrorists to retreat into obscurity to evade detection. Consequently, the concerned state must once again seek out the terrorists through intelligence to enable future pre-emptive measures. This cyclical nature of counterterrorism underscores its reliance on the continuous interplay between intelligence gathering and targeted strikes. Drones serve as efficient instruments in this process by collecting more intelligence at greater ranges and by conducting dynamic, precision strikes, simultaneously.[15]

For instance, drones, such as the MQ-9A Reaper with more than 27 hours of endurance and an advanced sensor suite, have been proved impressive in this phase. They provide real-time, high-resolution imagery and surveillance data from an altitude

[15] Alexander Farrow, 'Drone Warfare as a Military Instrument of Counterterrorism Strategy', *Air and Space Power Journal*, n.d., 12.

as high as 50,000 feet, thus enabling persistent surveillance over large areas and identifying potential threats. Moreover, it also possesses 3,800-pound payload capacity, which can include Hellfire missiles for striking targets simultaneously.[16]

Drones are also preferred and effective in counterterrorism efforts for several other reasons:

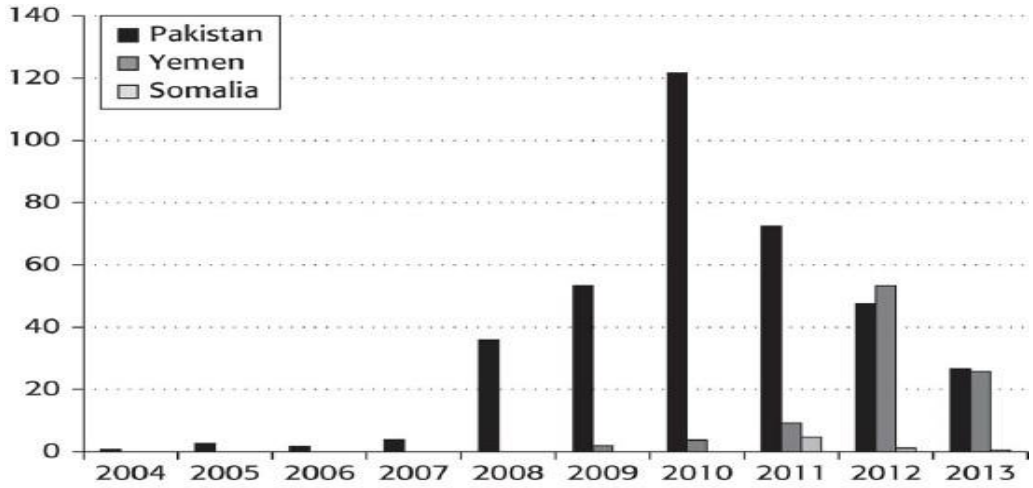
a. Firstly, drones are considered safe due to their unmanned nature, which reduces the risk of harm to a pilot if the platform is damaged or destroyed. Secondly, their precision allows for closer proximity to ground-based targets, minimising the risk of unintended casualties.
b. Secondly, drones can loiter and surveil targets for extended periods, providing valuable intelligence that could further improve the accuracy of the strikes.
c. Thirdly, the lower costs associated with acquiring, maintaining, and operating drones make them a more cost-effective option compared to manned aircraft, including reduced expenses in training drone pilots.[17]

Due to all these reasons, drones have emerged as valuable tools in the arsenal of many countries to conduct counter-terrorism operations. The United States offers a leading case study of this phenomenon. Following the 9/11 attacks, the use of armed drones occupied a central stage within the US counterterrorism framework. This emphasis on the usage of drones is exemplified by former US Defence Secretary Leon

[16] 'MQ-9A Reaper', General Atomics Aeronautical Systems Inc., accessed 20 May 2024, https://www.ga-asi.com/remotely-piloted-aircraft/mq-9a.
[17] 'Armed Drones: Evolution as a Counterterrorism Tool' (Congressional Research Service, November 2023), https://crsreports.congress.gov/product/pdf/IF/IF12342.

Panetta's assertion that drones represented "the only game in town" for disrupting terrorist activities.[18]

The US launched its first armed drone strike in Afghanistan in November 2001 aimed at targeting the Taliban leadership. A year later, a US armed drone successfully targeted suspected al-Qaida members in Yemen. Among those killed was Qa'id Salim Sinan al Harithi, the mastermind of the 2000 attack against the USS Cole, which resulted in the deaths of seventeen US sailors. From this point, US drone strikes expanded their operational reach and increased in frequency, extending to Pakistan Somalia, Libya, and Syria. Moreover, the number of drone strikes also saw a dramatic surge, increasing from approximately 50 total strikes between 2001 and 2008 to around 450 between 2009 and 2013.[19]




*Source*: Bureau of Investigative Journalism

**FIGURE 7: US Drone Strikes between 2004 and 2013**

[18] David Cortright, Rachel Fairhurst, and Kristen Wall, eds., *Drones and the Future of Armed Conflict: Ethical, Legal, and Strategic Implications* (Chicago: University of Chicago Press, 2015).

[19] Cortright, Fairhurst, and Wall.

The US employs drones within its counterterrorism strategy to disrupt terrorist organizations by targeting specific high-value individuals. This includes leaders, skilled operatives (such as explosives experts, logisticians, and field commanders), and inspirational figures. The US military has utilized drones for such strikes, notably in Yemen. These aimed to weaken al-Qaeda by targeting key figures like the ideologue Anwar al-Awlaki (2011) and bomb maker Ibrahim al-Asiri (2017).[20] This approach was pursued in Afghanistan as well when in August 2022 a drone strike killed al-Qaeda leader Ayman al-Zawahiri in Kabul, Afghanistan, which rendered a significant blow to the organization's leadership.

Although the US has been the most prolific user of combat drones, several other countries have also employed drones for in sub conventional operations. For instance, Israel used armed drones to target militants in Syria, Gaza, and Sinai. As with the US however, Israel is not forthcoming with details of its operations because of the military sensitivity of the strikes and the political sensitivity of diplomatic relationships that facilitate those strikes, such as with the Egyptian government concerning strikes in the Sinai.[21]

Turkey also employs drones within Northern Syria to target Kurdish groups based in the region. These groups are perceived by Turkey as extensions of the Kurdistan Workers' Party (PKK), designated as a terrorist organisation by both Ankara.

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20 Farrow, ‘Drone Warfare as a Military Instrument of Counterterrorism Strategy’.

21 Cortright, Fairhurst, and Wall, *Drones and the Future of Armed Conflict*.

This strategy is exemplified by the 18 drone strikes conducted by Turkey within Northern Syria during October 2023.[22]

In addition to Israel and Turkey, both the United Kingdom and Pakistan have utilised drones in counterterrorism operations. However, the scale of their drone employment remains comparatively limited when contrasted with other nations that rely more extensively on this platform.

### 3.2.2 Non-State Actors Using Drones against States

While traditionally employed by governments and militaries for surveillance and strike purposes, drones are finding a new concerning niche in the arsenals of non-state actors, primarily terrorist groups. Once regarded as a speculative scenario, this threat has now become a stark reality. Drones are increasingly used by these groups for both surveillance and assault purposes, posing significant challenges to national security worldwide.

There has been a significant consensus among experts that drone attacks by non-state actors are inevitable. James Rogers and Dominika Kunertova suggest that it is a given that “the drone will always get through”, whereas Paul Lushenko notes such an attack was a matter of “when”, not “if.”[23] This grim outlook was tragically underscored in January 2024 when three American soldiers were killed in an enemy

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[22] Sirwan Kajjo, ‘Turkey Intensifies Drone Attacks on Kurdish-Held Northern Syria’, Voice of America, 5 October 2023, https://www.voanews.com/a/turkey-intensifies-drone-attacks-on-kurdish-held-northern-syria/7298335.html.

[23] James Rogers and Dominika Kunertova, ‘The Vulnerabilities of the Drone Age Established Threats and Emerging Issues out to 2035’ (Center for War Studies, 2022), https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/NATO_VDA_Policy_Report.pdf.

drone attack. An armed non-state group detonated an explosive-laden drone on an American outpost in Jordan.[24] While far from the first of its kind, with Iran-backed groups targeting US troops with drones over 150 times, this attack marked the first fatalities among US troops from non-state actors' drones.[25]

Moreover, other recent cases illustrate the growing threat. Hamas' use of drones in its attack against Israel in October last year is a case in point. In tandem with thousands of rockets, the group also used suicide drones named Zouari, named after the late Hamas engineer and drone pilot, Mohammed Zouari.[26] Similarly, the persistent drone attacks on international sea shipping by Houthi forces also emphasise the dangers posed by drones in the hands of non-state actors. It is worth mentioning here that since November 2023, 43 ships have been attacked in the Red Sea by Houthis, with 15 of those suffering direct strikes from 'Kamikaze' drones.[27]

This proliferation of the usage of drones by non-state actors is an important phenomenon and thus merits an explanation as to why and how the technology fell into the hands of these non-state actors, with potentially grave implications for state security. The proliferation has mainly to with the commercially available drones which are increasingly affordable, user-friendly, and readily accessible, thus lowering the barriers to entry for terrorist organisations seeking to acquire such technology.

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[24] Joshua Keating, 'America No Longer Has a Monopoly on Deadly Drones', Vox, 29 January 2024, https://www.vox.com/2024/1/29/24055046/jordan-drone-strike-troop-deaths-proliferation.

[25] Bault Archama and Yannick Villeux-Lepage, 'Tower 22: Innovations in Drone Attacks by Non-State Actors', International Centre for Counter-Terrorism - ICCT, 2 January 2024, https://www.icct.nl/publication/tower-22-innovations-drone-attacks-non-state-actors.

[26] Erik English, 'How Hamas Innovated with Drones to Operate like an Army', *Bulletin of the Atomic Scientists* (blog), 1 November 2023, https://thebulletin.org/2023/11/how-hamas-innovated-with-drones-to-operate-like-an-army/.

[27] Simon Scarr et al., 'How Yemen's Houthi Rebels Are Carrying out Attacks on Red Sea Ships', *Reuters*, 2 February 2024, https://www.reuters.com/graphics/ISRAEL-PALESTINIANS/SHIPPING-ARMS/lgvdnngeyvo/.

| Model | Weight | Payload | Flight time | Range | Max speed | Camera | Operating conditions | Price |
|---|---|---|---|---|---|---|---|---|
| Parrot BeeBop | 0.4 kg | 0 kg | 12 mins | 250 m (extendable) | 29 mph | Yes (14MP) | Dry conditions only | £700-900 (RTF) |
| Blade 350 QX2 | 1 kg | 0.2 kg | 10 mins | 1,000 m | 32 mph | Yes | Dry conditions only | £200-300 (RTF) |
| 3DR IRIS+ | 0.9 kg | 0.2 kg | 16 mins | 800-1,000 m | 40 mph | Yes | Dry conditions only | £500-600 (RTF) |
| DJI Phantom 2 Vision + | 1.2 kg | 0.2 kg | 25 mins | 600 m | 33 mph | Yes (14MP) | Dry conditions only | £800-1,200 |
| DJI Phantom 3 Professional | 1.2 kg | 0.3 kg | 28 mins | 1,900 m | 35 mph | Yes (12MP) | Dry conditions only | £1,000-1,200 |
| Walkera Scout X4 | 1.7 kg | 0.5-1.0 kg | 25 mins | 1,200 m | 40-50 mph | Yes | Dry conditions only | £700-900 |
| Yuneec Q500 Typhoon | 1.1 kg | 0.5 kg | 25 mins | 600 m | 54 mph | Yes (12MP) | Dry conditions only | £900-1,100 (RTF) |
| SkyJib-X4 XL Ti-QR | 15 kg | 7.5 kg | 15 mins | 3,000-25,000 m | 24 mph | Yes | Wind | £7,500-8,000 |
| Altura Zenith ATX8 | 3.1 kg | 2.9 kg | 45 mins | 1,000 m | 44 mph | Yes | Light rain/ snow | £15,000-20,000 |
| MicroDrones MD4-1000 | 2.65 kg | 1.2 kg | 88 mins | 5,000 m | 26 mph | Yes | Light rain/ snow | £20,000-30,000 |

**FIGURE 8: List of Commercial Drones & Prices[28]**

The acquisition of these drones by terrorist groups has already become a reality. For instance, in 2017, the Islamic State of Iraq and Levant (ISIL) used to launch 60 to 100 drone attacks per month across Syria and northern Iraq. The group used to fly a combination of modified commercial drones, however their most often choice was Chinese-made DJI Phantom quadcopters, and bespoke drones manufactured in its own workshops. These weapons were effective, destroying at least 56 Iraqi military vehicles and killing or wounding more than 100 Iraqi soldiers.[29]

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[28] Chris Abbott et al., 'Hostile Drones: The Hostile Use Of Drones By Non-State Actores' (Remote Control Project, 2016), https://www.files.ethz.ch/isn/195685/Hostile%20use%20of%20drones%20report_open%20briefing_0.pdf.

[29] Ibid.,

**FIGURE 9: DJI Phantom Quadcopter**

These drones, equipped with surveillance cameras, are normally modified to bear small payloads. Consequently, they serve as a cost-effective resource for terrorist organisations that would otherwise lack the resources to obtain sophisticated weaponry. It offers a unique tactical advantage for terrorist groups owing to their small size and manoeuvrability which make them difficult to detect and intercept.

While the scale of drone deployment by terrorist groups remains smaller than the established programmes of states, the troubling trend warrants close attention anyhow. The increasing accessibility of drones, coupled with their potential for weaponisation, underscores the urgency of proactive measures and vigilant monitoring to mitigate this emerging threat.

# 4. LESSONS AND RECOMMENDATIONS FOR PAKISTAN

The increasing use of drones in asymmetric warfare, as exhibited in both state vs. state and state vs non-state conflict scenarios, presents valuable lessons for Pakistan especially for its counterterrorism strategy. The Russia-Ukraine conflict and the US-led counterterrorism operations in the Middle East and South Asia underscore the potential benefits and risks of drone technology for states. Analysing these case studies offers insights into Pakistan, specifically regarding counterterrorism.

## 4.1 State Use of Drones: A Model for Pakistan?

The US extensive use of armed drones in counterterrorism demonstrates the platform's tactical effectiveness as evident from the fact that the platform has nearly decapitated Al-Qaeda by killing its main leaders. Pakistan can learn from it. Pakistan faces a persistent threat from complex networks of terrorist organisations operating within and beyond its borders. The precision, extended surveillance capabilities, and reduced risk to pilots offered by drone technology make it an ideal platform for conducting counterterrorism operations in remote or politically sensitive regions, especially in Afghanistan where Tehreek-e-Taliban Pakistan (TTP) is now based. Pakistan has a drone program; however, it has the potential to be further enhanced in terms of scale, technological advancement, and operational deployment. To remain competitive in the field, it is essential for Pakistan to continuously update its drone program by incorporating modern approaches and integrating emerging technologies.

Pakistan has the fourth largest drone programme in the world. The origins of Pakistan's drone programme can be traced back to the late 1990s which over the course of years witnessed significant advancements.[30] The Pakistani Air Force (PAF) was the leading organization in this regard which took a lead role in 2004 by introducing the Satuma Jasoos II 'Bravo+' UAV, marking a watershed moment in the integration of UAVs within the Pakistan Armed Forces.[31]

Pakistan's UAV inventory since then has become diverse, ranging from indigenous models like the Burraq and Shahpar series to imported platforms such as the Chinese Wing Loong I and II, and the Turkish Bayraktar TB2. These UAVs are mainly employed for intelligence, surveillance, and target acquisition. Pakistan for the first-time used drones in an operation against the Taliban militants when the latter tightened its grip on Kohat-Peshawar Tunnel in 2008. UAV 786 Squadron of PAF was deployed in Peshawar to provide support to boots on the ground. In the concerned operation advanced B+ UAV were used for surveying the occupied tunnel and provide real time intelligence.[32] In 2015 drone was once again used by Pakistan armed forces in an operation against the militants in the north western tribal area along the border with Afghanistan which resulted in the death of three militants.

However, since these initial deployments, we have not seen the frequent employment of drones by the Pakistan Armed Forces in counter-terrorism operations at

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30 Syed Esar Mehdi and Touseef Ahmad Bhat, 'Understanding Pakistan's Unmanned Aerial Vehicle (UAV) Programme | International Centre for Peace Studies', International Centre for Peace Studies, accessed 20 May 2024, https://www.icpsnet.org/comments/Pakistan-Unmanned-Aerial-Vehicle-UAV-Programme.

31 Sabir Irfan, 'Unmanned Sentinels Pakistan's UAV Revolution', *Second to None*, accessed 20 May 2024, https://secondtonone.com.pk/2024/05/15/unmanned-sentinels-pakistans-uav-revolution/.

32 Irfan.

least as per the publicly available data. Thus, Pakistan needs to uplift its drone programme in terms of sophistication and utilisation which could reap benefits for the country's counterterrorism strategy.

Pakistan could benefit from enhancing its ability to conduct targeted drone strikes, provided several critical factors are addressed. For instance, increased reliance on drones, particularly for cross-border strikes, carries diplomatic risks. Pakistan must carefully manage international perceptions and potential alliances with neighbouring states where drone use may be contentious.

Secondly, as evident from the American use of drones which has played a crucial role in spurring anti-American sentiments[33], minimising civilian casualties is imperative – both for ethical reasons and to avoid fuelling further radicalisation. Enhanced intelligence and drone strike accuracy are paramount for Pakistan to avoid terrorist groups, a pretext or narrative for recruitment.

Third, while employing drones, it should be kept in mind that though the platform is a powerful tool, it is not a panacea for terrorism. Pakistan's strategy must encompass broader counterinsurgency efforts, including addressing root causes like economic inequality and radical ideologies.

## 4.2 The Threat of Non-State Actors Using Drones: Pakistan's Need for Adaptation

[33] Madiha Afzal, 'Drone Strikes and Anti-Americanism in Pakistan', Brookings, 2013, https://www.brookings.edu/articles/drone-strikes-and-anti-americanism-in-pakistan/.

As aforementioned, the growing affordability, availability, and adaptability of commercial drones have made it possible for terrorist groups to acquire the technology with ease. The growing use of drones by terrorist groups which has been discussed previously, bears testimony to the said fact. This trend poses a formidable challenge to Pakistan's internal security landscape, particularly given the terrorist threats posed by well-armed groups such as the TTP. Considering their access to sophisticated US made weaponry,[34] the TTP may potentially acquire armed drones, especially considering the fact that the group has now resources, and thus can create a highly concerning scenario for Pakistan. To effectively counter this evolving threat, Pakistan must move beyond its conventional counterterrorism approaches and implement several critical measures:

Firstly, Pakistan needs to invest significantly in the development and deployment of technologies to detect, intercept, and neutralise hostile drones. This includes systems for early warning, jamming, and sharp shooting for physical interception. While it is practically impossible to install such systems in every corner of the country, they can be installed in certain specific areas to protect critical infrastructure, military installations, and civilian areas. The concerned critical infrastructure includes, for example, airports, nuclear power plants, and government buildings such as national and provincial assemblies, and military bases that could be equipped with anti-drone systems.

Secondly**,** Pakistan must prioritise and ramp up its intelligence-gathering efforts specifically focused on tracking the acquisition, modification, and potential deployment

[34] Justine Fleischner, 'Arms Smuggling Dynamics under Taliban Rule' (Small Arms Survey, July 2023), https://smallarmssurvey.org/sites/default/files/resources/Situation%20Update-Smuggling-Dynamics-under-Taliban-Rule-Final.pdf.

of drones by non-state actors. Proactive disruption of their plans is vital, especially given the fact that these drones especially the smaller drones are difficult to intercept owing to their low detection by radars and other defensive tools.

Third**,** the threat posed by drones necessitates a fundamental rethinking of Pakistan's counterterrorism strategy. Pakistan’s counterterrorism which is predominantly designed to combat ground-based threats may be insufficient in addressing this evolving airborne challenge. In this regard, Pakistan must develop a new approach that prioritises:

- **I**ntegrating counter-drone technology into counterterrorism operations alongside traditional methods. Drones can be integrated for both offensive and defensive counterterrorism or sub conventional operations. In counteroffensive operations, drones can be used for surveillance, reconnaissance, and targeted strikes against terrorist hideouts and infrastructure. In counter-defensive operations, drones can be utilised for border surveillance, monitoring critical infrastructure, and providing real-time intelligence to security forces. Furthermore, drones equipped with thermal imaging and other sensors can be deployed to detect and track suspicious activities, enhancing situational awareness and enabling rapid response to potential threats.

- Specialised training for security forces on identifying, intercepting, and disabling hostile drones. Existing counterterrorism doctrines must be revised to reflect this new threat.

- Enhanced cooperation and coordination in information sharing between intelligence agencies, various military branches, and civilian authorities which is crucial for effective counter-drone operations.

## 5. CONCLUSION

This study concludes that the widespread use of drones in various asymmetric conflict scenarios, encompassing both state vs state and state vs non-state confrontations, presents a mix of opportunities and challenges for Pakistan's counterterrorism strategy. While Pakistan must explore the potential benefits of leveraging drone technology in its counterterrorism strategy, it is equally imperative to formulate a robust strategy to neutralise the evolving threats posed by the use of drones in asymmetric warfare, particularly by terrorist organisations.

Though some may dismiss the likelihood of terrorist organisations actively deploying armed drones, leading drone experts like Paul Lushenko warn that such attacks are not a question of "if," but rather "when." This underscores the urgency for Pakistan to adopt a proactive approach. Measures like investing in counter-drone technology, and intensifying intelligence gathering targeted at drone acquisition and modification by terrorist groups, are some of the crucial steps to mitigate the risks associated with this evolving threat landscape.

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