

Terrorism Monitor

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INTRODUCTION: DRONE SPECIAL ISSUE

Alexander Sehmer

The U.S. drone program has proved to be an efficient tool for targeting terrorist bases and eliminating militant leaders within the ranks of groups like the Taliban and al-Qaeda. After years of relative success, however, the use of drones, or unmanned aerial vehicles (UAVs), is entering a new phase. Other states are bringing their own drone programs online, and the proliferation of civilian drone technology has opened the door to the use of UAVs by non-state actors. This special issue of *Terrorism Monitor* focuses on the concerns created by such developments.

Criticisms of the U.S. drone program, which was stepped up under President Barack Obama, have concentrated on the number of civilian casualties caused by drone strikes. The numbers have ranged markedly, but there have without a doubt been tragic incidents. Drone technology does, however, offer a far greater degree of precision than aerial bombing. It is also relatively cost-effective and poses no risk to U.S. forces. As such, for all the controversy and debate, drones appear set to remain a key plank of counterterrorism strategy.

In this special edition of *Terrorism Monitor*, Pavel Felgenhauer examines how Russia's drone program, reliant for the time being on Israeli technology, has expanded in recent years and how Moscow is using the Syrian conflict as a testing ground for its UAVs. Iran too has increasingly deployed drones for both civilian and military purposes. Ariane Tabatabai looks at Tehran's use of UAVs for its own counterterrorism efforts and details the Iranian drone program, developed despite the imposition of economic sanctions.

For all the effectiveness of drones in counterterrorism terms, killing from afar cannot win hearts and minds, and the resentment and anger stoked among local populations by drone strikes is real. Michael Horton examines how the U.S. deployment of drones in Yemen has helped to shape al-Qaeda in the Arabian Peninsula (AQAP), aiding its recruitment efforts and forcing the group to adapt its organizational structure.

Meanwhile, as drone technology becomes ever more commercialized and accessible, it is being adapted by non-state actors with some success. Islamic State (IS) has used drones to film its own attacks to post online alongside its bloody beheading videos as part of its propaganda efforts, and it has even managed to carry out

some deadly strikes. Examining this issue, Elizabeth Santoro and Avery Plaw discuss how non-state actors are experimenting with drones to pose a potentially lethal threat.

Russia Seizes Opportunity to Expand Drone Usage

Pavel Felgenhauer

During the Russian war in Afghanistan in the 1980s, and later the conflicts in Chechnya in the North Caucasus in the 1990s and 2000s, the Russian military went into battle without unmanned aerial vehicles (UAVs) and apparently saw no necessity to acquire them. Instead, aerial reconnaissance and attack missions were carried out using manned aircraft, because, by and large, the opposition in both Chechen wars did not have significant or effective anti-aircraft capabilities.

Even so, Chechen rebels using Soviet Igla short-range man-portable air defense systems (MANPADS) shot down a number of Russian aircraft, mostly helicopters. Some of these losses were painful, but Russian fixed-wing jets continued to carry out sorties in the North Caucasus with near impunity.

It was not until after Russia's invasion of Georgia in 2008 that Moscow began an effective UAV program. After a slow start, Russia is struggling to expand its drone capabilities. Once its attack UAVs — currently still in development — become operational, they are likely to be deployed to Syria for combat practice and assessment.

Watched From Afar

In August 2008, Russian forces invaded Georgia. Most of the Russian troops were from Russia's Southern Military District and had experience fighting separatist/Islamist rebels, but going up against the more modern and better-equipped Georgian military was very different. The Russian military was victorious nonetheless, and the war ended after five days with a French-brokered truce, but it was in the conflict with Georgia that Russia's lack of usable UAVs was exposed and recognized as a significant deficiency that required immediate action.

Looking back to 2010, General Vladimir Shamanov, the commander of the elite Russian Airborne Troops (VDV – Vozdushno-desantnye voyska), at present retired from active service and chair of the Duma Defense Committee, told how, when he was deploying paratroopers in Abkhazia to invade Georgia, his force's movements were monitored by an Israeli-made Georgian UAV (Hermes

450) that hovered constantly overhead and which his troops failed to shoot down.

According to Shamanov, heat-seeking Iglu anti-aircraft missiles failed to register the UAV as a target because of its low-emission engine. The 30mm guns of BMD-2 airborne combat vehicles, designed to hit aircraft at altitudes up to 2 kilometers (km), failed to reach the craft because it was hovering at 5 km. Shamanov found himself more or less in the same position as some Pashtun tribesman, hopelessly brandishing a gun at the sleek high-tech threat hovering above and watching his every move with impunity (Nezavisimoye Voyennoye Obozreniye, June 4, 2010; EDM, June 10, 2010).

The Georgians were not ready to resist massive Russian simultaneous invasions in both South Ossetia and Abkhazia, but the UAV reconnaissance gave the Georgian leadership prior information about what was coming, while the Russian commanders who lacked UAV's were unsure about the exact location of enemy forces.

When the Shamanov-led paratroop force crossed the ceasefire line on the Inguri River from Abkhazia, it encountered no armed resistance. The Georgian forces faded away, successfully hiding their more modern heavy weapons and waiting for Western diplomatic efforts to stop the invasion.

Developing Drones

The Russian defense industry is still very much reliant on Cold War era Soviet weapon systems, and the development of "new Russian weapons" is in many cases the result of the modernization of old Soviet hardware, or the development and production of Soviet-designed systems that originated in the 1980s.

In 2010, Colonel General Vladimir Popovkin, then the defense ministry chef of armaments and first deputy defense minister, was given sweeping powers and money to procure Western defense technologies and expedite the production of weapon systems that had been unavailable in the USSR.

Popovkin publicly ridiculed attempts by different Russian companies to make UAVs and oversaw the signing of a number of contracts to buy Israeli-made UAVs from the Israel Aerospace Industries (IAI) Corporation.

By 2011, Russia had begun to operationally integrate these into its armed forces. By 2012, the Uralskiy Zavod Grazhdanskoy Aviatsii (UZGA) in Yekaterinburg began producing, using Israeli-provided components, the Forpost UAV, which is a Russian-assembled licensed replica of the IAI recon UAV Searcher II, together with Israeli-designed command/control and communications equipment.

The Forpost has been the backbone of successful Russian military UAV operations in Syria and Ukraine. According to defense ministry sources, the Israeli-designed Forpost is still today the most potent operational Russian UAV with the biggest payload (up to 70 kilograms (kg)) and the longest flight endurance (around 18 hours). By contrast, the Orlan-10 UAV, used by Russian forces in Syria, can carry only a 5 kg payload ([vedomosti](#), June 7, 2016).

Ukraine Becomes a Turning Point

In August 2014, Russian forces effectively used recon UAVs to turn the tide of battle in the eastern Ukrainian region of Donbas. Ukrainian government forces together with volunteer battalions were stretched thin, attacking the Russian-supported separatists in an attempt to surround the two main rebel-held cities — Donetsk and Lugansk. The rebel pro-Russian forces seemed to be in disarray, but just as the collapse of the Donbas rebellion seemed immanent, some nine elite Russian tactical battalion groups (TBGs) crossed the border into Ukraine and radically changed the course of the battle. The Russian authorities have not denied the presence of Russian military personnel in the Donbas, but claim they are volunteers on leave from active service (*otpuskniki*).

Russian air force jets were not deployed to provide air support for the August 2014 invasion, but UAVs were used to supply intelligence about the deployment and movements of the Ukrainian military, which had no effective UAVs and was unaware of what the Russians were up to.

Meanwhile, the Ukrainian air force stopped flying piloted recon and air attacks over the Donbas after the Russians introduced Buk surface-to-air missiles (SAMs) to the combat zone and shot down a number of Ukrainian aircraft. The Ukrainian forces found themselves pinned down and decimated by heavy howitzer and multiple rocket launcher system (MRLS) fire to the south-east of

Donetsk in Illovaysk and the south of Lugansk. The targeting intelligence was being provided by Russian UAVs, primarily by the Forposts.

Ukrainian forces suffered heavy casualties and were routed into a disorganized retreat. The rebel-controlled segment of the Donbas was solidified under the terms of the so-called Minsk-1 ceasefire agreement in September 2014 (korrespondent.net/ukraine, August 14).

Russia does not officially acknowledge the use of its UAVs in the Ukraine conflict, but it is reported that at least two Forpost UAVs were lost in action in the Donbas (vedomosti, June 7, 2016). One Forpost was reportedly hit by Ukrainian anti-aircraft fire in May 2015 over Peski in the outskirts of Donetsk, and it crash-landed on territory controlled by Ukrainian forces. The UAV was damaged, but did not disintegrate fully on impact. It was salvaged by the Ukrainians and positively identified as a UZGA-assembled Forpost (sprotyv.info, May 24, 2015).

Drones Deployed in Syria

Unlike in eastern Ukraine, the Russian military has been deployed openly and officially in Syria, although there are differing levels of official recognition for the combat role of its different services. The main emphasis has been on the combat sorties run by the Russian Aerospace Forces (VKS – Vozdushno-Kosmicheskiye Sily) — some 90,000 combat sorties have flown since deployment in September 2015 — and on spectacular attacks by long-range cruise missiles launched from both sea and air against Islamic State (IS) targets and other rebels that Moscow considers to be "terrorists."

The combat activity of Russia's special forces, military advisers and specialists has also been acknowledged. As in the Donbas, Russian UAVs in Syria have been used to provide targeting intelligence for attack aircraft, heavy guns and MRLS (regnum.ru, August 27, 2017).

Footage of attacks provided by UAVs has been regularly displayed by the Russian military for propaganda purposes. However, if images of Russian jets deployed in action have been regularly displayed, images of the UAVs in Syria are not. The Russian authorities apparently believe the display of Israeli-designed Russian UAVs deployed on Arab soil and used to target local rebels is too sensitive.

In Syria and in the Donbas, Russian UAVs have been used exclusively on reconnaissance missions. Russia does not have any attack UAVs and cannot perform stealthily pinpointed UAV attacks, which have become something of a U.S. trademark. According to the VKS chief, Colonel General Viktor Bondaryev, Russia is working on producing attack UAVs, so as "not to fall behind" other nations (Tass, July 18). There have been numerous reports of different Russian companies developing "heavy" attack UAVs, but it seems clear there is as yet nothing usable. This is seen as a serious deficiency, especially in running low-intensity anti-guerrilla and counterterrorist operations.

When Russia was importing Israeli UAV technology some five years ago, it did not manage to buy anything more advanced or larger than the Searcher II. On condition of anonymity, Russian officials say that Washington has forbidden the Israelis from selling them bigger and more modern attack-capable UAVs.

In an apparent sign of desperation, the defense ministry has allocated budgetary funds to modernize the Forpost (Russian-made Searcher II), providing it with attack capabilities. By 2019, the UZGA in Yekaterinburg is expected to begin producing a modernized Forpost-M, "using Russian-made components and with attack capabilities" (rg.ru, May 5). Russian defense industry sources boast that the Forpost-M will be "the best UAV in Russia and possibly in the world" (defence.ru, March 17).

A modernized Searcher II is too light and small to be an effective attack UAV on par with the U.S. MQ-1 Predator, MQ-9 Reaper, Israeli Elbit Hermes 450 or IAI Heron, but at present it seems to be the only reliable and usable UAV Russia can convert to perform attack missions.

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Drone Warfare in Yemen: A Catalyst for the Growth and Evolution of AQAP

Michael Horton

The first known targeted assassination using a drone took place in Yemen on November 3, 2002. The drone launched a hellfire missile that struck a Land Cruiser carrying six suspected members of al-Qaeda, including Sinan al-Harithi, thought to have been involved in the bombing of the USS *Cole*, and a naturalized U.S. citizen named Abu Ahmad al-Hijazi ([BBC](#), November 5, 2002). From 2002 to 2011, there were an estimated 25 attacks on targets in Yemen by U.S. operated drones, although all but the attack on al-Harithi occurred after 2009.

President Barack Obama's administration, far more than his predecessor, fully embraced drone-based targeted assassinations and "signature strikes." Obama's administration oversaw a marked increase in the number of drone strikes in Yemen from 2012 onward. Since 2012, the United States has carried out at least a 118 drone attacks on individuals and groups in Yemen.

With the advent of the Saudi- and United Arab Emirates (UAE)-backed war in Yemen, al-Qaeda in the Arabian Peninsula (AQAP) has considerably expanded its operations. Rarely targeted by Saudi forces, it is now flush with cash, recruits and weapons, thanks to the fracturing of the Yemeni armed forces and the absence, especially in the south, of a functioning national government.

While AQAP has benefited from Yemen's multi-actor civil war, it also has benefited significantly from the U.S.-led drone war. Apart from a brief period between 2012 and 2014 when it found itself under pressure from tribal militias, the Yemeni armed forces and Houthi rebels, AQAP continued to expand despite the Obama administration's campaign of drone strikes. Rather than having a negative impact on AQAP, the drone strikes in fact aided its recruitment efforts and, critically, have acted as a powerful catalyst for the evolution of the organization.

Watchtowers of the Skies

The insect-like hum of the engines of Predator and Reaper drones is often heard in rural Yemen, especially

in the south, where AQAP has long maintained its strongholds. The incessant buzz of their engines, and the occasional glint of a drone banking in the sky, are reminders to Yemenis that a strike could come at any time. Yemenis are well aware that the drones are watching them, beaming their images back to places like Creech Air Force base in Nevada, where some of the drones are piloted by men sitting in converted shipping containers.

Most Yemenis — with the exception of Yemen's president in exile, who praised the use of drones and was vehemently condemned for doing so — regard them as the weapon of cowards ([Yemen Times](#), October 10, 2013). The men who operate the drones are invulnerable, immune from harm. Many Yemenis know that the drones' infrared cameras can see through the walls of their homes and that the most private moments of their lives can be watched by men and women thousands of miles away. To say that this breeds resentment is an understatement.

The presence of drones in the skies above Yemen is a kind of psychological warfare. Much has been written about the psychological effects of drones on the communities that they patrol. [1] As Gregoire Chamayou, author of *A Theory of the Drone*, argues, drones "amount to a psychic imprisonment within a perimeter no longer defined by bars, barriers and walls, but by the endless circling of flying watchtowers above." [2] When torture is used — and the use of drones could potentially be viewed as a kind of low-grade torture on a mass scale — it is all but certain that some of those tortured will break but still others will remain defiant, determined to exact revenge.

The word "*thar*" is often heard in Yemen. It is most often used to describe the need, indeed the demand, for revenge for a relative or tribe member who is unjustly killed. *Thar* is a powerful force within Yemeni culture, and it is a force that AQAP has harnessed. [3]

Aiding Recruitment

On December 12, 2013, four hellfire missiles were fired at a wedding convoy just outside of Radaa in southern Yemen ([al-Jazeera](#), December 14, 2013). At least twelve civilians were killed in the strike. Internal investigations carried out by the U.S. government concluded that all of those killed were members of al-Qaeda. Details of this

report were never released. The family members of those killed, who were later paid some compensation for their losses, dispute that finding.

The government has a policy of counting all military age males killed in a “strike zone” as enemy combatants unless they are posthumously proved to be innocent. [4] [5] This policy artificially reduces or eliminates the possibility of civilian deaths, at least in the case of military aged males.

Such a fluid and flawed understanding of who belongs to al-Qaeda has helped AQAP’s recruitment efforts. These are two-pronged: first AQAP argues that the United States and its drones do not differentiate between those who belong to the organization and those who do not. Thus, they might as well join AQAP, the only group that is dedicated to fighting the Americans and their drones. Second, AQAP — which has to a great degree indigenized itself and is trying to weave itself into Yemen’s tribal fabric — offers men the opportunity to exact vengeance, to in effect achieve *thar*.

AQAP has in many respects de-prioritized the importance of members’ and operatives’ strict adherence to its radical understanding of Islam. This is particularly so at the lower and middle levels of the organization. It is often the desire for *thar* that binds men together rather than an acceptance of AQAP’s militant Salafist beliefs.

AQAP has cleverly used the impotence that many Yemeni men feel in the face of a largely untouchable opponent to bolster its efforts to recruit men to the growing ranks of its fighters. While the use of drones has aided AQAP’s recruitment efforts, this is only one of the ways in which the use of drones has strengthened AQAP.

A Powerful Catalyst

In his book *Brave New War: The Next Stage of Terrorism and the End of Globalization*, author John Robb argues persuasively that insurgent groups possess many advantages over the forces of a nation state. [6] Among these is their organizational structure, which increasingly mirrors an open source community network. Such a structure allows a group to rapidly modify its strategies, quickly develop and test new tactics and, in short, to evolve in a more dynamic manner than the rigidly hierarchical forces fielded by nation states.

AQAP is an excellent example of an insurgent/terrorist group that has fully embraced such a structure. In the past, AQAP was far more hierarchical, less open to recruits who did not share its religious beliefs and, as a result, much slower to respond to emergent threats, but thanks partly to drone warfare and to Yemen’s chaotic political landscape, this is no longer the case. AQAP has transformed itself into an organization that is pragmatic and increasingly nimble.

Drones have successfully targeted a number of mid and high-level AQAP operatives. The use of drones for surveillance and assassination has put pressure on AQAP, particularly prior to 2015. However, far from disrupting the organization, this pressure has acted as a catalyst for the group’s development of a range of new strategies and organizational structures designed to mitigate the threat posed by drones.

Drones and, to a lesser degree, ground-based operations by U.S. special forces have acted as a form of natural selection for AQAP operatives and for the larger organization. Those operatives who are sloppy and do not maintain operational security — namely the requirement not to use mobile phones and to compartmentalize operations — are naturally “weeded out.” [7] Meanwhile, those operatives and upper-level leaders who maintain rigorous operational security protocols succeed in that they live to fight on and train the next generation of operatives. To that end, AQAP’s leadership has instituted a kind of “apprenticeship program” whereby operatives with specialized skills and knowledge are shadowed, at least for a while, by others who can replace them if they are killed.

Next Steps

AQAP, like Islamic State (IS), has a keen interest in developing and using its own drones. While there are as yet no examples of AQAP using weaponized drones (IS, for its part, has used them in Iraq with some success), it is using them for surveillance ([The New Arab](#), November 14, 2016).

AQAP has benefited from an influx of advanced weaponry to Yemen from the external actors in Yemen’s civil war — namely the UAE and Saudi Arabia. The group has also seized large quantities of medium and heavy weapons from the Yemeni armed forces.

Most critically, AQAP's membership now includes operatives who were formerly part of the Yemeni armed forces. Some of these men — many of whom have joined AQAP simply because of the pay — bring with them engineering expertise of all types, expertise with hand launched drones and, in some cases, considerable training in conventional warfare tactics and techniques.

While there is no clear evidence of AQAP using anything but commercially available drones, it is all but certain that military grade hand launched drones are available on the thriving black market in Yemen. It is highly likely that AQAP will acquire — or may have already acquired — these drones and either use them for surveillance or re-engineer them to carry ordinance.

Much like militaries around the world, AQAP, like other insurgent groups, recognizes the many ways that drones can be used to conduct surveillance on and attack enemies while minimizing the risk to its fighters. Just as AQAP's organizational structure is making it more nimble than its enemies, the same structure fosters and rewards the rapid development of new tactics. These new tactics are sure to include — and in the near future even rely on — drone technology.

The use of drones to hunt and kill people from thousands of miles away appeals to politicians and the militaries they oversee precisely because there is no risk to those operating the drones. Similarly, there are few questions from the American public when drone strikes occur, as they do every month in Yemen, Somalia, Afghanistan and Pakistan. However, as desirable as the use of drones may seem in the short term, the consequences of their use over the long term are likely to be profound as the groups they seek to target adapt, evolve and come to use the same technology in even more creative and disruptive ways than the nation states they oppose.

Just as harsh and challenging natural environments spur evolutionary change, the same kinds of pressure, albeit artificial, are being applied to AQAP. It has to rapidly adapt to new threats and new technologies. If it does not, then its members, and ultimately the organization itself, will die. As Dominic Johnson points out in his paper entitled, "Darwinian Selection in Asymmetric Warfare: The Natural Advantage of Insurgents and Terrorists," prey adapts faster than its predators. [8] However, at this point AQAP has little to fear. It has nev-

er before controlled more territory, been better funded or better armed than it is today.

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NOTES

[1] See: James Cavallaro, Stephan Sonnenberg, and Sarah Knuckey, *Living Under Drones: Death, Injury and Trauma to Civilians from US Drone Practices in Pakistan*, Stanford: International Human Rights and Conflict Resolution Clinic, Stanford Law School; New York: NYU School of Law, Global Justice Clinic, 2012.

[2] Gregoire Chamayou, *A Theory of the Drone*, The New Press, 2013 (pg. 45).

[3] See: Akbar Ahmed, *The Thistle and the Drone: How America's War on Terror Became a Global War on Tribal Islam*, Brookings Institution Press, March 2013.

[4] See: Jo Becker and Scott Shane, "Secret 'Kill List' Proves a Test of Obama's Principles and Will," *New York Times*, May 29, 2012. Cite TD pg. 147

[5] Gregoire Chamayou argues that, "contrary to widespread legend, the drone is in reality related to a nondiscriminatory weapon of a new kind: by ruling out the possibility of combat, the drone destroys the very possibility of any clear differentiation between combatants and noncombatants (*A Theory of the Drone*, pg. 147)

[6] John Robb, *Brave New War: The Next State of Terrorism and the End of Globalization*, Wiley, April 2008.

[7] The heroin like draw of mobile phones and smart phones has been one of AQAP's greatest challenges in terms of operational security. AQAP, just as every other terrorist/ insurgent group, knows that they can be tracked and targeted through their use of mobile phones, yet their operatives find it hard to resist the temptation to use them for both operational and personal matters.

[8] Dominic Johnson, "Darwinian Selection in Asymmetric Warfare: The Natural Advantage of Insurgents and Terrorists," *Journal of the Washington Academy of Sciences*, Fall 2009 (89-112).

Containment and Strike: Iran's Drone Program

Ariane Tabatabai

Iran's unmanned aerial vehicles (UAV) program has made headlines in recent months, after several of its drones were shot down outside the country's borders, over Pakistan and Syria ([Dawn](#), June 20). These incidents come as the country is beefing up its counterterrorism efforts, following the twin attacks in Tehran carried out by Islamic State (IS) in June ([Tasnim](#), June 7).

As part of its counterterrorism efforts, Iran is increasingly applying its growing UAV capabilities to identifying and targeting terrorists. This is particularly the case in the country's border areas, as well as in neighboring countries whose governments Tehran believes are unwilling or unable to tackle what it perceives a terrorist threat.

Capabilities and Applications

Iran possesses a range of surveillance and weaponized drones, including the H-110 Sarir, equipped with air-to-air missiles, and the Shahed 129, a drone capable of carrying out 24-hour surveillance as well as strike missions ([Mehr](#), May 13, 2013).

Its UAV program was established during the Iran-Iraq War (1980-88) and is one of the oldest in the world. Given Iran's military doctrine, it is unsurprising that it would invest in developing a robust UAV program. Indeed, since the 1979 Islamic Revolution, Iran's defense doctrine has led it to develop low-risk, relatively low-cost tools, including missiles and UAVs, which afford it the ability to tackle threats at a distance without putting Iranian lives on the line.

Although the Islamic Republic frequently makes dubious claims about the capabilities of its military technology, the country has, nonetheless, made considerable progress with its drone program, especially considering it has essentially developed it against a backdrop of political isolation and economic sanctions ([Fars News](#), May 11, 2014). Nevertheless, it has a number of shortcomings and, as with most military technology, producers must often juggle "trade-offs" when designing drones — choosing between sometimes mutually exclusive features, such as range, speed, autonomy, payload, preci-

sion and the ability to avoid radar detection. Iran is also still lacking the considerable infrastructure required for its ambitions, often the most expensive part of UAV programs, given the "long tail" required to keep the drones operational, such as training operatives and gathering intelligence.

On the civilian front, Iran has deployed drones for environmental monitoring and is working to apply UAVs for sea rescue, among other purposes ([IRNA](#), May 27, 2015). It is on the military front, however, that Iran's drone program has its widest application, with its drones utilized both directly, as well as indirectly via its proxies and various supported groups and militias.

Counterterrorism

Several security and military entities share the burden of Iranian counterterrorism. [1] These include the country's conventional military forces (known as the Artesh), the Islamic Revolutionary Guard Corps (IRGC), the ministry of intelligence and security (MOIS), and the country's law enforcement body (known by its Persian acronym, NAJA). Each of these organizations is, in turn, divided into smaller, often specialized or local, entities. Some entities operate exclusively within the country, as in the case of NAJA. Others operate mainly abroad, as is the case with the IRGC's elite Quds Force, which is responsible for much of Iran's support for terrorist groups and militias in the Middle East, particularly in Iraq and Syria, as well as Iran's own counterterrorism efforts there. Meanwhile, the Artesh, some IRGC units and MOIS have operations both at home and abroad.

These bodies share a number of counterterrorism missions, and in recent years, Iran has developed or started working on UAVs to facilitate them. Some are directly involved in the production process, while others merely make use the drones supplied to them.

The IRGC and Artesh, and the defense ministry more generally, are the main players in Iran's drone program.

Intelligence Gathering

MOIS and the IRGC are the primary entities in charge of Iran's surveillance, monitoring and intelligence gathering. The country has historically relied primarily on human intelligence (HUMINT), collected via its network of embassies and diplomatic offices abroad, friendly non-

state actors and the Basij militias, which are tied to the IRGC. In recent years, however, Tehran has tried to diversify its sources and methods, and has worked to complement its HUMINT capabilities with signals intelligence (SIGINT), of which the drone program is an important component. In 2015, for example, Iran unveiled Mohajem 92, a reconnaissance drone with a range of 500 kilometers and a maximum speed of 125 miles per hour that, according to Iranian sources, can stay aloft for up to six hours ([Mehr](#), September 3, 2016).

Iran primarily deploys surveillance drones in its border areas, including for reconnaissance and target identification. Indeed, the country has several troubled border areas where terrorist groups have been active for decades. As a consequence, it conducts extensive border patrols and increasingly deploys UAVs to those areas.

To Iran's east, the country shares its borders with Afghanistan and Pakistan. The bordering province of Sistan-Balochestan is a predominantly Sunni area and has been plagued Sunni and other separatist terrorist groups, which for decades have perpetrated hundreds of terrorist attacks there. The region where the three countries' borders meet is particularly vulnerable, exploited by terrorist groups, such as Jundollah, which perpetrate attacks in Iran, before retreating to Pakistan.

Iranian armed forces and border guards — who are often conscripts rather than professional military personnel or NAJA personnel — have repeatedly been kidnapped and killed in that area ([Jam-e Jam](#), April 30; [Asr-e Iran](#), April 27), rendering the use of drones to conduct surveillance and conduct counterterrorism operations particularly attractive.

To its west, Iran shares a porous border with Iraq. Parts of the border areas are populated by Kurds on both sides, and goods and individuals have long been able to cross the border between the two countries without much trouble. There too, Iran benefits from deploying drones, especially after the June attacks in Tehran showed IS has been able to recruit among Iranian Kurds.

Containment and Strike

Iran has undertaken a number of counterterrorism operations on its own soil. These are both overt and covert in nature, defensive as well as offensive.

Iran's preferred counterterrorism tool is containment. Its "campfire strategy" is designed to keep the threat of terrorist groups away from the Iranian borders, territory, and population, and is partly the reason why Iran has deployed forces to Iraq and Syria. The country has a long history of working with various terrorist groups in order to avoid becoming an active target for them itself, as was the case with al-Qaeda throughout the 1990s in particular. However, when containment fails or, as with IS, Iran perceives the threat level as too high, Tehran resorts to offense.

Iranian offensive counterterrorism is both unilateral and multilateral. The country has put boots on the ground, including both IRGC and Artesh, in Iraq and Syria. It leads the "Resistance Axis," which brings together Iran, Iraq, Syria and Hezbollah to fight IS, while also working with Shia militias in Iraq. In addition to supplying conventional weapons and equipment, Iran has long supplied Hezbollah with drone technology and, more recently, has provided the regime of Bashar al-Assad in Syria and the Shia militias with drones ([Haaretz](#), June 7). Furthermore, while Iran claims its drones are striking terrorist targets, as it did in August, when it reported IRGC drones had hit IS armored vehicles and operatives in proximity to the Iraq-Syria border, there is evidence to suggest this is not the UAVs' only use ([Khabar Online](#), August 24). They have also been deployed against U.S. and coalition targets ([al-Jazeera](#), June 21).

In its eastern border region, Iran has expanded its counterterrorism operations since the June 2017 Tehran attacks. To this end, the country has deployed a number of drones in the Sistan-Balochestan province. In summer 2017, Pakistani authorities claimed they had shot down an Iranian drone operating in their airspace, which Iranian news outlets reported had been deployed to conduct counterterrorism operations ([Jam News](#), June 22).

With the emergence of modern terrorist groups in Iran since the 1940s, Iran has deployed every tool at its disposal to secure its territory and population from large-scale terrorist attacks. The rise of IS in its neighborhood in summer 2014 and the summer 2017 IS attacks in Tehran further reinforced the idea within the country's political and security establishments that IS, and other Sunni terrorist groups, pose a vital threat to the country. To this end, they have deployed their country's growing drone capabilities to counter it.

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NOTES

[1] For a detailed account of Iran's counterterrorism apparatus, see [The Journal of Strategic Studies](#) (February 6, 2017)

Reaping the Whirlwind: Drones Flown by Non-state Actors Now Pose a Lethal Threat

Elizabeth Santoro and Avery Plaw

Non-state actors have long been subject to surveillance and even attack by armed drones flown by states they threaten. In recent months, however, there has been growing evidence of non-state actors turning the tables and using armed drones to conduct attacks against the forces of the states that threaten them.

Recent Strikes

In June of this year, a U.S.-led special operations force fighting against Islamic State (IS) militants near the al-Tanf outpost on the Syria-Iraq border was struck by a missile fired from a drone — an Iranian Shahed-129, roughly the size of a U.S. Predator ([Asharq al-Awsat](#), June 9).

This marked an abrupt escalation from the usual IS attacks with off-the-shelf commercial drones dropping grenade-sized munitions — attacks which began in 2015 and appear to have sharply accelerated in early 2017 ([Remote Control Project](#), January, 2016: 11). [1] In February 2017 alone, IS claimed to have executed 15 drone attacks in Iraq in just two days, a claim that was supported by aerial-view images. [2]

In January, Houthi rebels in Yemen used an unmanned maritime craft to strike a Saudi warship in the Red Sea, killing two sailors and injuring three others ([New Arab](#), January 31). Houthis have also recently been using Iranian-built Ababil drones to destroy Saudi radar stations used by U.S. Patriot missile batteries, leaving Saudi Arabia vulnerable to missile attack ([The National](#), March 22).

Video footage from August 2016 demonstrates that Hezbollah has integrated mini-drones into their arsenal and are using them to drop munitions on rebels in northern Syria ([AMN](#), August 9, 2016). This videotaped effort aimed to build on Hezbollah's successful September 2014 drone attack, which killed an estimated 23 "Syrian rebels" ([Remote Control Project](#), January 2016:

11). In another incident in October 2016, two Kurdish soldiers were killed and two French injured by an IS drone that exploded after attacking troops in northern Iraq ([al-Jazeera](#), October 12, 2016).

Terrorist Drone Fleets

The threat embodied in these strikes is compounded by the rapidly improving quality and variety of the drones possessed by non-state actors. Hezbollah, for example, has been reported to maintain a small fleet of upwards of 200 UAVs comprised of several different types of drones, including the military grade Iranian Mirsad-1 and Ababil platforms, some capable of carrying a 40 to 50 kilogram explosive warhead ([Haaretz](#), August 8, 2006; [Ynet News](#), November 25, 2013).

Hezbollah has also used a drone it dubs “Ayub,” which analysts suspect is actually the Iranian Shahed-129. In 2012, it used this drone to execute a daring surveillance flight over the Israeli nuclear research center in Dimona ([Middle East Eye](#), March 20). IHS Jane’s reports that many of Hezbollah’s drones are flown from a UAV airfield in the northern Bekaa Valley, Lebanon, which features a UAV ground command station ([Remote Control Project](#), January 2016: 11).

Meanwhile, Houthi rebels in Yemen have been supplied with Iranian Ababil-T aerial drones — though they call them Qasef-6 and claim to have developed them independently — which come “equipped with a high explosive warhead” ([The National](#), March 22). They also possess marine drones capable of inflicting considerable damage on warships ([Congressional Research Service](#), March 21).

It has not been confirmed that the Iranian Shahed-129, which attacked U.S. special forces while they battled IS militants in June, was being flown by IS itself, but it seems to be a likely inference. If correct, it means IS possesses a combat drone capable, according to Iranian state television, of “flying as far as 2,000 [kilometers] to carry out any type of combat mission ... [with a] flight endurance of 24 hours, and a flight ceiling of 24,000 feet” ([Fars News Agency](#), February 4, 2016).

Hamas’ al-Qassam Brigades also claims to have developed three UAV platforms, two with combat payloads and one for surveillance ([Remote Control Project](#), January 2016:11). Hamas has even posted a video and im-

ages of a drone in its possession that has four small rockets or missiles under its wings ([Twitter](#), July 14, 2014).

A number of other non-state actors are reported to possess more limited but still significant drone capabilities. The Donetsk People’s Republic (DPR) militias in eastern Ukraine, for example, reportedly possess and deploy sophisticated Russian-made Eleron-3SV drones for intelligence, surveillance, and reconnaissance (ISR) campaigns ([Lugansk News](#), August 3, 2015). A number of al-Qaeda linked groups in Syria and Iraq have also carried out attacks with commercial drones, including the al-Qaeda front group Jund al-Aqsa ([MEMRI](#), February 21).

Other non-state actors that have used commercial drones for surveillance operations include the Revolutionary Armed Forces of Colombia (FARC) and the drug cartels of Mexico. Meanwhile, a number of other groups, including al-Qaeda in the Arabian Peninsula (AQAP), the Turkestan Islamic Party and Jaysh al-Fath in Syria, have used drones to film attacks their fighters have carried out in order to produce propaganda films ([MEMRI](#), February 21).

Surprising Pace of Proliferation

The speed and breadth of the development and deployment of drones by non-state actors has exceeded the expectations of many, although not all, drone experts. One thing that was accurately anticipated was the rapid diffusion of commercial off-the-shelf drones and their use to carry out attacks with small explosives. Even in this regard, however, terrorist groups have been surprisingly resourceful and creative, deploying swarms of small drones to maximize damage and disruption, and deftly employing drone footage in their propaganda campaigns to document successful attacks. [3]

However, what has most clearly defied expert expectations has been the rapid diffusion of combat drones like the Ababil and Shahed-129 to non-state actors like Hezbollah, Hamas and the Houthis. The main explanations for this are the rapid development of the Iranian combat drone program, and the willingness of the Iranians to rapidly distribute its combat drones to its terrorist proxies.

Something similar can be said of the rapid diffusion of combat drones to states like Saudi Arabia, Egypt, Iraq,

Jordan and the United Arab Emirates (UAE). It is in large part attributable to the rapid development of the Chinese combat drone program, as well as the willingness of the Chinese to sell their drones to countries with dubious human rights records.

These two patterns of surprisingly rapid diffusion collide in some theatres of conflict, such as Yemen, where the Saudis and Houthis are deploying their drones directly against one another, sometimes in unexpected ways, such as the Houthi adoption of drone kamikaze missions against Saudi radar installations ([The National](#), March 22). One effect of the rapid diffusion of combat drones to both states and non-state actors has been to encourage an intensifying arms race in drones.

Learning New Tactics

Naturally, states newly threatened by terrorist drones have sought to develop new tactics to neutralize the threat. The Israelis appear to have responded to growing drone and missile threats from Hezbollah and Hamas by tightening detection and interception capabilities (especially around the Iron Dome), aggressively scrambling fighters to shoot down drones, fighting occasional land campaigns to try to destroy terrorist capabilities on the ground and possibly trying to interdict new supplies of drones ([Times of Israel](#), December 14, 2014).

The United States and its other allies have also developed tactics to respond to the threat of drone attacks in Syria and Iraq. For example, soldiers from the U.S. Army's 82nd Airborne Division around Mosul have steadily increased counter-drone operations since March 2017, at a time when IS was becoming increasingly lethal with the devices ([Asharq al-Awsat](#), June 9).

The methods the 82nd Airborne Division employed include: the use of a spotter looking for incoming drones, usually operating from a vehicle, with radios and a computer to communicate with aircraft overhead; U.S. troops moving around Mosul continually deploying their vehicle-mounted Anti-Unmanned Aerial Vehicle Device (AUDS) in locations that allowed it to cover the Iraqi front lines; other equipment to stop drones, including handheld rifles designed to disrupt the control signal sent to the aircraft; and a focus on reactive mobility — for example, in one case, according to an Syrian Democratic Forces fighter, U.S. forces were preparing for a set of strikes after receiving coordinates from their

Syrian counterparts when they identified an incoming drone threat — they decamped and rapidly redeployed to a new location to continue their planned strikes ([Asharq al-Awsat](#), June 9; [Washington Post](#), July 26, 2016).

Interestingly, some of these U.S. counter-drone tactics are notably reminiscent of al-Qaeda's reaction to U.S. drone strikes as reflected in both recovered al-Qaeda internal documents and observed behavior. For example, four of al-Qaeda's "22 Tips of Dodging Drone Attacks" read as follows:

- Placing a group of skilled snipers to hunt the drone;
- Jamming of and confusing of electronic communication;
- Using general confusion methods and not to use permanent headquarters;
- Discovering the presence of a drone through well-placed reconnaissance networks and to warn all the formations to halt any movement in the area.

By the same token, al-Qaeda and other terrorist groups targeted by U.S. drones are likely to learn from U.S. counter-drone tactics. In other words, there is now a tactical race toward adaptations to neutralize enemy drone capabilities that parallels the technological race to develop and/or access new drone capabilities.

Increased Pressure on States

The upshot of all this is that some non-state actors including terrorist groups have become capable of conducting lethal combat drone strikes with surprising rapidity (and this pattern is likely to accelerate); and there is an intensifying competition to develop tactics to diminish the threats posed by drones from which non-state actors are likely to quickly benefit.

The effect of these dynamics is to further increase pressure on leading drone-employing states, like the United States, to develop new technological capabilities and limit their diffusion. They are also, ironically, under pressure to improve counter-drone tactics and technologies, ideally in ways that are not easily duplicated by non-state actors. In short, non-state actors have considerably increased the pressure both on the battlefield against states deploying drones and in the larger race to leverage benefits from the technology.

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Notes

[1] Steep rise in IS claims of weaponized drone attacks (February 06) *BBC Monitoring Middle East*; ISIS expands reach of drone fleet (May 02, 2016) *Defense News*

[2] Steep rise in IS claims of weaponized drone attacks. (February 06) *BBC Monitoring Middle East*

[3] Salama, V. (October 13, 2016). New challenges in Syria as militants weaponize drones. *Chronicle - Herald*; Steep rise in IS claims of weaponized drone attacks (February 06) *BBC Monitoring Middle East*