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DRONES AND VIOLENT NON-STATE ACTORS

The Mankind's Quest for Violence

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New Delhi

About the Monograph

The dawn of the 21st Century witnessed a defining moment in global security—the devastating terrorist attacks on American soil, which highlighted the rise of Violent Non-State Actors (VNSA). Operating beyond conventional state control, these groups showcased unprecedented resolve, reach, and lethality, which has ushered in an era of sustained counterterrorism efforts worldwide. The Unmanned Combat Aerial Vehicle, commonly known as a combat drone, is among the most effective tools in this ongoing battle. This monograph explores how drones have reshaped modern warfare and counterterrorism strategies. Violence has been an inherent feature of human history, and its methods are undergoing continuous evolution. The 20th Century witnessed the emergence of two very violent entities: the combat drones, which facilitate the precise but distant application of violence, and the VNSA, especially religious terrorist groups, which show scant regard for human life and have appropriated the state monopoly over violence. In a confluence of evil, VNSAs have also adopted the use of drones, enhancing their reach. Terrorist organisations' exploitation of cyber warfare and social media further complicates the security landscape. This monograph examines the origins and evolution of the two violent entities, the combat drone and the VNSAs, and their impact on global peace and security.

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Introduction

The beginning of the 21st Century saw massive terrorist violence on the American soil. The terrorist phenomenon of Violent Non-State Actors (VNSA) displaying their motivation, resolve, and reach, far away from the trouble spots of the West and South Asia, was an epochal event. Following the attack, an extensive worldwide endeavour commenced to mitigate and eradicate the menace. The battle is ongoing. One instrument of war at the forefront of the fight is the Unmanned Combat Aerial Vehicle (UCAV), also called 'Combat Drone' or simply 'Drone'.

Violence has always been an intrinsic part of the development of human society. Only the method of delivering violence and the contestants have changed with time. The 20th Century has witnessed two phenomena related to violence. One is the development of the UCAV, called Combat Drone or Drone, which is making it possible to deliver violence without the threat of being injured or slain. After tracing the origin and evolution of drone, this narrative will focus on the drones used to deliver violence. The second is the VNSA, called 'Terrorists', imposing violence on human society for a variety of reasons. These VNSA include Islamic terrorists, who are waging a war against the world at large for perceived or real grievances of religious persecution. This narrative traces the origin and evolution of these two phenomena and their impact. As the narrative progresses, the monograph will discover that drones, besides being an instrument of state power, are also a tool used by VNSA for inflicting violence. In addition, the readers will find the exploitation of the internet technology and social media by VNSA to their advantage.

Chapter 1

Violence and Humankind

Violence is a primordial trait of humankind. Start families, create clans, establish tribes, be a part of ethnic groups with a common way of life, and then covet someone's possessions and find reasons to kill each other. As the violence grew, what possibly started as hand-to-hand fights, belligerents devised new methods/instruments to destroy the opposition. Initially, it began with sharpened stones, moving on to swords, spears, bows, and arrows, and finally mutating into guns. One common feature of all growing methods of destroying the opponents was that the distance between the partaking contestants progressively increased. The other significant change was the need to strike without being seen. The history of warfare is, in large part, all about distance. From the Stone Age, when rocks and clubs were used as weapons, to the development of metal spears, then arrows, bullets, and missiles, significant advances in military technology have virtually revolved around the ability to kill from ever-increasing distances or, to be more precise, the ability to shoot at your enemy from a greater distance than he can shoot back at you.[1]

The quest for striking opponent from as far as possible started with a thrown spear. Over the millennia, it has now transformed into a family of projectiles, which can be fired across continents, and navigating their flight path, they can virtually hit a building through the front door. These costly, technologically advanced weapons define a nation's deterrent and destructive power. Some countries have inventories that can wipe out an opponent off the face of the Earth.

While weapon development was moving apace, humankind developed the practice of faulting some weapons, which placed one side or a combatant in a gainful position vis-à-vis the opponents. In the 14th Century, French knights railed against the immorality of the English longbow, which allowed a commoner to knock a knight off his horse at over 100 yards. When cannons appeared on the battlefields of Europe, the Vatican imposed a ban for ex-communication of artillerymen as punishment for employing their infernal machines, which killed civilians during sieges. In the early days of World War I (WW I), the Allies railed against the immorality of submarines, which could sink ships without warning.[2]

As more and more technologies and weapons kept appearing, resulting in the ever-larger killing of fellow human beings, intensely innovative humankind even created a divine sanction for killing fellow humans. Christians could wage a 'Just War', and the Hindus found a 'Righteous War' with a firm belief in *ahimsa* (non-violence). In the *Mahabharata*, Lord Krishna exhorts the noble warrior Arjun to prepare for the battle. "Think thou also of thy duty and do not waiver. There is no greater good for a warrior than to fight in a righteous war" (*Bhagavad Gita 2:31).*

With time, fights between individuals, groups, clans, and tribes became wars between nation-states. There were innumerable wars as civilisations grew; soldiers from opposing sides killed each other in millions in a display of bravery, valour, and gradually rising fire support. Starting with the Second Anglo-Boer War (1899–1902), military conflict occurred every year during the 20th Century. There were only short periods when the world was free of war. The 20th Century was the most murderous in recorded history. The total number of deaths caused by or associated with its wars has been estimated at 187 million, the equivalent of more than 10 per cent of the world's population in 1913. Taken as having begun in 1914, it was a century of almost unbroken war, with few brief periods without organised armed conflict somewhere.[3]

One significant aspect that merits mention is that professional soldiers of warring states mostly fought these wars on well-defined battlefields. The civilian population and their habitats were relatively safe. Over time, belligerents started using weapons that had a reach far beyond the 'Battlefields'. Long-range artillery and missiles, in different configurations, could strike anywhere in the 'Enemy' territory. While the military targets had significance in deciding the outcome of any battle, the occurrence of substantial 'Collateral Damage', including the killing of civilians and the destruction of non-military assets, became an important issue. In some cases, the quantum of the collateral damage exceeded the threshold of loss acceptable to a nation.

Chapter 2

Drones: Remote Delivery of Violence

With the augmentation in the weaponry's sophistication, the distance between belligerents also kept growing until it reached a stage where it was possible to hit and kill an opponent from very far without exposing the attacker to any harm or danger. Now, it is routinely possible for operators in the United States (US) to hit and destroy objects in Asia and other far-off places from the comfort of their air-conditioned 'Offices'. For those attacked and killed, it may appear to be the wrath of the Gods, but this capability has resulted from humankind gifting itself a technological marvel in the form of the UCAV, a new weapon platform that delivers one-sided violence and destruction, sometimes killing completely innocent people.

The world has earlier seen humankind's propensity for violence. The process of applying force progressed from hand-to-hand fighting to using crude devices to employ sophisticated weapons to destroy the opponent. Traditional wars have always involved combat between opposing militaries. They have been tales of valour, strength, bravery, courage, honour, skill at arms, surprise, and deception, guided by a set of rules for fair play. Although the distance between adversaries kept increasing, there was always an identified military target or an opposing combatant soldier to be destroyed, wounded, or captured in a specified battle zone. Despite the addition of a vast array of very modern, sophisticated guns, rockets, missiles, and other weapons that could destroy opponents

from very far distances, the fighting was done with some well-established ethics and conventions of conducting battle in which both sides suffered losses. This practice has changed with the appearance of UCAVs, also known as combat drones or drones, which arbitrarily deliver violence from a distance.

Since Old English, 'Drone' is referred to a male honeybee whose only role is to mate with the queen. Because drones, unlike worker bees, need not worry about gathering nectar or pollen, they have often been seen as idlers, and by the 16th Century, Drone could refer to lazy humans too.[4]

Why Drone?

In 1935, the De Havilland DH.82B Queen Bee aircraft was used as a low-cost radio-controlled drone developed for aerial target practice. It is considered by many to be the first modern drone. US Admiral William Harrison Standley witnessed a test flight of the Queen Bee in 1936. After returning to the US, he placed Lieutenant Commander (later Rear Admiral Delmer Stater Fahrney, Naval Officer, Aeronautical Engineer) Delmar Fahrney in charge of developing a program similar to the United Kingdom (UK). It is believed that Fahrney first used the term 'Drone' for the US platform as a tip of the hat to the UK's Queen Bee. The term fit, as a drone could only function when controlled by an operator on the ground or in a 'Mother' plane.[5] The Queen Bee was radio-controlled and could fly as high as 17,000 feet and travel a maximum distance of 300 miles at over 100 mph. 380 Queen Bees served as target drones in the Royal Air Force and the Royal Navy until they were retired in 1947.[6] Modern drones, in an assortment of shapes, sizes, modes of flying, and control, with a diversity of capabilities, are, for the present, humanity's solution to perform a variety of military tasks, including 'Killing' from a distance.

A modern military Unnamed Aerial Vehicle (UAV) or drone could be:

- A device with the size of a kite, or much smaller, hand-launched to follow an identified target anywhere, including an urban setting.
- A 'Gadget' taken from the backpack and hand-launched by a soldier in combat to see beyond a hill.
- A slightly bigger device, catapulted on the battlefield for intelligence, reconnaissance, surveillance, target designation, artillery fire correction, and damage assessment.
- It could be an unmanned aerial device with a trailing banner used as a target for practice firing.
- It could also be a modern UCAV, sometimes the size of a jet fighter or bigger, also known as a combat drone.

This narrative, primarily examining humanity's quest for delivering violence from as far away as possible, will be restricted after a brief narration of the evolution of drones to the emergence and employment of the UCAV.

Evolution from Balloons to Drones

The evolution of drones closely follows humanity's desire to fly. Historically, Archytas of Tarentum, a Pythagorean, was reputed to have designed and built (425 BC) the first artificial, self-propelled flying device.[7] Over time, some mechanical devices were developed that could fly. Balloons were one of the first air warfare mechanisms used on the battlefield. The first military balloons had pilots and were used for reconnaissance. A 'Bird's-eye View' of the battlefield would help a side create accurate maps and gain intelligence on enemy movement. Soon after, military balloons were redesigned to serve a different, more destructive purpose. Incendiary balloons were pilotless vehicles that were inflated with hot air and had an incendiary device attached. In 1849, the Austrian Navy launched

incendiary balloons to take Venice in the First Italian War of Independence. The attack was largely unsuccessful, but these Austrian incendiary balloons are considered being the first UAVs.[8] Unmanned vehicles began to evolve and expand their utility from there. This attempt to deliver violence remotely, through an aerial vehicle, in the form of pilotless balloons carrying explosives was the first offensive use of air power in naval aviation. The balloons "Carried 33 pounds of explosives", writes Monash University professor Russell Naughton, "Set with a half-hour time fuse, and troops scurried around with them to launch them into the proper wind currents". The idea for the bombardment came from an Austrian artillery lieutenant named Franz von Uchatius and was carried out initially on 12 Jul 1849. This attempt "Failed because the wind was not in Austria's favour", writes Weapons and Warfare, quoting from a contemporary account in Time magazine.[9] Unmanned vehicles began to evolve and expand from there on. A new method for demonstrating force and the promise of remote delivery of violence without a physical battle emerged as a new option for ever-innovative and ever-belligerent humankind.

In 1898, Nikola Tesla displayed a boat that used radio control. This demonstration was actually about selling the idea of a radio-controlled torpedo.[10] In 1900, Tesla presented the concept of wireless control of the balloon; and in 1915, he described a fleet of UAVs in aerial combat.[11] In the next more than a century, there has been a transformation of the repurposed balloon into torpedoes, target drones, and UAVs carrying optical equipment or ordnance, all remotely controlled to fly to a specific point to hit an object, observe, or deliver a weapon load. This process of evolution maintained a distinction between one-way lethal ammunition like torpedoes and cruise missiles, and reusable aerial vehicles.

The evolution and roller coaster development of drones during WW I, World War II (WW II), the period between the wars, the Korean War, and the Vietnam War, have been recorded extensively, to be described again in this narrative. However, some events reveal a progressive advancement in the design and the desire to send an

accurately controlled, unmanned device in an active battle situation to destroy a target, which needs to be recounted.

Humankind's first attempt to fly a heavier-than-air object was on 17 Dec 1903; Orville Wright piloted the first powered aeroplane 20 feet above a wind-swept beach in North Carolina. The flight lasted 12 seconds and covered 120 feet. Three more flights were made that day, with Orville's brother Wilbur piloting the record flight lasting 59 seconds over a distance of 852 feet.[12] The Ruston Proctor 'Aerial Target' represented the cutting-edge of drone technology in 1916. The goal of the aerial target was for it to act as a flying bomb that could be piloted into enemies.[13] Archibald Montgomery Low (1888-1956), a British inventor and engineer nicknamed 'The father of radio guidance systems', was happy to develop the project further and used it in kamikaze-style ramming strikes against Zeppelins.[14] It is essential to mention two notable events in the evolution of the drone. On 06 Mar 1918, the Curtiss-Sperry aerial torpedo made its longest successful flight (1,000 yards). Pilotless flight experiments continued. On 17 Oct 1918, a pilotless N-9 aircraft was successfully launched, but failed to land. The aerial torpedo never saw wartime action.[15]

Around this time, the US Army Aircraft Board asked Charles Kettering to design an unmanned 'Flying Bomb' that could hit a target at a range of 50 miles. Kettering's design acquired the name 'Kettering Bug'.[16] This UAV was launched using a dolly-and-track system. Then, a system of internal pre-set pneumatic and electrical controls stabilised and guided it toward its destination. To ensure the Bug would hit its target, technicians had to determine the distance to be covered relative to the air, accounting for wind speed and direction along the flight path, which was then used to calculate the total number of engine revolutions needed. Once the total revolution counter reached the value set, the engine would shut off and the wings would detach, sending the Bug on a ballistic trajectory to the target; the impact would detonate its payload of 180 lbs (82 kg) of explosives.[17] The prototype Bug was completed near the end of WW I, and the Army ordered 25 Bugs on 25 Jan

1918. Flight tests began in Sep 1918, with the first successful flight on 22 Oct 1918. Unfortunately, the Bug failed in its testing, having made only eight successful test flights out of 36, yielding a 22 per cent success rate. In a fate like those of its Navy and British counterparts, the war ended before the Bug could enter combat.

After WW I, the development of UAVs in various forms, such as torpedoes/unmanned targets, continued. The first radio-controlled UAV was the Curtiss N2C-2, which received its commands from an operator in a crewed aircraft that flew alongside the Curtiss.[18] While this limited the UAV's effectiveness, it was a significant step in developing radio-controlled UAV technology.[19] This period's two other notable developments include:

- The De Havilland DH 82B Queen Bee, an all-wood version of the De Havilland Tiger Moth named the 'Queen Bee', which would see service through 1943.[20] The Queen Bee was devised as a low-cost radio-controlled target aircraft for realistic anti-aircraft gunnery training. If it survived the shooting (as intended, by offset aiming), its controller would attempt to recover it for re-use.[21]

- The Radioplane Company produced its drone line in response to the US Army Air Forces' need for target practice and training during WW II (1939-1945). The OQ-2A model became the US' first mass-produced unpiloted vehicle. In fact, Radioplane manufactured some 15,000 drones during the war. Variants followed the OQ-2, including the OQ-3/TDD-2 and OQ-14/TDD-3.[22]

Vengeance Weapons of Germany

In 1944, Germany launched V1-flying bombs and V2 rockets on the Allied targets. The V-1, Fieseler Fi 103 'Flying Bomb', a small, pilotless, medium-range cruise missile, was the first of the so-called 'Vengeance Weapons' series (V-weapons or Vergeltungswaffen) deployed for the terror bombing of London. V-1 missile, a German

jet-propelled missile of WW II, was the forerunner of modern cruise missiles. More than 8,000 V-1s were launched against London from 13 Jun 1944 to 29 Mar 1945, with about 2,400 hitting the target areas. A smaller number were fired against Belgium.[23] The V2 (Vergeltungswaffe-2, 'Retribution Weapon-2'), with the technical name Aggregat-4 (A4), was the world's first long-range guided ballistic missile. The missile, powered by a liquid-propellant rocket engine, was developed during WW II in Germany as a 'Vengeance Weapon', assigned to attack Allied cities as retaliation for the Allied bombings against German cities. V2 missile also became the first artificial object to travel into space by crossing the Kármán Line (100 kms), with the vertical launch of MW-18014 on 20 Jun 1944. Beginning in Sep 1944, over 3,000 V2s were launched by the German Wehrmacht against Allied targets, first London and later Antwerp and Liège. According to a 2011 BBC documentary, the attacks from V2s resulted in the deaths of an estimated 9,000 civilians and military personnel, and a further 12,000 forced labourers and concentration camp prisoners died because of their forced participation in the production of the weapons.[24]

The period from the 1950s onwards primarily saw the UAVs being used as training drones or for some very effective long-range reconnaissance. An American UAV, Teledyne Ryan AQM 34, the 'Lighting Bug', could fly for 2500 kms. In 1964, these UAVs penetrated Chinese airspace and obtained high-quality photographic imagery of military facilities and troop movements.[25]

Two Epochal Events

This long narration about the evolution of drones needs to end. However, two events wherein the drones transformed from targets for training or carrying out reconnaissance to an actual combat role need to be identified.

The US Navy's Drone Anti-Submarine Helicopter (DASH), QH-50 was the 'First operational unmanned helicopter' designed

for combat. On 12 Aug 1960, a QH-50A drone made the world's first free flight of an unmanned helicopter at the Naval Air Testing Facility at Patuxent River, Maryland. It was powered by one Gyrodyne-Porsche engine. On that date, the DASH concept was realised.[26] Most QH-50 deployments consisted of anti-submarine patrols with torpedoes, but a number of the crafts were used during the Vietnam War, primarily for spotting naval gunfire. A few were adapted to carry gun and rocket systems. Gyrodyne built 758 DASH airframes, most of which went to the US Navy. Japan also operated a few.[27] DASH's control scheme had two controllers, one on the flight deck, and another in the Combat Information Center (CIC). The flight deck controller would handle take-off and landing. The controller in the CIC would fly DASH to the target's location and release weapons using semi-automated controls and radar.[28] Readers would note that at present, a controller sitting on one continent engaging targets on another continent is nothing new. Only the distances and the intensity of relatively accurate violence have increased.

In 1971, Teledyne-Ryan Aeronautical (TRA) developed a UCAV that could deliver air-to-surface munitions. TRA again used the Lightning Bug as the basic frame and then used pieces from other UAVs to create the final BGM-34A product. In less than a year, TRA had developed a UCAV to fire a powered, guided air-to-surface missile against a simulated target. The US military thinkers had the idea of using these UCAVs on the first wave to soften a target and then bring the target to an end with manned aircraft. The Israelis agreed and used the BGM-34A against Egyptian missile sites and armoured vehicles in the Oct 1973 Yom Kippur War and again in 1982 against Syrian missile emplacements in the Bekaa Valley.[29]

If one has to summarise the evolution of the drone, it would be apparent that starting with Ruston Proctor's 'Aerial Target', which could be 'Piloted' into the enemy, mankind's quest for delivering violence from a distance, while staying safe and causing, gradually intensifying, damage, destruction, and fatalities to the

enemy has taken almost a century to be realised. This delivery of violence from a distance with the attacker remaining safe forms the basis for designing and deploying combat drones.

Modern drones have multiple uses, such as intelligence, surveillance, damage assessment, reconnaissance, laser designation, and 'Coordinating artillery, tank, and infantry fire'. The drone inventory now ranges from regular combat drones to identify and attack hostile targets to kamikaze models. Some drones even possess the ability to disrupt the enemy's air defences and communication systems.[30] This part of the narrative is about the use of combat drones to deliver violence remotely and some related issues.

In addition to the historical evolution described above, there is a contemporary rationale, described by Grégoire Chamayou in his seminal book *A Theory of The Drone*, attributing the trait of self-preservation while intervening without danger in inhospitable places to a study produced by an American Engineer, John W Clark, about 'Remote control in hostile environments'. Clark described the development of technologies of manipulation at a distance, what he called 'Telechirics' (In Greek, tele means 'Distance' and kheir means 'Hand'[31]), so that people no longer had to expose themselves to danger to earn a living. From the extremes of outer space, exposure to nuclear radiation, and deep ocean exploration to more mundane projects like firefighting, tunnelling, or mining. The key advance was using 'A vehicle operating in the hostile environment under remote control by a man in a safe environment'. Clark emphasised the remoteness—'There is no direct connection between the operator and his machine'—because, in his view, the system depended on the capacity of the human operator to 'Identify Himself' with his remotely controlled machine, even though it may be completely non-anthropomorphic in appearance and configuration. The study considers the possibility of employing a vehicle operating in a hostile environment, under remote control by a man, in a safe environment. According to Chamayou, the capacity for judgment is enhanced by partitioning space, placing the operator in a 'Safe

Zone' outside the 'Danger Zone'. The danger zone is a site of surveillance and intervention (by a cable or by a radio link), but not a site of habitation. It is not difficult to see how these propositions can be carried over to the use of combat drones. Clark terms this process 'Technology of manipulation at a distance'.[32] This distant manipulation is, in fact, central to all drone operations (for a critique of some aspects of *A Theory of The Drone*, readers may refer to various issues of Geographic Imaginations, Category of Archives—Drones).[33]

Press of a Button

Delivery of violence with an armed drone is as simple as pressing a button. A combatant, somewhere in one part of the globe, detects, identifies, and eliminates an identified object in a different part of the world by pressing a button. No anger, no hatred, no bravery, no valour, no honour, no danger, no war cries, no hand-to-hand combat, and no bayonet charge. Just the press of a button. Only, sometimes, or so often, besides the intended target or an utterly wrong target, it could be an innocent bystander or a group of bystanders, for whom, and others around, it was possibly an act of god. The number of such mistaken killings is high. On the other hand, the only issue concerning the well-being of the person pressing the button is that he/she may sometimes suffer an attack of remorse that is easily treated by some quality leisure time, possibly with family and friends.

The Combat Drone

The basic premise for the use of a combat drone has been very aptly summarised by David Deptula, an Air Force officer, as the "Real advantage of Unmanned Aerial Systems (UAS) is that they allow you to project power without projecting vulnerability", implying that the only vulnerability will be that of the enemy, reduced to the status of a mere target.[34] In some ways, an engagement by a combat drone becomes a one-way contest in

which there is no physical threat of death or even injury to the operator located thousands of miles away from the engagement scene. Such an action is ultimate in projecting power. In the words of Chamayou, this manner of engagement, from being possibly asymmetrical, becomes completely unilateral. What could still claim to be a fair combat is converted into a campaign of what is, quite simply, slaughter.[35]

A drone employed for performing multifarious military tasks, including hunting and destroying targets without exposing combatants to threats of any kind, has come to symbolise the beginning of a new era of combat, which possibly started when three Hellfire laser-guided missiles were fired from a predator in Feb 2001 in a flight test at Nellis Air Force Base, Nevada, US.[36] A very apt description of these drones is that they "Have a uniquely seductive power, one that attracts militaries, politicians, and citizens alike".[37]

It is, however, essential to recognise that despite some recent exploits in Libya, Syria, and Azerbaijan, combat drones primarily address a relatively narrow strip in the spectrum of conflict, which is primarily a substantial role in asymmetric warfare, of eliminating VNSA and countering insurgency. Interestingly, these weaponised platforms have also found a relatively novel usage, i.e., killing high-profile individuals. Qasem Soleimani, an Iranian General, was assassinated by the US using a combat drone.[38] Turkiye considered Kurdistan Workers' Party (PKK) and People's Defense Units (YPG) terrorist organisations. On 15 Aug 2018, Turkish Land Forces successfully used Bayraktar TB2 to kill the senior PKK leader and board member of the Kurdistan Communities Union, Ismail Özden, in Sinjar District, north-western Iraq.[39]

There are scores of combat drones in operation, manufactured by a few countries and operated by militaries and intelligence agencies worldwide. Modern combat drones, American Predators, and Reapers have been used in hotspots all over the globe, including Iraq, Afghanistan, Libya, Syria, Yemen, and Pakistan, to eliminate/

neutralise pre-determined targets. There are numerous, well-recorded incidents where completely innocent people have been killed, primarily because of human error. For the powers that be, it is just collateral damage.

The Future Roadmap

The irresistible feature of a combat drone to deliver remotely controlled violence of varying magnitude, depending upon the requirement, has given rise, amongst the nations, to a rush to acquire combat drones and other variations of this platform for multifarious military and non-military tasks. Not all have succeeded in developing or acquiring these rather elusive systems. The US is world leader in this technology, with the ability to strike in any part of the globe, with proclaimed, pinpoint accuracy, and with impunity, by an operator sitting in the comfort of a plush 'Office' in a different part of the globe. The US drones, while being the best, are very expensive and simply beyond the reach of many customers around the globe. An important aspect of acquiring the US drones is that they are simply unavailable, even if some nations can raise the prohibitive cost. Data from the Stockholm International Peace Research Institute (SIPRI), which tracks global arms transfers, shows China has delivered 282 combat drones to 17 countries in the past decade, making it the world's leading exporter of weaponised aircraft. By comparison, the US, which has the most advanced UAVs in the world—has delivered just 12 combat drones in the same period, all of them to France and the UK, according to the SIPRI data.[40] This figure, of course, does not include USD 64.1 bn in military assistance, including many drones given by the US to Ukraine. These drones include Switchblade UAS, Phoenix Ghost UAS, Cyber Lux K8 UAS, Altius-600 UAS, Jump-20 UAS, Hornet UAS, Puma UAS, Scan Eagle UAS, and Penguin UAS.[41]

Another source of technologically very advanced drones is Israel. With an indigenous chain of research, development, and production of high-class drones, this country is a significant source of an array

of drones for various roles. Turkiye, Iran, and China are other nations with a substantial presence in the drone space, including combat drones. India, a significant military power, is not yet among the global drone powers. However, in 2018, Adani Enterprises of the Adani Group and Elbit Systems launched a joint venture, Adani-Elbit Advanced Systems India Limited. Its first order was to make the Hermes 900[42] UAV for the Israel Defence Forces. Adani-Elbit operates the only Hermes 900 production facility outside of Israel—in Hyderabad, India.[43] Interestingly, amid Israel's ongoing war on Gaza, India sent over 20 Hermes 900 Medium-Altitude, Long-Endurance (MALE) drones to Israel.[44]

While the development and acquisition of combat drones are moving apace, it will be instructive to mention a dated reference to the US's UAS Roadmap 2005–2030, which acknowledges the role of drones in a Global War on Terrorism (GWOT). This detailed and complex plan envisages offensive tasks like suppression of enemy air defences, penetrating strikes, integrated strikes, counter-air integrated strikes, and counter-air for UAS progressively up to 2030.[45] An indication of this versatile weapon platform becoming a weapon of war can be seen in a rather exhaustive plan of the US Air Force Unmanned Aircraft Systems Flight Plan 2009-2047. This plan describes a family of unmanned aircraft consisting of small man-portable vehicles, including micro and nano-sized vehicles, medium 'Fighter-sized' vehicles, large 'Tanker-sized' vehicles, and special vehicles with unique capabilities, all including autonomous-capable operations. The concept is to build a common set of airframes within a family of systems with interoperable, modular 'Plug and play' payloads, with standard interfaces that can be tailored to fit one or more US Air Force's core functions in support of the joint force's priorities.[46] As an illustration of the development of drone, it would be worthwhile to study just two examples to identify the direction for the future of drones to become full-fledged weapons of war.

The 'Attritable'

Amongst an abundance of designs and developments, a very brief description of Valkyrie UAS would adequately illustrate where this very multipurpose weapon platform is headed. XQ-58A Valkyrie is a high subsonic, long-range strike UAV being developed by Kratos Defense and Security Solutions, in collaboration with the US Air Force research laboratory. The low-cost UCAV is designed for deployment in surveillance, reconnaissance, and long-range combat missions to deliver maximum operational flexibility and utility to the war-fighter. It is meant to serve as an unmanned escort or wingman aircraft to a manned fighter aircraft in warfare.[47] The Valkyrie is an 'Attritable' drone, the word used by military for an asset that can be reused but is cheap enough that a commander would expect and be comfortable with a certain amount of losses while in combat.

The US Air Force is experimenting with using the Valkyrie as a communications node for the F-35 and F-22 fighter jets, as well as assessing it as a potential Skyborg system that would be equipped with artificial intelligence and be able to fly autonomously alongside tactical aircraft. It must also be able to be deployed as a part of a swarm of drones, with or without direct pilot control. During a flight test, it opened its payload bay doors during flight for the first time and released an ALTIUS-600 (an air-launched, tube-integrated, unmanned system) designed to gather intelligence in real-time.[48]

Loitering Munitions

Another significant addition to the variety of drones is the AeroVironment Switchblade. This is a miniature loitering munition designed by AeroVironment and used by several branches of the US military. Small enough to fit in a backpack, the Switchblade launches from a tube, flies to the target area, and crashes into its target, detonating its explosive warhead. The name 'Switchblade'

comes from how the spring-loaded wings are folded inside a tube and flipped out once released.[49] "It's a one-and-done drone", said Wahid Nawabi, who runs AeroVironment, which makes the Switchblade.[50] Switchblades, both large and small, are being sent to Ukraine to be used against Russia. There are currently two models, and each has a different mission. The '300' is smaller and meant for anti-personnel attacks, whereas the '600' is heavier with larger warheads. It is intended to take out tanks and armoured vehicles. These drones take only minutes to launch, yet can fly at least 1,100 mph, while the 600 model weighs just 50 pounds, and it can loiter for 40 minutes and can attack targets located 224 miles away. The interesting thing about the Switchblade is that its attack scheme can be called off if no target presents itself. Global positioning system accomplishes the targeting, but it is also manually controlled.[51]

New Drone Powers

While there may still be time for these well thought-out, relatively expensive, and detailed plans of a very technologically advanced military (read the US), and possibly some other Western militaries, for transforming the drones into a complete family of robotic weapons of war, there are nations closer home, which are drone powers in their own right. These nations have achieved exceptional self-sufficiency by misusing dual-use technologies, reverse engineering complex technologies, and other innovative, deceitful techniques. For example, Turkiye is now a significant drone manufacturing and exporting nation. The use of Turkish drones has been mentioned earlier. Drone strikes (Israeli and Turkish drones) targeting Armenian (Nagorno-Karabakh) soldiers and destroying tanks, artillery, and air defence systems provided a considerable advantage for Azerbaijan in the 44-day war and offered the most apparent evidence yet of how battlefields are being transformed by unmanned attack drones rolling off assembly lines around the world.[52] Iran, another drone power, has spent decades producing drones, primarily to make up for the absence of a

modern air force and to acquire an ability with the stated aim of one day destroying a not very distant neighbour. Iran has dozens of drone models, an extensive inventory, some of them with a striking resemblance to the US drones in at least appearance, and some questions about their performance. Since the Iranian Revolution, political figures in the Islamic Republic of Iran have consistently advocated for the destruction of Israel. This often-stated assertion was executed on 13 Apr 2024 when Iran fired scores of drones, cruise, and ballistic missiles on Israel in an unprecedented attack against its arch-foe. Among the drones used in the 13 Apr assault, according to Iranian state-run media, were the Iranian-made Shahed-136 and Shahed-131.[53] Iran utilised around 170 drones in the operation, making it one of the largest drone attacks in history—possibly the largest. As such, the attack epitomises the increasing reliance on remote, uninhabited systems in modern warfare. Another striking feature of this attack was that all 170 drones were intercepted.[54] The total interception of drones highlighted a notable weakness of this versatile weapon platform—susceptibility to ground-based air defences. Iran has also been the main supplier of drones and drone technology to Hezbollah/Hamas/Houthis to challenge regional rivals and amass a large enough inventory of high-performance drones to attack Israel.

Turkish drones have been in the news lately for their novelty, variety, and reach. The Turkish combat drone Bayraktar TB2, which has propelled Turkiye into being a major drone manufacturing and exporting nation, has contributed notably in combat in Idlib, Libya, and Nagorno Karabakh, as well as against the PKK and YPG militant positions across the border in Iraq and Syria. Success of TB2 against armour in Nagorno-Karabakh and air defence elements in Libya add a dimension to the capabilities of combat drones. The Ukrainian exploitation of this drone against armour and other ground targets has brought about some very surprising results in their conflict with Russia. China is another significant drone power producing 'Good Enough' cheap drones. The reach of China in this field can be best summed up as 'From Saudi Arabia

to Myanmar and Iraq to Ethiopia, governments and militaries across the globe are stockpiling Chinese combat drones and deploying them on the battlefield'. In Myanmar, the military—armed with Chinese drones—has conducted hundreds of air attacks on civilians and ethnic armed groups opposed to its power grab two years ago, while in Ethiopia, Prime Minister Abiy Ahmed's fleet of Chinese, Iranian, and Turkish drones was critical in helping his forces thwart a rebel march in 2021 that threatened to overthrow his government.[55] China also has the distinction of selling mail-order drones, crowd-funded for use against her ally, Russia. Morality is a concept so alien to India's neighbour.

Combat Drone: Not yet a Weapon of War

It would be appropriate to remind the readers that this narrative traces the evolution of two violent, 20th Century phenomena, the drone and the terrorist. As the narrative progresses in tracing the evolution of drone, there is a need for a pause and digression to answer a question: "Has the drone become a decisive weapon of war, or is it still evolving to be a battle-winning combat platform"? This question, like a Yakshya Prashna[56], warrants a complete study, which is beyond the scope of the present narrative. However, it needs to be acknowledged for a detailed analysis later. The recent application of drones in various combat situations has primarily created two divergent opinions. One view is that a combat drone is the decisive weapon platform of the future which can win wars. Some analysts have gone to the extent of calling combat drones a 'Magic Bullet'[57] or a 'Game Changer'[58], which has 'Changed the nature of the warfare'.[59] The other view is that the experience gained so far may not be sufficient to arrive at such a conclusion. This narrative will attempt to establish the limits within which the status of drone, as a weapon of war or otherwise, can be defined.

Elsewhere in this narrative, the successful application of drone in various situations has been described. Combat drone has been celebrated as a decisive weapon while describing its employment

in countless engagements by the US against terrorists in Afghanistan and Pakistan, Iran's use against the Islamic State of Iraq and ash-Sham (ISIS), Turkiye's use against PKK, and similar employment in Myanmar and Ethiopia for slaughtering significant individuals. When considering the use of expensive technology to acquire a large inventory of drones, it is essential to note that the current setup and deployment of these weapon-platforms have primarily been directed against individuals or small groups of individuals. Unless this basic thinking of employing drones changes, these versatile platforms will continue to be weapons suitable for asymmetric warfare. This employment pattern, with some recent exceptions discussed later, does not qualify combat drones to be universally called weapons of war, like the High Mobility Artillery Rocket Systems, the 'Arjun Tank', or the Rafale fighter aircraft, etc.

An analysis of the employment of combat drones in recent combat situations, including the Armenia-Azerbaijan War for Nagorno-Karabakh and the Russia–Ukraine conflicts, brings out an important inadequacy of such drones. They, primarily TB2, were successful in Nagorno-Karabakh and the initial stages of the Russia-Ukraine conflict when there were either no air defence resources to protect the battle assets or the legacy systems present in the field could not counter the drone threat. In this regard, the views expressed in a scholarly article, 'Air Defence and the Limits of Drone Technology'[60], about air defence vis-à-vis combat drone are authoritative and conclusive. The authors state, "After two decades of hype, the war in Ukraine is prompting a re-evaluation of the utility of military drones. Ukrainian forces used Turkish Bayraktar TB2 drones to great effect in the early days of the conflict, and the US has discussed selling Ukraine MQ-1C Gray Eagles. However, as the war has progressed, these platforms have become less effective". According to a Ukrainian Air Force pilot interviewed by Foreign Policy magazine, Turkish TB2s "Were very useful and important in the very first days (of the war), stopping those columns (of armoured vehicles), but now that the Russians have built up

good air defences, they're almost useless". Another Ukrainian Air Force pilot echoed this sentiment, telling Breaking Defense, "It's very dangerous to use such expensive drones (like the Gray Eagle) in our case because of (the) enemy's air defence…. It's not Afghanistan here". Along the same lines, military analysts writing for The Drive noted that the US defence planners have a similar assessment. "The US Army has reached many of the same conclusions about the Gray Eagle's ability to survive even in environments with relatively limited threats", they write. "The US Air Force has been looking to move away from the MQ-9 Reaper, the Gray Eagle's larger cousin, for the same reasons".[61] The authors continue, "In two recent articles, one published in International Security and one forthcoming in Security Studies, we make sense of these divergent perspectives by focusing on the dynamic interaction between military drones trying to penetrate enemy airspace and air defence systems trying to protect it. Whereas the debate on drones largely ignores the role of air defence, we argue that since the 1960s, improvements in electronics, materials, and propulsion have dramatically enhanced the capacity of air defences to detect, track, engage, and destroy aerial targets. As a result, air defences represent a formidable threat to any aircraft—as the US experienced in Vietnam and in Yugoslavia shows. In one of our scholarly articles, we looked at the Libyan civil war, the Syrian civil war, and the Nagorno-Karabakh war. Our empirical analysis shows that modern air defences represent a particularly serious threat to MALE military drones, which has to do with the physics of electromagnetic backscattering, how integrated air defence systems operate, and modern signal processing".[62]

In this, somewhat restrained, digression, before the narrative resumes, it would be apparent that the combat drone, as presently configured and with the extant employment philosophy, is not yet a complete weapon of war.

The world has witnessed the evolution of the idea of destroying an enemy as far as possible from a harmless balloon to a technological phenomenon called a drone, capable of performing miracles. A

drone, when used as a weapon platform, allows near-perfect and precise delivery of destruction in any part of the world. While conventional combat puts the opposing combatants' fight in a situation of parity, delivering violence through a drone is a study in contrast. An illustration would be appropriate.

In this hypothetical contest, one participant of the combat reports for her shift of duty to the operations centre situated in the US or anywhere in Europe. She arrived from the comfort of her home, possibly having dropped her children at school and her spouse at his workplace. For this combatant, it is going to be just another routine shift. In the office, she has the support of the world's most advanced real-time intelligence-gathering resources and decision support system, which possibly cost a few billion dollars. Early in her shift, she was shown a target, the other participant in the combat, who was an Asian male somewhere in West or South Asia. The target is reportedly a terrorist, who is the head of a terrorist outfit known to have killed hundreds of civilians. He is entirely unaware of the impending disaster that will visit him. The target is sitting on the roof of his house, calling on a satellite phone. The moment the target is confirmed, the game is on. Cameras mounted on a drone pick up the target. A quick positive confirmation is attained. A weapon carried on the drone is released, killing the target and destroying the house where the family had gathered for a celebration. The operator, whose innocuous action created mayhem very far away, which might have destroyed the whole world for some innocent people, completes her duty shift and moves on with her life. In this one-sided slaughter, it will be instructive to establish the three parties' circumstances. The operator, supported by the GWOT, killed the terrorist as part of a 9-to-5 job and went on with her life. The terrorist, who was killed, perished because of his beliefs and actions; no mourning. It is the third set of people, possibly including women and children perhaps living a life of poverty, who died because of an innocent association, whose unjustified killing defies all rationale.

The scenario described above has been replicated countless times in this region and elsewhere. Besides the killing of innocent bystanders, there have been innumerable instances of human error, sometimes because of sheer indifference. While neutralisation of the terrorists by a drone strike may be the best solution to eliminate the threat, the loss of innocents killed in this slaughter is now the subject of a very well-informed global debate.

Chapter 3

Appearance of a Terrorist: The Violent Non-State Actor

While drones were growing as a prime weapon platform, in the last few decades, another threat has emerged on the global landscape as groups of people seeking greater autonomy on ethnic grounds, protesting against perceived or real religious persecution, wanting to amass wealth by illegitimate means, or simply protesting against deficiencies and inadequacies in governance. Over time, these groups took to violence to achieve their goals. These groups spread worldwide to pursue their goals have been given the collective name VNSA.

These groups vary widely in their goals, scope, and methods. They may include narcotics cartels, popular liberation movements, warlords, religious and ideological organisations, corporations (e.g., private military contractors like Wagner or Blackwater), self-defence militias, and paramilitary groups established by state governments to further their interests. While some VNSA oppose governments, others are allied with them. Some VNSA are organised as paramilitary groups, adopting methods and structures similar to those of state armed forces. Others may be informally structured and use violence in other ways, such as kidnapping, using improvised explosive devices, or hacking into computer systems.[63] In an authoritative article, Phil Williams identifies various types of VNSA—warlords, militias, insurgencies, terrorist organisations, criminal organisations, and gangs. According to the author, the common denominator for all these organisations is the criminal activities of varying

intensities undertaken by them.[64] In this narrative, the focus will be on terrorist organisations, especially Islamic terrorists, because of the frequent contest between them and combat drones.

The Sicariis and the Assassins

The appearance of VNSA is neither a new phenomenon nor an occurrence of the 21st Century. The practice of people protesting against the existing social order and using violence to achieve their objectives has kept pace with the evolution of human society.

A reasonable point to start the study of the development of terrorism may be with the Sicarii or Dagger-men, one of the earliest known organised assassination units. The Sicarii were a splinter group of the Jewish Zealots who, in the decades preceding Jerusalem's destruction in 70 CE, strongly opposed the Roman occupation of Judea and attempted to expel them and their sympathisers from the area. The Sicarii carried Sicae or small daggers concealed in their cloaks. They pulled out these daggers to attack Romans and alleged Roman sympathisers at public gatherings, blending into the crowd after the deed to escape detection. Their motive was an uncompromising belief that they could not remain faithful to the dictates of Judaism while living as Roman subjects. Eventually, the Zealot revolt became open, and 967 Jewish men, women, and children reportedly chose to take their own lives at the fortification of Masada rather than suffer enslavement or death at the hands of the Roman army.[65] Another prominent grouping was 'The Assassins', a breakaway faction of Shia Islam called the Nizari Ismailis, a heretical group of Shiite Muslims who were influential in Persia and Syria from the 11th Century CE, until their defeat at the hands of the Mongols in the mid-13th Century CE. They adopted the tactic of assassination of enemy leaders by sending a lone assassin to kill a key enemy leader at the inevitable sacrifice of his own life. Nizari Isma'ilism (al-Nizāriyya) is the largest segment of the Ismaili Muslims, who are the second largest branch of Shia Islam after the Twelvers.[66] [67]

Even though both the 'Zealots' and the 'Assassins' operated in antiquity, they are relevant today: First, as forerunners of modern terrorists in motivation, organisation, targeting, and goals; Secondly, although both were ultimate failures, they are remembered hundreds of years later, demonstrating the profound psychological impact they caused.

The French Reign of Terror

The words terrorism and terrorist came to English as translations of words used in French during the period of the Reign of Terror (1793-94), when the new government punished—usually by death—those people who they thought to be against the ongoing French Revolution.[68] The Reign of Terror, commonly called 'The Terror', was a period of the French Revolution between 05 Sep 1793 and 27 Jul 1794. With civil war spreading from the Vendée, a coastal region in the west of France, and hostile armies surrounding France on all sides, the Revolutionary government decided to make terror the order of the day (05 Sep decree) and to take harsh measures against those suspected of being enemies of the Revolution (nobles, priests, and hoarders).[69]

The terms terror, meaning fear, and terrorist, meaning someone who uses violent action or threats of violent action for political purposes[70], are very relevant today. However, in the last few decades, there has been a manifold rise in the geographic reach of some terrorist organisations. This has resulted from the availability of limitless financial resources, political backing in some cases, and the willingness of volunteers from across the globe to join the Jihad for acts of terror and violence of a kind rarely seen before. Some of these groups acquired the ability to threaten the very states where they were located. The term VNSA appears to be a transformation of term Non-Government Entity (NGE) coined by the Amnesty International in 1980s. The term NGE never gained much currency beyond Amnesty International circles, and today it has largely been replaced with the term Non-State Actor

(NSA).[71] VNSA is an 'Old-new' phenomenon. It refers to an existing constellation of terrorist, insurgent, guerrilla, extremist political or religious, resistance, and organised crime structural units (such as quasi-states, movements, organisations, parties, groups, even the empowered individuals), operating worldwide. What makes them different from the Cold War era is the almost complete disappearance of 'Patron–Proxy' relationships with the states. VNSA became independent actors in global politico-military settings.[72] As this narrative progresses, the scope of the term VNSA narrows down to describe terrorist organisations with a political agenda as their stated goal. In addition, the focus of this limited narrative will be on Islamic terrorists because of their well-established interface with combat drone.

These groups or organisations have the economic, political, and social capacity to influence global events, but do not always belong to or affiliate with any particular country or state. There are exceptions like Hezbollah and Houthis, supported by a powerful country with a specific anti-Israel, anti-US, and anti-West agenda. These groups employ fear, terror, intimidation, and violence to pursue their objectives. As a new species of actors in international relations, VNSA represent indeed a departure from the traditional Westphalian system of states in two ways—by providing an alternative to state governance and challenging the state's monopoly of violence. Phil Williams, in an overview article, states, "VNSAs have become a pervasive challenge to nation-states in the 21st Century".[73] There are various VNSA, including these NSAs, also referred to as 'Terrorists' or 'Terrorist Groups'. Because of the preponderance of violence at a global scale caused by predominantly Muslim organisations, they are also identified as 'Islamic Terrorists'. These VNSA have waged war against the established order and attempted to create new, primarily religion-based, seemingly sovereign states. Some of these VNSA groups also started behaving like states without boundaries.

Islamic Terrorist Organisations: Secular Beginnings

The Islamic organisations, which have now come to epitomise unremitting violence against helpless, hapless, and harmless millions, had very secular beginnings in the form of organisations fighting for the liberation of Palestine. In the words of John Moore, "The present-day very violent, modern international terrorism with the dominance of Islam had, in the 1960s, very secular beginnings in the form of organisations fighting for the liberation of Palestine. However, during the post-1967 defeat of Arab forces, there was a transformation from guerrilla warfare to urban terrorism and a gradual move toward a greater religious orientation".[74] The shift from the seemingly secular Arab nature of the Palestinian struggle to a very uncompromising Islamic character of these outfits has wholly eclipsed the Palestinians' fight for a homeland.

While some terrorist outfits are fighting for a vague notion of freedom and political autonomy, there are others spread over large contiguous geographies of Southwest and South Asia, parts of Africa, and a substantial presence in far-off places like Europe, Latin America, and East Asia, with a stated aim of establishing an Islamic caliphate. Nearly all of them with an anti-West ideology also have an avowed goal of destroying Israel. Adequate availability of funds and almost unlimited availability of volunteers, including some new converts to Islam from across the world, have resulted in an incredible proliferation in the number of Jihadi organisations. Despite rivalries and race for supremacy and power, internecine conflicts, resulting in divergent approaches, and causing extreme suffering to the civilian populations, they do share some beliefs, ideologies, and goals. An essential identity distinction is the source of funding and fundamental faith of being Sunni or Shia. While this distinction is vital to establishing the group loyalties, the identities may sometimes be based on tribal or ethnic allegiances. It might be interesting to know that besides the Palestine Liberation Organization and Harakat al-Muqawama al-Islamiyya (HAMAS), there are many more offshoots and splinter groups (possibly 8–10

groups), all fighting for the liberation of Palestine. It is ironic that for a vast number of talented Palestinian youth, in the absence of any other career choices/avenues available to young people elsewhere in the world, joining one of these groups, branded as a patriotic duty, and fighting for elusive freedom is the only option. All these groups, put together, have very little to show for their Sisyphean efforts in fighting Israel.

Human Tragedy in the Name of Religion

In the name of religion, the level of inhumane and extensive scale of violence of these groups against their co-religionists and other civilian populations may find very few parallels in human history. It is not hard to discern the rationale behind the magnitude of brutality committed against civilians and their co-religionists by these Islamic terrorist groups from the stated ideology and objectives of possibly one of the largest such groups. The ideology of Al-Qaeda is derived largely from the thinking of Abdullah Azzam, considered to be the founder and one of the ideological fathers of Al-Qaeda, who stated that Jihad is an obligation for each capable individual Muslim.[75] Osama Bin Laden outlined his thoughts in 'Declaration of war against the Americans' published in 1996, in which he stated that the people of Islam had suffered from aggression, iniquity, and injustice imposed on them by the Zionist-Crusaders alliance and their collaborators. The stated belief of Al-Qaeda is that 'A Christian–Jewish alliance (led by the US) is conspiring to be at war against Islam and destroy it'. As Salafist jihadists, members of Al-Qaeda believe that killing non-combatants is religiously sanctioned. Al-Qaeda also opposes what it regards as manufactured laws and wants to replace them exclusively with a strict form of sharia (Islamic religious law, which is perceived as divine law). Another equally large group, ISIS also aims to establish an Islamic caliphate but has a different ideology. Al-Qaeda principally believes in a sort of defensive Jihad declared against western culture, primarily the US political culture, which they believe is entirely anti-Islamic and views it as a threat to the Islamic

world. Al-Qaeda leadership believe that every true believer of Islam must come forward to defend the religion. It is another matter that no act of the group seems defensive. Al-Qaeda does not believe in forcibly establishing a caliphate; it wants to leave it upon consensus among Islamic seminaries. ISIS, on the other hand, believes that every Muslim must consider it a sacred duty to contribute to the armed struggle to establish a caliphate for the entire Muslim world forcibly. ISIS is more medieval in outlook and champions the causes of radical Sunni Islam.[76]

The oft-stated perception that the VNSA would always be weaker than the target state needs to be revised. Al-Qaeda, Hezbollah, HAMAS, Houthis, and ISIS have fought protracted wars, captured massive swathes of territories, stopped the natural flow of rivers, and caused death and destruction at a scale that is hard to describe. Their actions have made millions of innocent civilians homeless, looking for shelter in alien lands as refugees. The whole world is watching the enormity of the heart-breaking tragedy in Syria. Fighting between many, primarily Islamic, antagonists with varying interests has forced more than 10 million Syrians to abandon their way of life with no hope of coming back ever. Similarly, the situation in Yemen, termed a massive human tragedy, is an all-Islamic contest for regional supremacy. Yemen, already one of the poorest countries in the Arabian Peninsula, has been ravaged by years of war between the Saudi-backed government and the Iran-aligned Houthis. A recent report by the United Nations' Integrated Food Security Phase Classification (IPC) technical group in Yemen covering areas under government control said the most critical cases are emerging along the war-torn country's Red Sea coast. According to the IPC report, all 117 districts in government-controlled areas are expected to suffer from 'Serious' levels of acute malnutrition. Among them, four districts—Mawza and Al-Makha (Mocha) in Taiz province, Hays and Khawkhah in Hodeidah province—were projected to slip into famine between Jul and Oct 2024.[77] There is no end in sight to this tragedy.

Shorter, Brutish, and Hopeless Life: Challenge to the Civilised Society

The weakness of the states in the Middle East viz-a-viz the VNSA has been summed up as multiple states in the region do not have a monopoly on the use of force within their borders and that means, for the time being at least, VNSA hold vital and decisive power over the course of political events in the region. The current level and nature of conflict in the region seems to be degrading the power of the state even further. This allows the major VNSA to influence the region's politics and the 'Industry' of hundreds of other groups who act as critical factors in the course and speed of political change. Paraphrasing Hobbes, "Life in the Middle East seems to be even shorter, even more brutish, and seemingly more hopeless".[78] These organisations can impose their will without the responsibility of governance, as accepted by a civilised society, on the hapless populace of their chosen geographies. Taliban, one such organisation, has forced the US to move out of Afghanistan and is planning to govern the once-liberal Afghanistan of King Zahir Shah and war-ravaged, vulnerable Afghani people with sharia law and the whole world is silently watching.

Deadly terrorist groups with Islamic tags like Al-Qaeda, ISIS, Taliban, Boko Haram, Laskar-e-Taiba, and their countless affiliates have thrown an open challenge to global civil society. The world is paying a considerable price in terms of human lives, money, infrastructure, and, finally yet notably, the all-around mistrust cutting across class, creed, religion, and gender. A critical issue about these organisations, whether operating as geographically diffused networks spread over many countries or holding large tracts of forcibly occupied territories, is the brazen use of civilians as human shields and the consequent misery imposed on their reluctant hosts, mostly Muslims. Their ingrained intention is to invite massive responses to spread alienation amongst people against the state(s). Any action to neutralise these militant organisations will harm people who may have nothing to do with this conflict.

This phenomenon of 'Collateral Damage' has become a significant issue concerning the morality of using indiscriminate force against terrorists hiding amongst the civilian population. The inhuman violence inflicted by these organisations, resulting in thousands maimed or killed or raped or orphaned or widowed and millions rendered homeless in their own countries, for some obscure, hard-to-achieve goals, calls for a sufficiently punitive global response that can end this misery.

Chapter 4

Violent Non-State Actors and the Modern Technology

Following the death of Prophet Muhammad in 632, the Rashidun caliphate emerged. Lasting from 632 to 661, the Rashidun caliphate was the first of the four caliphates of the Islamic world. The other three major Islamic caliphates were the Umayyad caliphate (661-750), the Abbasid caliphate (750-1517), and the Ottoman caliphate (1517-1924). In 1924, the Ottoman Caliphate was formally dismantled.[79] This rather long period of over a millennium is a saga of violence, clan or tribal rivalries, and bloodshed, interspersed with brief periods of peace and prosperity when art and culture flourished. While the stated aim of most present Islamic terrorist organisations is to recreate an Islamic caliphate, an event primarily of the medieval period, their race for supremacy and the quest for power—political, physical, and financial—is reminiscent of the history of caliphates. In their attempt to transform this world into a Sunni habitat, two distinguishing features are evident: 'The unabated and ruthless violence' and the 'Use of modern technology'. One of the most distinguishing features of innovative terrorism is that terrorist organisations track down security vulnerabilities in new technologies and use these technologies for their own tactics and attacks, and thus adjust themselves to these new technologies.[80] A broad spectrum of modern technologies is available if one knows where to search. These terrorist organisations have an abundance

of the right talent to identify the required technologies and suitably adapt them for disruptive purposes. These organisations are optimally exploiting cyberspace and the employment of drones.

Choreography in the Theatre of Terrorism

With the advent of the internet, terrorist organisations are fighting at two levels. At one level is the physical violence in which they carry out isolated, mostly well-planned attacks with readily available weapons like guns, knives, or ramming cars/vans through innocent crowds. The other level is rather violent campaigns using large-scale bombings or mass shootings. Of course, on rare occasions, this level includes hijacking planes and crashing them into some vital landmarks like the World Trade Centre in New York. With easy internet access, every terrorist attack is akin to a dramatic representation in which the internet is the stage. According to Brian Jenkins, an international terrorism expert, "Terrorist attacks are often carefully choreographed to attract the attention of the electronic media and the international press. Terrorism is aimed at the people watching, not at the actual victims. Terrorism is a theatre".[81] The other level these organisations have achieved great expertise in is exploiting anonymity and unlimited internet reach. The internet appeals to terrorists for the same reasons it attracts everyone else: It is inexpensive, easily accessible, has little or no regulation, is interactive, allows for multimedia content, and the potential audience is huge. Moreover, it is anonymous.[82] These organisations have created a substantial presence in cyberspace. According to slightly dated information, an estimate of the reach of these organisations using the Internet can be made from a study titled 'Terrorism in Cyberspace: The Next Generation' conducted by Professor Gabriel Weimann. According to this study, in 1998, the number of websites containing terrorist material was 12, in 2003, he counted 2,650 websites, and in Sep 2015, the total number reached to 9,800.[83] The number now is bound to be much higher. There is a long list of these organisations exploiting the potential of the internet. Some of these groups or individuals have

a very high internet expertise. The expertise of these organisations in exploiting the unregulated, anonymous, and freely available medium like the internet has been summed up as "Terrorism on the internet is a very dynamic phenomenon: websites suddenly emerge, frequently modify their formats, and then swiftly disappear—or, in many cases—seem to disappear by changing their online address but retaining much the same content".[84] Most of these organisations use the internet to replicate all functions that any large conglomerate will undertake to manage its affairs. Most terrorist organisations use the internet for research and communications, training, fundraising, media operations, radicalisation, and recruitment.[85]

VNSA and Social Media

This monograph has identified the use, dependence, and exploitation of the internet by the VNSA. This part of the narrative will be incomplete if the association of the VNSA with another technological marvel, i.e., social media, is not addressed. One of the defining phenomena of the present times reshaping the world, as it is known, is the worldwide accessibility to the internet. The lovechild of the World Wide Web is social media, which comes in many forms, including blogs, forums, business networks, photo-sharing platforms, social gaming, microblogs, chat apps, and last but not least, social networks.[86] As of 2024, there are approximately 5.16 billion active social media users worldwide, which is around 59.3 per cent of the global population. Facebook remains the largest social media platform, with over 3.15 billion monthly active users.[87] Social media are interactive technologies and digital channels that facilitate creating and sharing information, ideas, interests, and other forms of expression through virtual communities and networks. There are many peaceful applications of this technology. Users access social media through web-based apps or custom apps on mobile devices. These interactive platforms allow individuals, communities, and organisations to share, co-create, discuss, participate in, and modify user-generated or self-curated content.

Social media platforms are used to document memories, learn, and form friendships. They may be used to promote people, companies, products, and ideas. Ordinary people, small businesses, large corporations, and governments use these technologies to create new relationships and alliances, stay connected and informed, spread education, and conduct legitimate business. Besides the legitimate users of this powerful medium, nearly all terrorist organisations extensively use these technologies. Most of these organisations have a substantial presence on social media. Gabriel Weimann from the University of Haifa found that nearly 90 per cent of organised terrorism on the internet takes place via social media. According to Weimann, terror groups use social media platforms like Twitter, Facebook, YouTube, and internet forums to spread their messages, recruit members, and gather intelligence.[88] The reason for this affinity is not far to seek. Terror groups take to social media because these tools are cheap and accessible, facilitate quick, broad dissemination of messages, and allow for unfettered communication with an audience without the filter or 'Selectivity' of mainstream news outlets. In addition, social media platforms allow terror groups to engage with their networks. Whereas previously, terror groups would release messages via intermediaries, social media platforms will enable them to release messages directly to their intended audiences and converse with them in real-time.[89] The following examples illustrate the significance and reach of social media as a game-changer for these terrorist organisations:

- Al-Qaeda is a decentralised network of networks with no structure, hierarchy, or centre of gravity. It is based on a global alliance of autonomous groups and organisations, in a loose-knit international network. This composition is strikingly similar to the internet with its unstructured network, reliance on a decentralised web of nodes with no centre and no hierarchy. The parallel between the two may not be so coincidental: Al-Qaeda adopted the internet and has become increasingly reliant on it for its operations and survival. The internet, a contemporary of media, has become the leading instrument of Al-Qaeda's

communications, propaganda, recruitment, and networking. Al-Qaeda is now operating approximately 5,600 websites and 900 more are appearing each year.[90] Brian Jenkins, a senior advisor for the RAND corporation, commented on Al-Qaeda's dominant presence on the web: "While almost all terrorist organisations have websites, Al-Qaeda is the first to exploit the internet fully". This reflects Al-Qaeda's unique characteristics. It regards itself as a global movement and depends on a global communications network to reach its perceived constituents. It sees its mission as not simply creating terror among its foes but awakening the Muslim community. Its leaders view communications as 90 per cent of the struggle. Despite the risks imposed by intense manhunts, its leaders communicate regularly through video and audio messages posted on its websites and disseminated online. The number of websites devoted to the Al-Qaeda-inspired movement has grown from a handful to thousands, although many are ephemeral.[91]

- Islamic State (IS) has emerged as one of the most potent social media users. In many respects, IS learned its propaganda craft from Al-Qaeda on the Arabian Peninsula. However, the IS quickly eclipsed its mentor, deploying a range of narratives, images, and political proselytising through various social media platforms. A study by Berger and Morgan estimated that ISIS supporters used at least 46,000 Twitter accounts between Sep and Dec 2014.[92] As extreme exploitation of social media, ISIS' attempts to promote home-grown terror has resulted in a 'Do-it-yourself' handbook for so-called 'Lone Wolf' extremists.[93] IS' Turkish franchise has released a 'How to' e-book for terrorist amateurs who seek to increase the frequency of attacks and the range of targets in the West. The first-of-a-kind 'Lone wolf's handbook' written in Turkish gives detailed instructions for burning parked cars, setting forest fires, setting traps for highway accidents, making bombs, instructions for suicide-truck attacks on pedestrians, and the most efficient ways to detonate buildings. The 66-page manual with 174 illustrations and seven charts

was released on 03 Jul via encrypted chat rooms in the Telegram instant messaging service and other online platforms.[94] This1.6 GB file can be downloaded as an interactive e-book. For easy reading and reference, the e-book is organised into thematic sections. It begins with a review of Islamic fundamentals as interpreted through ISIS' radical lens, including discourses on sharia law and jihad. After learning how to properly pledge allegiance to the IS, readers receive a detailed rationale for why the terror group kills 'Infidels' and wages war against the West. Those itching to learn how to fashion makeshift explosives or operate anti-aircraft missiles are also in luck. Sections of the guidebook give crash courses in basic chemistry, bomb building and the use of heavy artillery.[95]

- There is information available in the public domain about the use of social media by other organisations such as Al-Shabab, the Taliban, and Boko Haram.[96]

Threat of Terrorism: Very Near and Very Personal

The raison d'être behind a ruthless and mindless, violent campaign at an immense scale against innocent people, including women, children, the aged, and the infirm, across geographies is to frighten them and acquire unbridled power in the name of religion for an obscure cause of establishing an Islamic caliphate. Despite differing ideologies and perceptions, diverse approaches, and divergent interpretations topped up with tribal loyalties and internecine rivalries, these organisations have achieved two objectives. After almost succeeding in Syria and Iraq, they established a sharia-governed government in Afghanistan. Secondly, these believers and followers of centuries-old religious practices, which do not allow any deviations from the teachings of the 'Holy Quran', have adapted themselves to the most modern technology tools to bring this threat into the homes of millions who are not involved in this conflict. With the intrusive nature of the internet and social media and its somewhat effective and efficient exploitation, the threat of

terrorism has become ubiquitous, very near, and personal. In the words of Jason Burke, "Terrorism always seems near—at least when it happens in an environment resembling our own—because the shocking images on our phones, televisions, or newspapers erase the distance between us and the source of danger. It always seems new because although each attack follows a familiar timeline—the first reports amid chaos and confusion, statements by police and politicians, analysis from commentators waking up in successive time zones, the identification of attackers and victims, condolences and flags at half-mast, debates about radicalisation, etc.,—each is unique". In the 1970s, terrorism expert Brian Michael Jenkins famously said, "Terrorism was theatre". This succinctly captured its spectacular, performative nature. These days, it seems more like an endless TV series that everyone wishes was over but that everyone watches nonetheless.[97]

Chapter 5

Violent Non-State Actors and the Drone: The Evil Confluence

Earlier, it has been established at length the evolution of two very destructive and disruptive phenomena of the 21st Century. The discussion also digressed to examine how VNSAs have exploited one of the greatest inventions of the 20th century—the internet and social media. It further highlighted how drones are transforming the way humankind may conduct battles in the future by enabling the delivery of violence from a distance. This distant delivery of violence is not only limited to the elements of the state. This instrument of violence is available to VNSA, and they are exploiting the knowledge, technology, and availability of drones to deliver death and destruction. The affinity that VNSA have displayed for drone has been explained by Thomas Braun, "Because drone technologies allow VNSA like terror groups to inflict a large physical and emotional toll upon civilians and military forces not only in conflict zones but also in modern city centres".[98] With the availability of this tool, there are no taboo zones for VNSA.

It has been observed that after over a century of development, there has been a proliferation in drones' design, performance, capabilities, and tasking. A drone carrying weapons has been established as a very efficient, modern platform to deliver uncontested violence. The use of drones by VNSA is becoming quite common, innovative, varied, and progressive because the drones now represent a significant element in usurping the state's monopoly on violence. Terrorist-operated drones constitute a

security concern for two reasons: Firstly, they grant VNSA a new offensive edge in conflict; and Secondly, they increase defensive challenges for security providers.[99] Possession and employment of a variety and number of drones confer the 'Unique Attributes' of air power on VNSA.[100]

It would be interesting to know that this versatile flying platform finds many illegal uses. Amongst the earliest planned use of a drone to cause death was "Over 25 years ago, when the Japanese terror group Aum Shinrikyo considered using drones to distribute sarin gas against civilian populations".[101] They attempted to use a remote-controlled helicopter to spray sarin gas, but tests failed as the helicopter crashed.[102] However, the concept lasted. Another major user of drones is by drug cartels, who use drones to attack their opponents and law enforcement agencies, and deliver drugs. An incident of such use of drones by smugglers, as reported in the media, adequately describes this utilisation of drones by drug cartels. Tweaked commercial drones are now part of Mexican drug cartels' arsenal for attacking enemies and smuggling drugs into the US. The bee-like sound of flying drones has become a new symbol of terror in small Mexican towns like Aguililla in the Southwestern Mexican state of Michoacán. Families in Aguililla have been reporting bomb-strapped drones flying over their homes, since early this year, in a new tactic used by cartels to fight for their turf. The latest attack occurred in Tepalcatepec, a municipality in Southwestern Michoacán state, on 04 May 2021, when a large group of armed men—reportedly members of the Cartel Jalisco Nueva Generacion—used drones loaded with C4 explosives and shrapnel to attack a group of their opponents. A similar attack occurred a month earlier, in which a drone injured two local police officers in Aguililla.[103] There may be many other unlawful uses of drones by terrorists, such as surveillance, communication, transporting essential components, or any other disruptive activities. This narrative, however, will continue with a focus on the use of drones by terrorists as weapon platforms.

According to Kelley Sayler's taxonomy of drones, based on

accessibility and technical and infrastructural requirements to operate, there are four categories of drones: hobbyist, commercial and mid-sized military, large military-specific, and stealth combat. The higher the category, the less accessible and more intensive the requisites to operate and maintain the UAV.[104] Based on this classification, terrorist organisations like Hezbollah and HAMAS have numerically adequate, made-to-purpose, primarily low-performing Hobbyist and Commercial Drones (HCDs) of various origins and varied sources.

Hobbyist and Commercial Drones

At this stage of the narrative, there is a need to bring another technological marvel into the arsenal of VNSA, that is, HCDs. Not all terrorist outfits have the resources, expertise, infrastructure, or organisation to acquire and employ larger drones. To overcome these disparities, VNSA instead started exploiting the freely available smaller drones and the technology to build these drones to meet their specific requirements. There are also well-documented instances of VNSA scavenging drones for reuse, modification, and reverse engineering. In May 2012, an Allied raid on a Taliban base in Helmand Province yielded a small drone thought to be a North Atlantic Treaty Organization model. Turkish security forces found a US RQ-20 Puma during a search of a PKK cell in Silopi in early 2016.[105]

The use of such drones became popular among terrorist organisations as soon as the security vulnerabilities, the absence of any regulation, and off-the-shelf availability were discovered. Numerous non-state armed actors and terrorist organisations use drones today, at least to gather intelligence about their targets, which allows terrorist organisations to enhance their capabilities. However, the use of drones is not just limited to reconnaissance and surveillance. Some of these actors may use drones in a more complex way of utilisation, with the purpose of an assault.[106] These small flying instruments have been modified with incredible

innovation and remarkable imagination to perform various aerial tasks.

As seen earlier, the larger drones are primarily being used to deliver violence, with some exceptions of their use for reconnaissance or surveillance. For example, Iran's very large inventory of drones has come to represent an alternative to a modern air force. The HCDs, on the other hand, offer nearly unlimited options for their utilisation in the third dimension. These drones allow VNSA to exploit their easy availability, small size, unobstructed rapid movement, and the possibility of multiple uses, modifying them or using innovative payloads for diverse tasks. The VNSA are using these drones at the strategic level for propaganda generation, at the operational level for real-time Intelligence, Surveillance, and Reconnaissance, and to enhance Command and Control. At the tactical level, civilian drones open access to otherwise unreachable targets, such as rear headquarters and transit routes, extending the range of VNSAs' lethality.[107]

Having seen the type of violence caused by the larger drones, it would appear that these 'Relatively low-performing platforms' could not possibly make any substantial contribution to the ongoing mayhem, violence, and destruction being caused by different terrorist organisations worldwide. The reality is, in fact, rather different. These drones have been used extensively in various stand-alone modes, in clusters, or in conjunction with larger drones. The first recorded successful attack using drones by VNSA was in mid-2013 when Hezbollah reportedly dropped two small explosive devices on Syrian rebel strongholds using a drone supplied to the group by the state of Iran.[108] The employment of drones after that has risen manifold. A few instructive examples will illustrate their rather innovative and effective employment.

- These drones have been modified and booby-trapped to cause death or severe injury, once captured and handled on the ground. Two notable instances occurred at the end of 2016. The first involved three quadcopters rigged with explosives that killed

two Kurdish fighters and seriously injured two French special forces soldiers upon detonation. In the second attack, a drone strapped with an explosive gained aerial access to a checkpoint, destroying some buildings.[109]

- Another example of a successful attack using '13 Primitive-looking Drones' is when a coordinated swarm of these drones penetrated the aerial defences and attacked the Khmeimim Syrian airbase, operated by Russia.[110] HCDs, smaller and readily available in very large numbers, are now a tangible asset in the extensive inventory of VNSA for substantial delivery of violence and destruction.

Drones of Hezbollah vs Israel

In Dec 2021, Israel's military said a high-tech upgrade to the barrier that had long surrounded the Gaza Strip would protect nearby Israeli residents from the threat of violence from militants. The upgrade costed USD 1 bn and took three years to complete. On 07 Oct 2023, this 'Iron Wall' just crumbled.[111]

Hezbollah's inventory includes drones that are either designed and manufactured locally or possibly provided by Iran. This arsenal of drones reportedly numbers at least 2,000. The Iran-backed terror group has primarily deployed Ababil-model one-way attack drones, particularly the Ababil-T, in its attacks on Israel. Former Hezbollah leader Hassan Nasrallah also asserted that the group can indigenously manufacture drones, suggesting an ability to continue replenishing this formidable arsenal. The ability of Hezbollah drones to manoeuvre in different directions at an unpredictable trajectory and at a range of speeds present further obstacles to interception.[112] An excellent example of the increased sophistication in the employment of drones by Hezbollah is the launching of one of its deepest strikes into Israel in mid-May using an explosive drone that scored a direct hit on one of Israel's most significant air force surveillance systems.[113]

Israel's military has confirmed that the Sky Dew Blimp (USD 230 mn), which can spot targets up to 250 kms away, had been damaged. An Iran-designed Ababil, carrying a 40 kg warhead traveling up to 370 kmph with a range of 120 kms, carried out the attack possibly.[114] [115] These forays by the Hezbollah drones into the Israeli air space were 'Primarily sent to cause panic in Israel'. As their sophistication grows, Hezbollah's drones will be increasingly valuable for reconnaissance missions to gather information on troop movements and facilities in preparation for future infiltrations or rocket attacks and calibrate the accuracy of rocket targeting in real-time.[116] Hezbollah's increasing use of effective attack drones, according to the Jewish Institute for National Security of America's Iran projectile tracker, likely represents an accelerated effort to dissuade further highly successful Israeli strikes on Hezbollah infrastructure and leadership. This also seeks to probe and exploit vulnerabilities in Israel's air defences, attrite Israel's interceptor stocks, and ultimately stymie Israel's stated objective of restoring security to the north, enabling over 60,000 Israelis to return to their homes after being forced out by Hezbollah's unprovoked attacks.[117]

Drones of HAMAS: A Massive, Deadly 2G Attack on a 5G Security State[118]

In contrast to Hezbollah, HAMAS is not equipped with a significant and sophisticated stockpile of drones. In addition, the threat emanating from Gaza with many autonomous belligerent protagonists has so far not followed any predictable military logic. Despite being a Sunni organisation, HAMAS is a well-known beneficiary of Iran's generosity and Turkish contribution.[119] The status of HAMAS as just another terrorist organisation changed on 07 Oct 2023 when it attacked Israel. The attacks surprised experts with their complexity and coordination, involving simultaneous linked and layered operations on land, air, and sea. UAS constituted the first wave of attacks to eliminate Israeli

observation towers, cameras, and communications. This initial challenge was meant to blind, deafen, and confuse the Israeli defence. They also dropped munitions from UAS on tanks, apparently well aware of how to target them as well as soldiers and emergency responders for disabling. Swarms of drones were also deployed to attack naval vessels and energy infrastructure. Alongside thousands of rockets, the group launched volleys of a new loitering munition—also known as a suicide drone—called the Zouari.[120] These well-co-ordinated HAMAS attacks have established drones 'As crucial for achieving strategic and tactical objectives'.[121]

Conclusion

Wars: The Human Thing

The basic premise of this narrative stated at the outset is that violence is a primordial trait of humankind. It has been established earlier that wars and resultant violence have been an intrinsic part of the evolution of humanity. However, wars were fought amongst well-identified, recognisable combatants, arrayed in identifiable formations, following a set of guidelines. These wars were fought with a code of ethics that forewarned an enemy of the impending violence and followed rules about who could be engaged in combat and treatment of the wounded, the weak, and the infirm. These wars, once joined, were decided by courage, bravery, élan, and skill at arms. These wars were 'The human thing'. The application of violence from a distance by using drones has dehumanised violence, and the depravity and cruelty displayed by VNSA have made violence an inhuman exercise.

Evolution of Two Modern Phenomenon

This narrative has attempted to trace the origin and evolution of two modern phenomena: drone, used as a combat platform, and the VNSA. In innumerable avatars, both entities are subjecting humankind to levels of violence with few parallels, uninterrupted for decades and with a geographic spread that covers nearly the entire globe. Drones, when used by the state, are an instrument of power and legally sanctioned violence, nearly always for the destruction of the VNSA and progressively, finding roles in conventional combat. VNSA with a waning influence, on the other

hand, are known for their cruelty and use of enormously excessive violent force, resulting in misery for millions of innocent people and a massive human tragedy. The violence unleashed by these organisations has left millions of innocent civilians dead, wounded, maimed, sick, hungry, orphaned, widowed, homeless, or simply without a way to lead a decent life in or away from their natural habitats. One heartbreaking facet of this tragedy is the lost childhood of millions of children who will never experience the beauty of growing up in traditional homes in happy conditions and millions of women forced to lead a life of anonymity and obscurity. Tragically, the most significant number of people who have suffered and continue to suffer this inhuman violence are Muslims, whom these terrorists claim to represent. VNSA are also using modern technologies and drones to maximise violence.

The global community at large has taken note of the horrors of the inhuman violence imposed by terrorist organisations in various parts of the globe. Not surprisingly, the primary focus of these organisations has been the states like Afghanistan, Pakistan, Syria, Iraq, Somalia, and Yemen, which were in turmoil and with large Muslim populations. These states responded according to their capacity, with limited resources, which was insufficient. The response to this threat, which affected millions of people, escalated to a level where it could not be left to these fragile or troubled regimes, resulting in intervention by major global powers.

All the nations/coalitions of various countries joining the fight against terrorist organisations deployed their conventional weapons like combat aircraft, guns, rockets, and missiles to neutralise the terrorists when located or in their hideouts. Special operation detachments were employed to search and destroy these elements. However, the tentative introduction of a new weapon platform, the UCAV or drone, has become a game-changer. The introduction of drones started the new narrative of remote delivery of ruthless violence. A drone could practically locate a 'Needle' in the haystack, identify if the needle was hostile, all in real-time, and destroy the needle, if required, with great accuracy, all at zero cost in terms of

'Life' to the attacker. The world suddenly discovered a war without body bags, no flag-draped coffins, no bugles, and no last posts. This narrative has earlier described, at length, this one-sided slaughter inflicted by the drones.

A Hellfire missile, launched from a predator flying over Afghanistan/Pakistan, with the launch command originating in Europe or the US, possibly going through the front door of a house on a remote hill and destroying everything in a particular area, will be celebrated at one level as the triumph of technology at work to save lives. Yet, at another level, this achievement of technology needs to be lamented and bemoaned because it reduces the primary, necessarily two-sided, violent contest between human beings, individuals, or groups, howsoever unequal in capacity, to a ridiculously unfair, blind-sided affair for the objective at the target end; akin to the wrath of an angry God. This dehumanising nature of the violence imposed by the drones has been very widely commented upon, mostly adversely. This narrative, however, needs to add a caveat that the state's intention of using drones has always been the destruction of organisations imposing 'Inhuman Violence' on millions of innocent people who stand to gain nothing from this conflict. Thus, the use of drones to eliminate the threat of terrorist violence may be justified, but this justification needs to be qualified. The drone engagements must completely preclude the possibility of any harm to innocent civilians. The rich and powerful nations, happy with distributing generous compensations for killings resulting from very frequent 'Human Error' to the victims, owe this much to the poor and the disadvantaged who are suffering both the inhuman violence as well as the indiscriminate drone strikes. This conclusion, however, leaves out one chapter in chronicling the saga of violence completely unaddressed i.e., the use of drones by the VNSA. That chapter can only be concluded when humanity is relieved of this threat. For the present, an era of merciless violence imposed by the VNSA, and the time when the one-sided slaughter imposed by the drone will not destroy innocent civilians is not visible even on a distant horizon.

Endnotes

1. Thomas G. Vincent, 'The Ethics of war', *The Ethical Spectacle*, March 2009, Accessed on 11 Nov 2024 https://www.spectacle.org/0309/vincent.html

2. Tom Mockaitis, 'The Blog: Drones and the Ethics of War', *Huffpost*, 12 Jan 2016, Accessed on 10 Nov 2024 https://www.huffpost.com/entry/drones-and-the-ethics-of_b_8961510

3. Eric Hobsbawm, 'War and peace', *The Guardian*, 23 Feb 2002, Accessed on 13 Nov 2024 https://www.theguardian.com/education/2002/feb/23/artsandhumanities.highereducation

4. Ben Zimmer, 'The Flight of 'Drone' From Bees to Planes', *The Wall Street Journal*, Jul 26 2013, Accessed on 12 Nov 2024 https://www.wsj.com/articles/SB10001424127887324110404578625803736954968

5. 'Historical Timeline of UAV Technology, A Not-So-Short History of Unmanned Aerial Vehicles (UAV)', *Consortiq*, Accessed on 12 Nov 2014 https://consortiq.com

6. DH.82B Queen Bee (UK), NOVA, Accessed on 14 Nov 2024 https://www.pbs.org/wgbh/nova/wartech/uavs_05.html

7. Vasile Prisacariu, 'The History and the Evolution of UAVs from the Beginning till the 70s', *Air Force Academy*, Brasov, Romani, Accessed on 15 Nov 2024 http://journal.dresmara.ro/issues/volume8_issue1/15_Vasile_PRISACARIU.pdf

8. Sarah Baig, 'History Series: The Beginning of Unmanned Vehicles', *Vertiq*, Accessed on 15 Nov 2024 https://www.vertiq.co/blog/history-series-the-beginning-of-unmanned-vehicles

9. Marina Amaral, 'The First Air Raid Happened When Austria Dropped Bombs on Venice from Pilotless Hot-Air Balloons (1849)', *Open Culture*,

07 Sep 2021, Accessed on 15 Nov 2024 https://www.openculture.com/2021/09/the-first-air-raid-in-history.html

10. Ken Young, 'Tesla and the First Remote-controlled Boat, The Model Yacht, Vol 22 No 3', Fall 2021, including a mention of an article by John Henderson, Accessed on 16 Nov 2024 https://usvmyg.org/history-articles/tesla-and-the-first-remote-controlled-boat
11. Prisacariu, 'History and the Evolution of UAVs', *Air Force Academy*
12. Eyewitness to History.com, The Wright Brothers - First Flight, 1903, Accessed on 17 Nov 2024 http://www.eyewitnesstohistory.com
13. Luke Dormehl, 'The history of Drones in 10 milestones, appearing in Digital Trends', 02 Feb 2021, Accessed on 17 Nov 2024 https://www.digitaltrends.com/cool-tech/history-of-drones/
14. Nikola Budanovic, Guest Author, 'The Early Days Of Drones – Unmanned Aircraft From World War One And World War Two', *War History Online*, 26 Nov 2017, Accessed on 16 Nov 2024 https://www.warhistoryonline.com/military-vehicle-news/drones-2.html
15. 'The History of Unmanned Aerial Vehicles, Part 1: WWI', *Aviation Oil Outlet*, 14 Nov 2016, Accessed on 17 Nov 2024 https://aviationoiloutlet.com/blog/the-history-of-unmanned-aircraft-part-1-wwi/
16. John F. Keane and Stephen S. Carr, 'A Brief History of Early Unmanned Aircraft', *Johns Hopkins Apl Technical Digest*, Volume 32, Number 3 (2013), Accessed on 16 Nov 2024 https://secwww.jhuapl.edu/techdigest/content/techdigest/pdf/V32-N03/32-03-Keane.pdf, Nov 2024
17. Mars-Bound_Hokie, Kettering Aerial Torpedo "Bug", 29 Aug 2023, Accessed on 17 Nov 2024
18. Historical Timeline of UAV Technology, Consortiq, Accessed on 18 Nov 2024 https://consortiq.com/uas-resources/short-history-unmanned-aerial-vehicles
19. Ibid.
20. Keane and Carr, 'Brief History', *Johns Hopkins Apl Technical Digest*
21. de Havilland DH82B Queen Bee, *de Havilland Aircraft Museum*, Accessed on 18 Nov 2024 https://www.dehavillandmuseum.co.uk/aircraft/de-havilland-dh82b-queen-bee/

22. Radioplane OQ-2A Drone, *Air Zoo*, Accessed on 18 Nov 2024 https://www.airzoo.org/wwii/airplanes-3/radioplane-drone

23. 'V-1 missile', *Encyclopedia Britannica*, 18 Jul 2024, Accessed on 18 Nov 2024 https://www.britannica.com/technology/V-1-missile

24. 'V-2 Ballistic Missile', *Air Gunner Bob Gill DFM*, Accessed on 18 Nov 2024 https://airgunnerbobgilldfm.wordpress.com/raf-graveley/peenemunde-raid/v-2-ballistic-missile/

25. Keane and Carr, 'Brief History', *Johns Hopkins Apl Technical Digest*

26. 'The DASH weapon system', DASH History, Accessed on 19 Nov 2024 https://www.gyrodynehelicopters.com/dash

27. Gyrodyne QH-50C Drone Anti-Submarine Helicopter (DASH), Accessed on 19 Nov 2024 https://airandspace.si.edu/collection-objects

28. QH-50C (Gyrodyne DSN-3) DASH Helicopter, *Sikorsky Publication*, Accessed on 19 Nov 2024 https://www.nhahistoricalsociety.org/

29. Keane and Carr, 'Brief History', *Johns Hopkins Apl Technical Digest*

30. Thomas O Falk**,** 'How Drones have added a new dynamic to conflicts', *Al Jazeera*, 20 Feb 2021, Accessed on 20 Nov 2024 https://www.aljazeera.com/news/2021/2/20/

31. Grégoire Chamayou (translated by Janet Llyod), 'Methodologies for a Hostile Environment' in 'A Theory of The Drone', Pg20, Accessed on 20 Nov 2024 https://archive.org/details/theoryofdrone0000cham/page/n311/mode/2up

32. Chamayou, 'Theory of Drone', Pg21, Accessed on 20 Nov 2024

33. *Archives on Drones*, Geographic Imaginations; *Peter wall Institute of Advanced Studies*, Geographic Imaginations, Accessed on 20 Nov 2024 https://geographicalimaginations.com/category/drones/; https://www.google.com/search?q=peter+wall+(distinguished+professor+and+professor+of+geography+at+the+university+of+british+columbia+in+vancouver

34. Chamayou, 'Theory of Drone', Pg13, Accessed on 20 Nov 2024

35. Ibid, Pg14

36. General Atomics MQ-1 Predator, Accessed on 21 Nov 2024 https://dronejungle.org/general-atomics-mq-1-predator

37. Neve Gordon (quoting Gregoire Chamayou), 'Drones have forever changed us', Opinions, *Al Jazeera*, 21 Jan 2015, Accessed on 20 Nov 2024 https://www.aljazeera.com/opinions/2015/1/21/drones-have-forever-changed-us

38. 'Qasem Soleimani: US kills top Iranian general in Baghdad air strike', BBC, Accessed on 20 Nov 2024 https://www.bbc.com/news/world-middle-east-50979463

39. Drones Collection, Bayraktar TB2, Accessed on 21 Nov 2024 https://dronejungle.org/bayraktar-tb2

40. Zaheena Rasheed, 'How China became the world's leading exporter of combat Drones', *Al Jazeera*, 24 Jan 2023, Accessed on 20 Nov 2024 https://www.aljazeera.com/news/2023/1/24/how-china-became-the-worlds-leading-exporter-of-combat-drones

41. US Security Cooperation with Ukraine, Fact Sheet, *Bureau of Political-Military Affairs*, 21 Oct 2024, Accessed on 20 Nov 2024 https://www.state.gov/u-s-security-cooperation-with-ukraine

42. 'Hermes 900 is a state-of-the-art, combat-proven multi-role unmanned platform with an endurance of 36 hours, payload capacity of 420 kg, altitude of over 32,000 feet (10km+), and applications across civil, defence, and homeland security', *Adani Watch*, Accessed on 20 Nov 2024 https://www.adaniwatch.org/the_adani_group_weapons_and_israel

43. Ibid.

44. 'India sends Adani-made drones to Israel; 5 things to know', *Deccan Herald*, 14 Feb 2024, Accessed on 21 Nov 2024 https://www.deccanherald.com/india/india-sends-adani-made-drones-to-israel-5-things-to-know-2893895

45. DOD(USA)-UAS Roadmap 2005-2030, Accessed on 21 Nov 2024 https://irp.fas.org/program/collect/uav_roadmap2005.pdf

46. United States Air Force Unmanned Aircraft Systems Flight Plan 2009-2047 - Headquarters, United States Air Force Washington DC, 18 May 2009, Accessed on 21 Nov 2024 https://irp.fas.org/program/collect/uas_2009.pdf

47. Air Force Technology, 'The XQ-58A Valkyrie long-range strike UAV is being tested for the US Air Force's (USAF) Skyborg programme',

Accessed on 21 Nov 2024 https://www.airforce-technology.com/projects/xq-58a-valkyrie-unmanned-aerial-vehicle

48. Valerie Insinna, 'Valkyrie drone launches even smaller drone from inside payload bay', Air warfare, *Defence News*, 06 Apr 2021, Accessed on 22 Nov 2024 https://www.defensenews.com/air/2021/04/05/the-valkyrie-drone-launches-an-even-smaller-drone-from-inside-its-payload-bay/

49. Army Recognition Group, Unmanned Aerial vehicles, Switchblade 300 Loitering Munition, *Global Defense News*, 02 Aug 2024, Accessed on 22 Nov 2024 https://armyrecognition.com/military-products/army/unmanned-systems/unmanned-aerial-vehicles/switchblade-300

50. 'Switchblade drone: How the "kamikaze" anti-tank weapon works', *CBS News*, 01 May 2022, Accessed on 22 Nov 2024 https://www.cbsnews.com/news/switchblade-drone-how-the-kamikaze-anti-tank-weapon-works/

51. Peter Suciu, 'Deathmatch: Kamikaze Switchblade Drones vs. Russia's Tanks (Who Wins?)', 1945, 27 May 2022, Accessed on 22 Nov 2024 https://www.19fortyfive.com/2022/05/deathmatch-kamikaze-switchblade-drones-vs-russias-tanks-who-wins/

52. Robyn Dixon, 'Azerbaijan's Drones owned the battlefield in Nagorno-Karabakh — and showed future of warfare', *Washington Post*, 11 Nov 2020, Accessed on 22 Nov 2024 https://www.washingtonpost.com/world/europe/nagorno-karabkah-drones-azerbaijan-aremenia

53. Frud Bezhan, 'Explainer: The 'Kamikaze' Drones Iran Used To Attack Israel', *Global Security*, 14 Apr 2024, Radio Free Europe Radio Liberty, Accessed on 22 Nov 2024 https://www.globalsecurity.org/wmd/library/news/iran/2024/iran-240414-rferl02.htm

54. Joshua A. Schwartz, 'What Iran's Drone Attack Portends for the Future of Warfare', 30 Apr 2024, Accessed on 22 Nov 2024 https://mwi.westpoint.edu/what-irans-drone-attack-portends-for-the-future-of-warfare/

55. Rasheed, 'How China became leading exporter', *Al Jazeera*

56. The Yaksha Prashna are a series of questions posed by a Yaksha to Dharma Raja – Yudhisthir. The answers to these questions attempt to impart great wisdom and knowledge, (It may be an approximate equivalent of "million dollar question").

57. Antonio Calcara, Andrea Gilli, Mauro Gilli, Ivan Zaccagnini, 'Air Defense and the Limits of Drone Technology', *LAWFARE*, 31 Jul 2022, Accessed on 22 Nov 2024 https://www.lawfaremedia.org/article/air-defense-and-limits-drone-technology

58. Ibid.

59. Ibid.

60. Ibid.

61. Ibid.

62. Ibid.

63. 'Violent non-state actors and their types', *Strategy View*, 06 Jun 2022, Accessed on 22 Nov 2024 https://strategyvision.org/en/news/13/-violent-non-state-actors-and-their-types

64. Phil Williams, 'Violent Non-State Actors and National and International Security', *International Relations and Security Network*, ETH, Zurich, Accessed on 23 Nov 2024 https://www.files.ethz.ch/isn/93880/VNSAs.pdf

65. Jodi Magness, 'Masada: A heroic last stand against Rome', *Princeton University Press*, 17 Jun 2020, Accessed on 23 Nov 2024 https://press.princeton.edu/ideas/masada-a-heroic-last-stand-against-rome

66. Mark Cartwright, 'The Assassins', The world History Encyclopaedia 29 Oct 2019, Accessed on 23 Nov 2024 https://www.worldhistory.org/The_Assassins/

67. The Twelvers is a branch of Shi'a Islam whose followers believe that there were twelve Imams after the death of Prophet Muhammad. The 12th Imam, however, has been kept alive by God and is hidden somewhere on Earth. Shi'a Muslims believe the 12th imam will one day make himself known and bring equality to all, 30 May 2020, Profound Advice, Answers to All questions, Accessed on 23 Nov 2024 https://www.britannica.com/topic/Twelver-Shia

68. 'The History of the Word Terrorism', History, Merriam Webster Dictionary, Accessed on 24 Nov 2024 https://www.merriam-webster.com/wordplay/history-of-the-word-terrorism

69. 'Reign of Terror', *Encyclopedia Britannica*, 29 Aug 2024, Accessed on 24 Nov 2024 https://www.britannica.com/event/Reign-of-Terror

70. 'Terrorist', Cambridge English dictionary, Accessed on 24 Nov 2024 https://dictionary.cambridge.org/dictionary/english/terrorist

71. 'Armed Insurgent Groups and Other Non-State Actors', Human Rights Advocacy and History of International Human Rights Standards, Accessed on 24 Nov 2024 https://humanrightshistory.umich.edu/accountability/non-state-actors

72. Jahangir Arasli, Non-Resident Research Scholar, 'States vs. Non-State Actors: Asymmetric Conflict of the 21st Century and Challenges to Military Transformation', *INEGMA*, Accessed on 24 Nov 2024 https://www.inegma.com/Admin/Content/File- 81020131379

73. 'Violent non-State actors', *The OLBIOS Team,* Accessed on 24 Nov 2024 https://olbios.org/violent-non-state-actors

74. John Moore, 'The Evolution of Islamic Terrorism: an Overview', *Frontline*, Accessed on 24 Nov 2024 https://www.pbs.org/wgbh/pages/frontline/shows/target/etc/modern.html

75. 'Al-Qaeda's ideology: inside and outside perspectives', *JSTOR*, Accessed on 24 Nov 2024 https://www.jstor.org/stable/pdf/resrep05450. 6.pdf?addFooter=false

76. 'Differences between Al-Qaeda And ISIS', *DifferenceBetween.Net,* Accessed on 25 Nov 2024 https://www.differencebetween.net/miscellaneous/politics/differences-between-al-qaeda-isis

77. 'Famine looming in parts of Yemen', *Al Jazeera,* 18 Aug 2024, Accessed on 25 Nov 2024 https://www.aljazeera.com/news/2024/8/18/famine-looming-in-parts-of-yemen-un-experts-warn

78. Christopher P Dallas-Feeney, 'Violent Non-State Actors in the Middle East: Origins and Goals', E-INTERNATIONAL RELATIONS 28 May 2018, Accessed on 24 Nov 2024 https://www.e-ir.info/2019/05/28/violent-non-state-actors-in-the-middle-east-origins-and-goals/

79. World History Edu, 'Rashidun Caliphate and the First Four Muslim Caliphs of the Islamic World', 13 Apr 2021, Accessed on 25 Nov 2024 https://worldhistoryedu.com/rashidun-caliphate-and-the-first-four-muslim-caliphs-of-the-islamic-world/

80. Serkan Balkan, 'How Cheap Drones Became Assets for Terrorist Organizations', *Politicas Today*, Accessed on 26 Nov 2024 https://

politicstoday.org/how-cheap-drones-became-assets-for-terrorist-organizations/

81. Pierluigi Paganini, 'The role of technology in modern terrorism', *INFOSEC*, 03 Feb 2018, Accessed on 26 Nov 2024 https://www.infosecinstitute.com/resources/general-security/the-role-of-technology-in-modern-terrorism/

82. Barbara Mantel, 'Terrorism and the Internet, Should Web Sites That Promote Terrorism Be Shut Down?', Accessed on 26 Nov 2024 https://us.sagepub.com/sites/default/files/upm-binaries/36306_6.pdf

83. Paganini, 'Role of Technology'

84. Gabriel Weimann, 'How Modern Terrorism Uses the Internet', *United States Institute Of Peace* (www.terror.net),Special Report, Accessed on 26 Nov 2024 https://www.usip.org/sites/default/files/sr116.pdf

85. Mantel, 'Terrorism and Internet'

86. 'The World's 7 Favourite Social media platforms', *Hello Smart Blog*, Brainy Business, 04 Nov 2016, Accessed on 27 Nov 2024 https://www.hellosmartblog.com/the-worlds-7-favourite-social-media-platforms-of-2016/

87. Stefan Larson, Social Media Users 2024 (Global Data & Statistics), *Priori Data*, 26 Mar 2024, Accessed on 27 Nov 2024 https://prioridata.com/data/social-media-usage/

88. '18 Case Study: Terrorist Usage of Social Media, Information, People, and Technology', Chapter 4, Accessed on 27 Nov 2024 https://psu.pb.unizin.org/ist110/chapter/10-4-case-study-terrorist-usage-of-social-media/

89. Ibid.

90. Gabriel Weimann, 'Al-Qa`ida's Extensive Use of the Internet, Combating Terrorism Centre at West Point', Jan 2008, Volume 1, Issue 2, Accessed on 27 Nov 2024 https://ctc.westpoint.edu/al-qaidas-extensive-use-of-the-internet/

91. Ibid, 'Case Study: Terrorist Usage of Social Media, Chapter 4: Social Media

92. Ibid.

93. Yayla, Ahmet (2017), 'Islamic State e-book Released to Home-school 'Lone Wolves', *Washington Times*, Accessed on 28 Nov 2024 https://www.researchgate.net/publication/318336247_Islamic_State_e-book_Released_to_Home-school_'Lone_Wolves

94. Ibid.

95. Redazione Islamedianalysis, 'ISIS handbook uncovered: Lone Wolf Terrorism for Dummies', 06 Mar 2016, Accessed on 28 Nov 2024 http://www.islamedianalysis.info/isis-handbook-uncovered-lone-wolf-terrorism-for-dummies/?cn-reloaded=1

96. Case Study: Terrorist Usage of Social Media

97. Jason Burke, 'Technology is terrorism's most effective ally. It delivers a global audience', *The Guardian*, 17 Mar 2019, Accessed on 28 Nov 2024 https://www.theguardian.com/commentisfree/2019/mar/17/

98. Thomas Braun and Edited by Alexander Fleiss, 'Miniature Menace: The Threat of Weaponized Drone Use by Violent Non-State Actors', 22 Sep 2020, Accessed on 28 Nov 2024 https://www.960cyber.afrc.af.mil/News/Article-Display/Article/2353270/miniature-menace-the-threat-of-weaponized-drone-use-by-violent-non-state-actors/

99. Kerry Chávez and Dr. Ori SweD, 'Off the Shelf: The Violent Nonstate Actor Drone Threat', *Air & space Power Journal*, Fall 2020, Accessed on 29 Nov 2024 https://www.airuniversity.af.edu/Portals/10/ASPJ/journals/Volume-34_Issue-3/F-Chavez_Swed.pdf

100. Ibid.

101. Braun, 'Miniature Menace'

102. Thomas G. Pledger, 'The Role of Drones in Future Terrorist Attacks, Land Warfare Paper 137, *Association Of The United States Army*, 26 Feb 2021, Accessed on 29 Nov 2024 https://www.ausa.org/sites/default/files/publications/LWP-137-The-Role-of-Drones-in-Future-Terrorist-Attacks_0.pdf

103. Luis Chaparro, 'Like a flying ant: An operative describes how Mexico's cartels use Drones to attack enemies and smuggle drugs', *Business Insider*, 01 Jun 2021, Accessed on 29 Nov 2024 https://www.businessinsider.nl/like-a-flying-ant-an-operative-describes-how-mexicos-cartels-use-drones-to-attack-enemies-and-smuggle-drugs/

104. K Sayler, 'A World Of Proliferated Drones: A Technology Primer', *Centre For a New American Security*, Jun 2015, Accessed on 30 Nov 2024 https://www.files.ethz.ch/isn/191911/CNAS%20World%20of%20Drones_052115.pdf

105. Chávez, Swed, 'Off the Shelf'

106. Balkan, 'How Cheap Drones Became Assets'

107. Chávez, Swed, 'Off the Shelf'

108. Braun, 'Miniature Menace'

109. Chávez, Swed, 'Off the Shelf'

110. Chávez, Swed, 'Off the Shelf'

111. Jon Swaine, Joyce Sohyun Lee, Sarah Cahlan, Imogen Piper, Brian Monroe, Evan Hill and Meg Kelly, 'How Israel's high-tech 'Iron Wall' crumbled under Hamas's Oct. 7 attack', *Washington Post*, 17 Nov 2023, Accessed on 30 Nov 2024 https://www.washingtonpost.com/investigations/2023/11/17/how-hamas-breached-israel-iron-wall/

112. Ari Cicurel, Assistant Director of Foreign Policy, Yoni Tobin, Policy Analyst, 'Hezbollah's New Drone Threats to Israel', *JINSA*, NatSec Brief: 02 Jul 2024, Accessed on 30 Nov 2024 https://jinsa.org/wp-content/uploads/2024/07/Hezbollahs-New-Drone-Threats-to-Israel-7-2-24-5.pdf

113. Bassem Mroue, 'The threat Israel didn't foresee: Hezbollah's growing drone power', *AP*, 09 Aug 2024, Accessed on 30 Nov 2024 https://apnews.com/article/hezbollah-israel-drones-lebanon-e1c0fdc0c963d57c0580d593d824ed8d

114. Thomas Harding, Nada Homsi, 'Hezbollah 'blinds' Israeli defences with drone strike on Sky Dew airship', *News MENA*, 17 May 2024, Accessed on 30 Nov 2024 https://www.thenationalnews.com/news/mena/2024/05/17/hezbollah-blinds-israeli-defences-with-drone-strike-on-sky-dew-airship/

115. Mroue, 'The threat'

116. Milton Hoenig, 'Hezbollah and the Use of Drones as a Weapon of Terrorism', Global Risk, 06 May 2014, Accessed on 30 Nov 2024 https://fas.org/publication/hezbollah-use-drones-weapon-terrorism/

117. Cicurel and Tobin, 'Hezbollah's New Drone'

118. Daniella Cheslow, 'Israel and the West reckon with a high-tech failure', *Politico* – Technical, Accessed on 30 Nov 2024 https://www.politico.com/news/2023/10/10/israel-hamas-technology-failure-00120667

119. Abdullah Bozkurt, 'Turkey Turns Blind Eye to Hamas's Use of Turkish Drone on Oct. 7', *Nordic Monitor*, Accessed on 30 Nov 2024 https://www.meforum.org/turkey-turns-blind-eye-to-hamas-use-of-turkish

120. Kerry Chávez, Ori Swed, 'How Hamas innovated with Drones to operate like an army', *Bulletin of the Atomic Scientists*, Accessed on 30 Nov 2024 https://thebulletin.org/2023/11/how-hamas-innovated-with-drones-to-operate-like-an-army/

121. Ibid.

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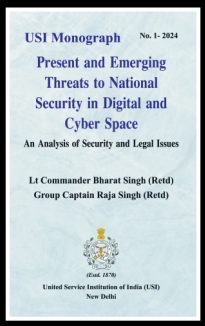

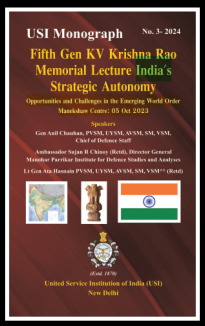

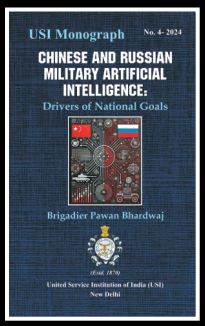

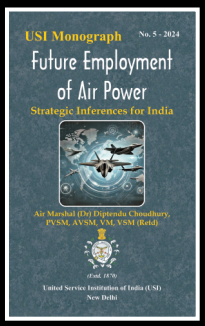

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