

The Proliferation of Combat Drones in Civil and Interstate Conflicts: The Case of Türkiye and Azerbaijan

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ABSTRACT *Recent developments in conflict zones show the proliferation of Unmanned Aerial Vehicles (UAV) or combat drones and how they transform and shape new warfare. A rapidly growing literature examines UAV's performance and utilization by the first generation of drone producers and users like the U.S. and Israel. However, the acquisition, proliferation, and production of combat drones by middle and small states and how these new technologies are applied in warfare by these countries have attracted less attention. The paper explores Türkiye as a producer and active user of UAVs in conflicts in Africa and the Middle East and Azerbaijan as a small state that is a consumer of Turkish and Israeli drones. The paper argues that drones provide an advantage on the battlefield, increase precision in wars, and expand the methods used in wars against insurgency; however, the proliferation of drones simultaneously makes states prone to war and so increases the vulnerability of regional peace and security.*

Keywords: Combat Drones, Proliferation of Drones, Türkiye, Azerbaijan, Karabakh Issue

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Introduction

Unmanned aerial systems (UAS) or unmanned aerial vehicles (UAV), or with more common usage, combat drones¹ are now the primary advanced technology used by states and increasingly non-state actors in combat zones. For example, in 2000, 17 countries' arsenals had drones, the number surpassed 100 countries in 2019, and the number of countries that actively use military drones increased by 58 percent in the past decade.² Drones are actively used in battle zones in Afghanistan, Iraq, Syria, Yemen, and Libya. While the proliferation of drones increases the states' capacity to counter terrorist attacks and prevent them, it also threatens regional and global stability and security. Indeed, the second Karabakh War between Armenia and Azerbaijan over the Nagorno Karabakh region that occurred between September and November of 2020 showed how drones can change the military balance and increase the military capacity of states that possess this technology.

There is a growing body of literature³ that examines the use of drones in combat zones. Umar Farooq differentiates the use of drones by the U.S. and its allies as the first drone age⁴ and the proliferation of drones and their use by the non-U.S. allies as the second drone age, respectively. In the first drone age, the U.S. and its allies used drones for surveillance intelligence and eliminated the designated terrorist targets and leaders with precise attacks. In the second drone age, drones used by state in interstate conflicts, to assert influence and by non-state actors to damage state infrastructures. While the division can be seen as temporary, as new states purchase drones and join 'drone-owning' clubs, the definition fits to classify and differentiate first and second-tier states. Türkiye is one of these states that uses its domestic drones in power projection and increases its influence in the region. Following Farooq's definition, this study separates Türkiye and Azerbaijan from the U.S. and Israel as the second-age drone consumers for their objectives; the study also simultaneously uses Krause's three-tier classification of states and their military technology production and trade capacity at the international level.⁵

Krause divides states into three tiers according to their production and consumption power capacity in the global arms market. According to Krause:

First-tier states innovate at the technological frontier and do not rely on imports to maintain their production capacity; second-tier suppliers produce weapons at the technological frontier and adapt them to specific market needs, devoting their production system largely to exports; third-tier suppliers copy and reproduce existing technologies (via transfer of design), but do not capture the underlying process of innovation or adaptation, strong customers obtain (via material transfers) and use modern weapons, and weak customers either obtain modern weapons and cannot use them, or do not even obtain them.⁶

Second-tier producer and supplier countries like Türkiye, which try to keep pace with the first-tier states, aim to project their power and influence in global arms production and export. Türkiye's use of its domestically produced drones, with some technological parts of these drones imported from the UK, Canada, and the U.S., increased its production, export, and warfare strategy, particularly in Syria and Libya. Azerbaijan, as a third-tier country, is a consumer in the global arms market. Although Azerbaijan's⁷ share in the global market was around one percent in the last decade, Azerbaijan's military spending was around \$24 billion between 2009 and 2018.⁸ That is a significant amount for a small state. Azerbaijan's adoption of imported advanced military technologies and their use during the war shows the country's third-tier solid profile.

Third-tier Azerbaijan exports drones from Türkiye and Israel and has actively used this technology in the war against Armenia to assert its control over Nagorno-Karabakh

This study explores the use of drones by Türkiye, the second-tier state that tries to keep peace with first-tier countries in global drone competitions. Third-tier Azerbaijan exports drones from Türkiye and Israel and has actively used this technology in the war against Armenia to assert its control over Nagorno-Karabakh. There is a gap in the literature on how a second-tier country like Türkiye actively uses its domestically made drones in its power projection in the Middle East, North Africa, the Caucasus, and Eastern Europe. Azerbaijan is a third-tier country that extensively relied upon Turkish and Israeli-made drones during the war. It is one of the few small states that actively uses imported drones in interstate conflicts to assert its power and de-occupy the territories that the country lost in the war in the early 1990s. Türkiye and Azerbaijan are strategic allies and partners. In his recent interview Ilham Aliyev, President of Azerbaijan, stated that Azerbaijan is going to reform its army in line with the Turkish model.⁹ Thus, examining these two countries together and their assertive use of drones would contribute to understanding the role of drones and their role in the second drone age.

First, the study will explore the first-tier countries and the first drone age, and how drones are utilized by the U.S. and its allies. The section will be followed by an analysis of how drones have proliferated across countries and an account of the competition for owning drones. This section will be followed by examining Türkiye as the second-tier state and emerging drone power and its use of domestic-made drones in conflicts. The Azerbaijani case will be discussed as a third-tier small state dependent on exported drones but an ambitious practitioner of these drones to assert its assertiveness in the region and liberation of the territories. I will evaluate the role of drones' precisions and effectiveness

Drones were extremely important in monitoring and tracking the activities of terrorist organizations to avoid the loss of American combatants

investigative studies, periodicals, and journalistic research reports are also used as secondary data.

and how drones transform warfare in the conclusion.

The study follows a qualitative exploratory method to examine cases. The primary data consist of official documents and interviews with the state representatives that are available in open sources, statements of the officials and state institutions. Scholarly and in-

Adoption of Drones in Warfare: Historical Overview and the First Drone Age

Michael Kreuzer states that the emergence of drones followed the invention of microprocessors and the result of the so-called ‘information revolution,’ which paved the way for using these advanced technologies as part of military strategies.¹⁰ Historically, drones was used for intelligence gathering, guided missiles, and explosives. The first recorded unmanned aircraft/air balloon was used by Austrians to suppress a revolt in Venice in 1849 when explosives were dropped into the city via flying balloons.¹¹ During the First World War, the U.S. used pilotless aircraft as practice targets or missiles.¹² The U.S. used Model 147 jet-powered drones during the Vietnam War for target acquisition and intelligence gathering. Another first-tier state Israel used drones for actual combat purposes in the Yom Kippur War (also known as the Ramadan War) in 1973.¹³ In subsequent years, Israel pioneered the development of drones for combat purposes. Israel actively used drones in the Lebanon Wars in 1982 and 2006 for surveillance, target acquisition, and intelligence gathering.¹⁴

Israel not only makes drones for domestic use but is also one of the largest exporters of drones.¹⁵ According to the Stockholm International Peace Research Institute (SIPRI) database, the country accounted for 41 percent of all drone exports between 2001 and 2011, totaling a sum of \$4.6 bn. For instance, India, Azerbaijan, and Singapore are among the top buyers of Israeli drones. Thus, Israel is among the first tier of drone powers, both producer and innovator, and supplier of these high-tech military technologies. Among these drones, the Hermes 450 and Heron TP (Eitan) is the most advanced and can carry missiles and reach speeds up to 175 km and 250 km, respectively. Manufactured by Elbit Systems, Hermes 450’s wingspans are 10.5 m, and its operational range is 200 km with 20 hours of endurance. Heron TP (Eitan) is manufactured by Israel Aerospace Industry with 16.6 m wingspans, 350 km range, and 35 hours of operational endurance.¹⁶

However, the U.S. possesses the most advanced drones and is the most active user of drones in combat zones as a first-tier drone state. Since the mid-twentieth century, the United States has used drones for long-range reconnaissance missions, most notably during the Vietnam War.¹⁷ The U.S. used drones in the Gulf War, and the Predator drone was deployed for the first time during the Bosnian War and in the Kosovo War in 1999 for intelligence, surveillance, and reconnaissance missions.¹⁸ Following 9/11, the U.S. War on Terror intensified the use of drones in military tasks, especially for target strikes. The U.S. military and the Central Intelligence Agency (CIA) operated drones to get intelligence, follow insurgents and terrorist organizations, and hunt those defined as terrorists. During the presidency of Obama, 400 drone strikes were launched, and over 3,300 ISIS, Taliban, and other terrorist operatives were killed.¹⁹ The assassination of Gasem Soleimani near Baghdad in 2020, head of Iran's elite Quds Force and spearhead of Iran's military operations in the Middle East, and al-Qaeda leader Ayman al-Zawahiri with drone strikes are recent examples. While Gasem Soleimani was not a designated terrorist, President Trump said that he was "directly and indirectly responsible for the deaths of millions of people."²⁰ Along with "hunting" terrorists, drones also provided air support to ground forces. Drones such as the MQ-1 Predator, RQ-9 Reaper, and RQ-4 Global Hawk played critical roles and completed risky missions in the war on terrorism waged by the United States and its allies. Drones were extremely important in monitoring and tracking the activities of terrorist organizations to avoid the loss of American combatants.

The United States operated outside of its own country; Nevada serves as its control and administrative center. As the Bureau of Investigative Journalism has described it "[T]hese satellite-controlled killer drones allow pilots to control their aircraft from half a world away and it allows generals, spies, and politicians to watch the war they are waging on the other side of the world, live on TV from anywhere in the world."²¹ The weapon allows us to follow movements and activities of an enemy without catching air defense systems and strike targets instantly. Drew defines the role of the drone as "they called in help from a weapon that has quietly become one of the military's most versatile tools on the Afghan battlefield."²² Jeremiah Gertler explains the development of drones and their role in changing warfare in a Congressional Research Service Report from 2012 as follows:²³ The weapon allows its operators to track the movements and activities of an enemy without triggering air defense systems and strike targets instantly. According to Drew, the drone's function is best described as follows: "[t]hey called in help from a weapon that has quietly become one of the military's most versatile tools on the Afghan battlefield."²⁴ Jeremiah Gertler explains the development of drones and their role in changing warfare in a Congressional Research Service Report from 2012 as follows:

Advanced navigation and communications technologies were not available just a few years ago and increases in military communications satellite bandwidth



BOZOK Laser Guided Miniature Munition, which is developed for unmanned aerial vehicles within the Turkish defense industry is seen in Baku, Azerbaijan on May 28, 2022.

MUSTAFA ÇİFTÇİ / AA

have made the remote operation of UAS more practical. The nature of the Iraq and Afghanistan wars has also increased the demand for UAS, as identification of and strikes against targets hiding among civilian populations required persistent surveillance and prompt strike capability to minimize collateral damage. Further, UAS provides an asymmetrical –and comparatively invulnerable– technical advantage in these conflicts.²⁵

However, drone usage and strikes were not uncontested. According to the Bureau of Investigative Journalism data, 990-2200 civilians have been killed with 14,040 minimum confirmed strikes in Afghanistan, Somalia, Pakistan, and Yemen, an estimated 283-454 of the civilian casualties were children between 2004-2020. According to the data from the UN Human Rights Office of the High Commissioner, hundreds of civilians have been killed by airstrikes, and drones are included in these airstrikes.²⁶

As a first-tier drone power, the U.S. is one of the top drone exporters. Even though the United States exports drones to more than fifty countries, the majority of those drones are unarmed. The U.S. only sells advanced armed drones to its most strategic NATO ally countries, like the UK and Italy, and develops a common strategy with these countries to prevent the proliferation of advanced drone systems. For instance, the U.S. Congress refused to approve the sale of drones to Türkiye in 2010 and 2012, despite Türkiye being a frontline NATO member.²⁷

China is another competitive drone power that not only produces for its needs but is also a top exporter of drones. China produces CH-3, CH-4, and Wing Loong I and II models that carry various missiles and are seen as alternatives to the U.S. Predator and Reaper drones, albeit less capable and reliable than the U.S. rivals. Several Middle East countries and U.S. allies like Saudi Arabia, the UAE, Egypt, and Pakistan are among the top importers of Chinese drones. The global proliferation of drones expanded with China's less restrictive policies regarding the export of drones and with its low prices compared to U.S. drones. The following section will examine the proliferation of drones and their usage in combat zones.

As a second-tier country, Türkiye has developed its drone capacity and uses drones in regional power projection

The Proliferation of Drones in Combat Zones: The Second Drone Age?

The global proliferation of UAVs/drones and their use in combat zones by exporter countries have led researchers to classify this period as a second drone age.²⁸ Although the term is temporary as the new states join drone-owning clubs, it allows us to distinguish the later drone consumer states from the former. New producers and exporters of drones like Iran and Türkiye attract significant attention. Moreover, countries like Saudi Arabia, the UAE, Egypt, Iraq, Nigeria, India, Azerbaijan, and Pakistan as importers and consumers of drones practiced and used these drones in combat zones against insurgencies. Among these, UAE, as a second-tier country, introduced the domestic drone Yabhon United 40 in 2013. This model is in the inventory of the UAE army and is also exported to countries like Algeria and Russia. The UAE has also purchased Chinese Wing Loong I and II to supplement its domestic production and actively used these drones in the Libyan civil war.²⁹

Another ambitious state in the drone race is the Islamic Republic of Iran. While the country suffers from U.S. sanctions due to its nuclear program, it has developed competitive drone power and uses its drones in ongoing conflicts in Syria. Additionally, it provides Houthi rebels in Yemen with sophisticated drones to launch an attack on Saudi Arabia. Iranian authorities use drones for two primary purposes: surveillance and attack. Currently, Iran has Mohajer-6, Shahid-129, and Kaman-22. The former two have experience on the battlefields in Syria and Iraq; the latter one was recently unveiled. Iran's attack drones are classified into two categories: multiple-purpose drones, which drop bombs or launch missiles and serve for surveillance purposes, and kamikaze drones which attack targets only.³⁰ Iran's drone strategy is built on the denial that it even provides or carries out lethal drone strikes and does not take responsibility.³¹ For example, Iran is the main supporter of Houthi rebels in Ye-

Türkiye uses drones to target terrorists and uses them to coordinate with electronic warfare and air forces to support ground forces against regular state armies

surveillance, and attacks. In possession of drones, these countries make up the third tier of countries solely dependent on exported drones. All four countries imported drones from China. Saudi Arabia entered the drone-owning club after purchasing Chinese CH-4 drones in 2015-2016 and actively used them along with Wing Loong drones in the conflict in Yemen. In addition, an agreement was reached to build a Chinese drone factory in the country.³³ Egypt also purchased Chinese Wing Loong II to support its forces against insurgency and terrorist groups in the Sinai Peninsula. Page and Sonne state that the U.S. rejection of selling its advanced drone technologies to the Middle East countries forced these countries to purchase Chinese drones, which are cheaper and non-competitive when compared to U.S.-made drones.³⁴

Each year, new countries join the club like Iran, UAE, Saudi Arabia, and Egypt use drones in their power projection and regional competition against their rivals. However, among these countries, Türkiye attracts specific attention. As a second-tier country, Türkiye has developed its drone capacity and uses drones in regional power projection.

Türkiye's Assertiveness in the Middle East: Producer and User of Combat Drones in Regional Conflicts

Türkiye's regional foreign policy has been assessed as revisionist and neo-Ottomanist.³⁵ However, until Türkiye's use of hard power, its influence and policies were interpreted from the soft-power perspective, for instance, screening Turkish soap operas, attracting youth through education, and promoting Türkiye as a "democratic Muslim state model."³⁶ Following the Arab Spring and the Syrian civil war, due to regional development its soft influence deteriorated³⁷ and Türkiye trusted hard power and direct or indirect military intervention to assert its interests,³⁸ by which combat drones played a crucial role in operations. In less than fifteen years, Türkiye achieved production of its domestic drones and became the top user and exporter of drones in the global arms market.

Indeed, as a second-tier state, Türkiye is semi-dependent on its heavy military needs, and it was the same for drones. To fight against the Kurdistan Work-

men and supplies them with drones to conduct lethal drone assassinations, and attack oil fields, processing stations, and cities but denies its involvement.³²

Other middle powers of the Middle East like Saudi Arabia, Egypt, Pakistan, and Iraq rely on imported drones and use them for intelligence gathering,

ers Party (PKK); Kurdish militant separatist movements designated as a terrorist organization by Türkiye and NATO states, insurgency, in 2006, Türkiye ordered ten Israeli Heron drones.³⁹ However, it received the equipment very late, and Israeli officials operated these drones with results not, as Türkiye expected.⁴⁰ Another turning point was the U.S. rejection of selling drones to Türkiye in 2010 due to security and strategic concerns.⁴¹ Thus, Türkiye turned to developing domestic combat drones. Turkish Aerospace Industries and Baykar Makina are the main actors who undertook this project. The leading figure in this project is Selçuk Bayraktar, who left his education at the Massachusetts Institute of Technology and has run Baykar Makina since 2007. By 2009 he reached the contract production and sale of an armed drone, the Bayraktar TB2. The TB2 is controlled by a ground station and can endure 27 hours in the air with a 150 km range and can carry four laser-guided smart munitions. It was first tested in 2014 and has been actively used in the Turkish military since 2018. This model changed the balance of power and asserted Türkiye's military ambitions in regional conflicts.

The first time TB2 was used in operations against PKK was in a traditional usage of a drone for intelligence gathering and killing of terrorist leaders. On August 15, 2018, the senior PKK leader İsmail Özden was killed in the Sinjar District of Iraq, confirming the use of TB2 in cross-border operations.⁴² Until TB2 was introduced, Türkiye only could follow insurgent movements on the ground but could not counter their activity effectively. One such operation occurred in 2011, where hundreds of PKK militants attacked a Turkish outpost in Çukurca, killing twenty-four and injuring eighteen security servicemen.⁴³ However, after introducing TB2 carrying laser-guided missiles, the Turkish military could immediately counter the insurgent movement. It was a game-changer in the history of the Turkish fight against insurgency, and the PKK could not carry out activities like it did in 2011. Türkiye conducted drone operations against PKK not just inside the country but also against YPG (the Syrian extension of PKK as Türkiye defines it) using drones in combination with ground units and artillery forces. This allowed Türkiye to achieve its ambitions in Afrin, the PYD/YPG stronghold in Northern Syria.⁴⁴ According to the data of the Crisis Group, PKK activities and operations decreased, and their fatality increased since 2015. As indicated, the state security force-to-PKK militant fatality ratio is a good indicator of the changing power balance on the battlefield. Following the introduction of drones, the deaths of PKK insurgents to the security service increased fourfold.⁴⁵ The advantage that drones gave Türkiye in its military strategy against PKK, allowed it to consolidate its existence in Syria and Libya. Combat drones enable states to follow and gather intelligence activities and movements of insurgents. Even the hit-and-run tactics of the insurgency are not sustainable since combat drones enable the state to track and eliminate insurgent groups as it discovers them.

The second Karabakh war is an explicit example of how combat drones transform modern interstate warfare

Türkiye uses drones to target terrorists and uses them to coordinate with electronic warfare and air forces to support ground forces against regular state armies. This combination enables effective attacks on enemies who lack modern technologies, as was the case in Syria, Libya, and Nagorno Karabakh. When Syrian forces attacked Idlib in late February 2020 to take the last rebel-controlled region and killed 33 Turkish soldiers, Türkiye reciprocated. According to the Turkish Defense Minister Hulusi Akar, Türkiye eliminated 135 tanks, two jet fighters, eight helicopters, dozens of howitzers, five anti-aircraft systems, and 2,557 security forces. In a few days, the Syrian army suffered one of the most devastating losses that it had experienced since the start of the civil war.⁴⁶ Following this, Türkiye asserted influence in the North of Syria and demonstrated how conventional air defense systems like howitzers and air defenses were incapable against drones.

Turkish drone superiority was further demonstrated in the Libyan civil war. Türkiye intervened to support the Government of National Accord (GNA) that was recognized by the UN in December 2019, against Khalifa Haftar's Libyan National Army (LNA) backed by the UAE, Russia, and Egypt, which had waged war to take control of capital Tripoli since April 2019. Following Turkish intervention and air support, GNA halted LNA's advance and took control of the strategic cities and al-Watiya airbase,⁴⁷ which Haftar's forces were using as their main point of operations. The UN official called the operation "the largest drone war globally,"⁴⁸ where GNA trusted Bayraktar TB2 and the LNA was backed by UAE's Chinese-made Wing Loong-II drones. Sophisticated Turkish jamming gear destroyed UAE-supplied Pantsir S-1 Russian air defenses that provided air superiority to GNA forces.⁴⁹ Turkish intervention prevented Haftar from taking control of Tripoli⁵⁰ and retreated, losing some advantageous controlled areas. Turkish drones and a new warfare strategy overcame conventional air defense systems. The drone allows combatants to follow and eliminate targets precisely. Moreover, low-level altitude and soundless engines make them unnoticeable for air defense systems.

As a second-tier country, Türkiye is increasing its drone power in the second-drone age. After demonstrating its battle experience and effectiveness Ukraine, Azerbaijan, Qatar, and Poland, becoming the first NATO member to do so, have all purchased Turkish drones.⁵¹ Qatar developed its strategic relations with Türkiye to overcome the blockade by the Gulf states. Ukraine purchased Turkish drones to use in the fight against insurgents in the east of the country and to use against the Russian invasion that started on February



24, 2022. The effectiveness of TB2 drones and their ability to encounter Russian military technology is lauded by Ukrainian authorities and international experts.⁵² Azerbaijan also made very effective use of Turkish drones to reclaim its territory of Nagorno-Karabakh. By exporting its drones and military technologies to Azerbaijan, Türkiye is developing defense relations and asserting its regional interests. In Libya, it defeated Russia and the UAE-backed LNA; in the Caucasus, Türkiye supported Azerbaijan against Armenia, a member of the Collective Security Treaty Organization (CSTO), Russia's so-called NATO. Exporting drones to Ukraine, Türkiye backed the country against Russian-supported insurgency and occupation where Russia was concerned about developing Turkish-Ukrainian military relations.

In addition to the TB2, Türkiye has projected the development of several other drones, such as Bayraktar Akıncı. Making its first flight in December 2019, Bayraktar Akıncı is designed as an air-to-ground and air-to-air attack drone capable of carrying laser-guided smart munitions, missiles, and long-range stand-off weapons.⁵³ Akıncı's air endurance is 24 hours above 3,000 feet with 5500 kg take-off weight. Mass production of this drone will further strengthen Turkish drone power and force regional rivals like UAE, Saudi Arabia, Iran, and Russia to focus on drone technology and develop technologies that will deter Turkish drones. Additionally, the Turkish Aerospace Industry (TAI) developed Aksungur and Anka model drones that were delivered to the Turkish Navy and capable of conducting surveillance, reconnaissance, and assault missions.⁵⁴

As the Turkish case illustrates, drones enable countries to assert their interest and power on the battlefield. Drones enabled Türkiye to transform its regional interest into practical gains on the ground. While in Syria, it has supported op-

Turkish President Recep Tayyip Erdoğan and Azerbaijani President Ilham Aliyev are seen after signing Shusha Declaration in the city of Shusha, Nagorno-Karabakh, Azerbaijan on June 15, 2021. HALİL SAĞIRKAYA / AA

position since the beginning of the Syrian revolution. The introduction of the TB2 drone helped launch active military operations in northern Syria. Türkiye uses its drones in coordination with ground and air forces and transforms its warfare and benefits from this transformation on the ground. Following the use of drones, Türkiye prevented insurgent activities in the rural areas of the country and targeted insurgent encampments in northern Iraq.⁵⁵ In Libya the use of drones in coordination with ground forces enabled Türkiye to preserve its ally in Tripoli and defeat its regional competitors. Similarly, following the second Nagorno-Karabakh war, Türkiye consolidated its presence in the South Caucasus as the Shusha Declaration was signed between the two states, covering various cooperation policies, including the modernization of the Azerbaijani Army.⁵⁶ In this context, the case of Azerbaijan, a small state, is a more explicit example that highlights how drones have changed the balance of power and continue to transform warfare.

Small State Use of Combat Drones in Interstate Conflicts: Azerbaijan and Nagorno Karabakh War

Azerbaijan is a post-Soviet state that could be considered a small state from the perspective of international politics. Following the dissolutions of the USSR, the country found itself in a war with Armenia over the Nagorno-Karabakh Autonomous Region (NKAR), which was populated by ethnic Armenians under the jurisdiction of Azerbaijan. In the wake of the war, Armenian military forces took control of NKAR and seven adjacent regions of Azerbaijan. There are four adopted UN Security Council resolutions in 1993 (822, 853, 874, 884) and the UN General Assembly resolution 62/243 in 2008 that calls for respecting the territorial integrity of Azerbaijan and demanding the withdrawal of Armenian forces from all occupied territories, as well as a peaceful settlement of the conflict.⁵⁷ Battles between the two, ended with a ceasefire on May 12, 1994. Since then, there have been ongoing negotiations under the auspices of the OSCE Minsk Group (co-chaired by France, Russia, and the U.S.) to solve the conflict by peaceful means. However, Armenia did not withdraw its troops from the occupied region, and Azerbaijani President Ilham Aliyev, in the 2018 military parade, announced that Azerbaijan expects the return of the occupied territories in peace; if not, the use of force is inevitable.⁵⁸ The ongoing tensions between the two eventually exploded. The next stage of the Karabakh war started on September 29, 2020, and ended on November 10, 2020, with a trilateral deal between Armenia, Azerbaijan, and Russia; that was considered capitulation for Armenia. Azerbaijan took control of seven adjacent regions and Shusha, a city of NKAR symbolic of Azerbaijan.⁵⁹

The second Karabakh war is an explicit example of how combat drones transform modern interstate warfare. Countries that possess this technology have

ultimate superiority over their rivals. President of Azerbaijan, Ilham Aliyev, stated in an interview with the Turkish news channel *TRT Haber*, “Thanks to advanced Turkish drones owned by the Azerbaijan military, our casualties on the front shrunk.”⁶⁰ He praised the efficiency of the drones, stating: “These drones show Türkiye’s strength. It also empowers us.”⁶¹ Turkish Bayraktar TB2 drones played a significant role in Azerbaijan’s victory in the second Karabakh War,⁶² but Azerbaijan also used Israeli-made Harop loitering munitions kamikaze drones actively during the second Karabakh war. Azerbaijan used both drones for multiple purposes and strategically. Activities of Armenian military units followed and waited for the right time to eliminate the designated target.



Azerbaijan’s war with Armenia and victory in a short period would not have been possible without combat drones

Indeed, it was not the first time Azerbaijan used drones against Armenia. In April 2016, Azerbaijan, for the first time, used a Harop loitering munitions kamikaze drone against Armenia and precisely hit a bus that was carrying volunteers to the front.⁶³ As a third-tier state, Azerbaijan has purchased advanced technologies, air defense systems, and drones and applied these new technologies in the war with Armenia. According to the Stockholm International Peace Research Institute, Azerbaijan bought various defensive and offensive weapon systems from Israel. These include “one Barak-8 surface-to-air missile (SAM) system; seventy-five Barak-8 missiles; one EL/M-2080 Green Pine air search radar system; Gabriel-5 ship-to-ship missiles; five Heron drones; and five Searcher drones that will cost \$1.6 billion.”⁶⁴ Another significant purchase of Israeli weapons followed April 2016 clashes. That import included the Hermes-450 drone and 100 Spike-MR/LR anti-tank missiles, air defense systems that cost \$5 billion for the country.⁶⁵ Azerbaijan also purchased military technologies and drones from Türkiye. Details are unknown, but Turkish sales amounted to close to \$400 million in the first nine months of 2020, while in 2019, it was just \$20.7 million for the same period.⁶⁶

As the conflict escalated, Azerbaijan used both drones for specific targets and in coordination with ground forces. Drones eliminated the Armenian army’s heavy military equipment and armor tanks, BM-30 Smerch rocket systems, TOS-1, and S-300 air defense systems. Total costs of destroyed Armenian weapons are estimated at \$4.7 billion.⁶⁷ Indeed, all of these weapons were not eliminated by drones, but after a drone strike an armored vehicle in a military convoy other personnel was left in fear that they will be attacked by drone again.

The Azerbaijani defense ministry has regularly shared video footage of drone attacks on Armenian strongholds during the war. In one of the videos that the Defense Ministry shared, a unit of Armenian special intelligence-sabotage

The case of Türkiye highlights how a second-tier country joined the league of drone-producing countries and uses this technology to materialize its regional ambitions

the Armenian morale. Through sharing drone footage videos, Azerbaijan presented to the enemy that all their movements are followed by the Azerbaijani military. While the U.S. and Israel shared footage of killing terrorist leaders, Azerbaijan used this tactic against a regular army, which resulted in mass desertions from the Armenian army.⁶⁹

Azerbaijan's war with Armenia and victory in a short period would not have been possible without combat drones. Azerbaijan utilized Israeli-made kamikaze drones to eliminate targets and Turkish drones to gather intelligence and hit the targets with laser-guided missiles. The war increased international concerns and debates on the usage of drones since conventional air defense systems cannot prevent drone attacks. As was the case in Libya and Syria, Russian-made conventional weapons could not prevent Azerbaijan's drone superiority over Armenia. In just forty-four days, Azerbaijan took back around eighty percent of the territories it lost control of in the 1990s. Only Russia's intervention prevented Azerbaijan from taking complete control of the region. Considering that Azerbaijan is a small state and lost the war in the 1990s, it is a considerable achievement.

Small states like Azerbaijan can wage wars with drones in the second drone age, and Russian conventional air defense systems cannot prevent them in most of the cases.⁷⁰ Incapacity of Russian air defense systems against TB2 drones has been also experienced in the Russia-Ukraine war, as the former is unable to encounter Ukrainian drones. Drones give superiority in combat zones by allowing the user to follow the enemy activity and eliminate a target remotely. When compared,⁷¹ the total loss of Armenia far exceeds Azerbaijan which lost 2,906⁷² servicemen and eight went missing, while Armenia lost 4,000⁷³ servicemen, and 321 are missing even though it was the Azerbaijani army that marched to liberate territories. Moreover, Azerbaijan has displayed military hardware it captured during the war.⁷⁴ Azerbaijan first used drones in 2016 and experienced their advantages. Acquiring Turkish and Israeli-made drones changed the balance of power between the two countries. Considering only conventional weapons, Armenia can balance Azerbaijan. However, for drones,

groups was followed by Azerbaijani drones and struck when all armored vehicles were gathered to be transported so they all neutralized simultaneously. Indeed, this video shows how much superiority drone technology gives over the enemy; the opponent can follow the movements of units and precisely target them.⁶⁸ The drones strikes and footage of these attacks also psychologically demoralized and destroyed

Armenia has no deterrent weapon against Azerbaijani UAVs. Azerbaijan has also produced some variants of Israeli orbiter drones since 2018.⁷⁵ Thus, as a strong third-tier country, Azerbaijan purchases and develops domestic drones that benefit it in Nagorno-Karabakh. The existence of drones increased the country's confidence in its military capabilities. Despite international calls, the fighting did not stop, and Azerbaijan achieved its objectives and regained its territories. There are not many examples of a small country like Azerbaijan utilizing combat drones in warfare.

Conclusion

Since they were first used, drones have offered fighters an advantage over one another by enabling them to accurately target and monitor enemy activity. While the capabilities of current-generation armed drones vary, the proliferation of the systems increases the threat to regional and global security. It allows the possessor to conduct operations overseas just as the U.S. It enables terrorist groups to conduct terrorist acts remotely, as in the case of the Houthi attack on Saudi Arabia. Drones allow a state to assert its interests and influence, as in the case of Türkiye. Conventional hit-and-run tactics of insurgents are old-fashioned, and insurgents cannot run from drones. Inexpensive compared to fighter jets, unmanned and remote-controlled technology drones enable states to prevent insurgency even in mountainous regions where the conventional army's mobility is constrained. Another advantage of a combat drone comparing a fighter jet is its endurance in the air of up to 24 hours and more as the new most advanced versions are developing. As the case of Türkiye illustrates, since movements and activities of insurgents can be followed and targeted by drones, the recruitment of rebellions and activity significantly suffered. These advantages of combat drones allow states to fight insurgency since the latter has no capacity to produce or purchase this technology if not provided by another state.

Horowitz *et al.* predicted that “drones are unlikely to prompt new interstate conflicts or transform international relations,”⁷⁶ however the war between Armenia and Azerbaijan was the result of the superiority of drones that Azerbaijan possessed, and Armenia had nothing to deter it. Türkiye's operation in Syria and Libya, where in Syria it fought against Assad, and in Libya against Khalifa Haftar, who was backed by UAE, Saudi Arabia, and Egypt, demonstrate how drones played significant roles in interstate conflict. Türkiye also exported its drones to Ukraine in its preparation to fight against Russia and insurgency in the east of the country. Many examples show that drones give a distinct advantage to states, particularly if the rival has no equivalent.

This advantage also increases the threat of war. Türkiye's operations in Syria and particularly in Libya without drones could not be possible. Particularly, Azer-

baijan's war against Armenia would not be possible, or it would be too costly for Azerbaijan since the geography favored Armenia. As the video⁷⁷ shared by the Azerbaijani Defense Ministry shows, drones followed the activities of Armenian forces on the ground and eliminated them precisely like a 'magic bullet.'⁷⁸ Moreover, it simplifies war as Boyle has explained, "far from being a world where violence is used more carefully and discriminately, a drones-dominated world may be one where human life is cheapened because it can so easily, and so indifferently, be obliterated with the press of a button."⁷⁹ The U.S. has long been criticized for civilian deaths during its conduct of drone attacks. There are no ethical and legal restrictions that prevent the use of drones or condition when to use and when not. Without such restrictions, the proliferation of drones increases the threat of indiscriminate usage of power by states and non-state actors.

Overall, the second drone age followed the proliferation of drones from first-tier countries to second and third-tier countries. The use of drones transforms warfare and gives superiority to possessor states. It enables gathering intelligence, surveillance, and eliminating targets precisely. Conventional air defense systems are incapable of preventing drone attacks and are hunted by drones. This triggered concerns about advancing anti-drone air defense systems. The battle performance of drones necessitates the development of anti-drone defense systems to deter drone-owned states. The proliferation of drones also increases the threat to regional and global security. Another issue is that there is no global agreement or restriction on the use of drones, and scholars highlight the urgent need for an international framework.⁸⁰

The case of Türkiye highlights how a second-tier country joined the league of drone-producing countries and uses this technology to materialize its regional ambitions. The example of Azerbaijan shows how drones enable a country to achieve objectives that had long waited for the de-occupation of its territories and requested repeatedly from international organizations to conduct withdrawal of occupying forces by peaceful means. However, the defensive and usage against insurgency do not mean that it has been and will be used in this way. The usage of drones for political and military objectives is increasing. Drone technology demonstrates that conventional air defense systems mostly cannot prevent drones. This is how drones transform modern warfare, and it seems that we are just in the beginning phase of this transformation. ■

Endnotes

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