Red Diamond
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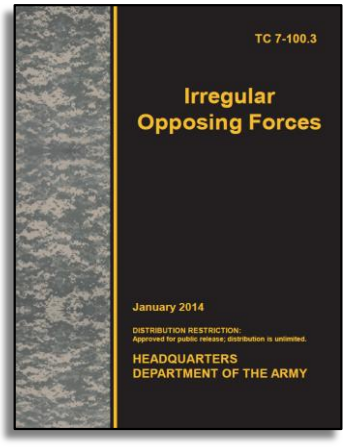
by Jon H. Moilanen, TRADOC G-2 ACE Threats Integration (DAC)

The US Army's antiterrorism awareness second quarter theme for FY2017 is "Irregular/Asymmetric Warfare." Central to this awareness is to understand irregular/asymmetric warfare tactics and techniques that adversaries can use to counter US forces' capabilities and attempt to exploit potential vulnerabilities.



US Army TC 7-100.3, *Irregular Opposing Forces*, describes opposing force (OPFOR) irregular organizations and functional tactics for use in US Army training, professional education, and leader development venues. Irregular OPFOR actors can include insurgents, guerrillas, criminals, terrorists, or other adversaries or enemies, and can operate separately, in conjunction with one another, or combined with regular military forces. This diverse and dynamic combination of regular forces, irregular forces, terrorist forces, and/or criminal elements unified to achieve mutually benefitting effects is a hybrid threat.

Terrorism is an enduring, persistent, worldwide threat to the Army and the nation. The US Army must protect the force and safeguard its people, information, and infrastructure. See the US Army Training Network (ATN) for TC 7-100.3 and related documents here.

RED DIAMOND TOPICS OF INTEREST

by TRADOC G-2 ACE Threats Integration

This issue of *Red Diamond* opens with an article on crime as an opposing force (OPFOR) tactical task. For the purposes of articulating crime as an OPFOR task, it can be divided into two broad categories: organized crime and street crime. Both manifestations of crime and criminality can be analyzed through the use of functional analysis despite the latter's inherently amorphous nature. That is to say that regardless of the type of criminal group—or the individual criminal—a mix of certain functions must be performed to bring about the accomplishment of a criminal act.

Despite the national uproar in India that occurred after the January 2016 attack on its Pathankot Air Base, four militants successfully attacked an Indian Army base near Uri, India, on 18 September 2016. In the deadliest attack suffered by the Indian Army in Kashmir over the past 26 years, the militants initially killed 17 soldiers and injured over 35 others. This article reviews the tactics used in this attack and Indian government's response.

The rapid expansion of commercially-available small unmanned aerial systems/vehicles enables many countries to easily collect information in support of offensive and defensive operations. System employment is significant to modern operations due to its ability to provide collection for reconnaissance, target acquisition, and battle damage assessments. An article by the Joint Multinational Readiness Center focusing on the threat these systems pose to rotational training units, discusses the factors causing their lack of system utilization, and describes best practices and preferred employment techniques from the OPFOR perspective.

On 1 July 2016, as Americans prepared to enjoy a long Fourth-of-July weekend, most Muslims in Bangladesh were spending a quiet evening at home. Largely for that reason, mostly foreigners occupied tables at the Holey Artisan Bakery restaurant in Dhaka. Shortly after 2100 local time, shouts, bursts of gunfire, and explosions shattered the establishment's normally tranquil atmosphere. An article describes the ensuing attack and the subsequent assignment of blame by the Bangladeshi government and the international community.

The final article reviews a recent development in Russian armored systems. The Russian Federation is advancing one of the most significant design evolutions among the several current leading armored fighting vehicle and tank producers—the T-14 main battle tank. Observers state this tank development as revolutionary in several areas, including crew compartment configuration, modernized weapons fire control and battlefield management, main armament, ammunition location, protection, and mobility-automotive power plant performance.

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The foundation for articulating crime as an opposing force (OPFOR) tactical task has been laid from an appreciation for academic literature used to instruct criminal justice practitioners. Foremost amongst the volumes of literature on the topic are Crime Analysis for Problem Solvers In 60 Small Steps by Ronald Clarke and John Eck; Crime and Everyday Life by Marcus Felson and Rachel Boba; and a recent National Institute of Justice and Harvard Kennedy School article titled Crime and Policing Revisited by Anthony Braga, which recaps the efficacy of many landmark criminal justice studies since the 1960s. Equally as important to the accurate articulation of the "how to" of crime for OPFOR role-players is ensuring academic literature is properly infused with Army doctrinal publications and training circulars such as ATP 2-01.3, *Intelligence Preparation of the Battlefield/Battlespace*, and Training Circular (TC) 7-100.3, *Irregular Opposing Forces*. Personal tactical experiences are used as the final resource, most notably a three-week field study with the Kansas City Police Department's Street Crimes Unit Tactical Teams and a 2010–2011 deployment to Sub-District 1, Kandahar City, Afghanistan. Below is the narrative and graphic used to inform the visualization process as part of TRADOC G-2's virtual OPFOR initiative, which are sutured to a brief overview of the high points of unorganized street crime.

OPFOR Tactical Task #17: Crime

A crime is an action or omission that constitutes an offense that may be prosecuted by the state and is punishable by law. For the purposes of articulating crime as an OPFOR task, it can be divided into two broad categories: organized crime and street crime. Both manifestations of crime and criminality can be analyzed through the use of functional analysis despite the latter's inherently amorphous nature. That is to say that regardless of the type of criminal group—or the individual criminal—a mix of certain functions must be performed to bring about the accomplishment of a criminal act. These functions can be broadly categorized as action, enabling, fixing, and security.[1] For example, a kidnapping operation executed by some form of criminal entity follows the same contours of the OPFOR tactical task "raid" in terms of functional organization (raiding, security, and support elements) and subtasks (infiltrate, isolate, seize or destroy, and exfiltrate).[2]

Crime differentiates itself from conventional opposing force tactics and techniques in that it:

- Is motivated by power and profit;
- Is executed by groups or individuals who go to great lengths to conceal their activities and identities;
- Seeks to foment public unrest and social disorder, as well as engender fear within the relevant population as methods of enabling criminal activity;
- Leverages corruption, impunity, anonymity, and safe haven to ensure battlefield survivability and create operational time, space, and opportunity;
- Should be observed as an operational environment condition just as much as it is a violation of the law;
- Is predominately a local, urban phenomenon because urban environments provide large numbers of opportunities for offenders and targets to come together in time and space;
- Is highly concentrated on particular people, places, and things; and
- Is inherently nebulous in nature at lower, more unorganized levels.

TC 7-100.3 lists 22 criminal activities that OPFOR criminals are capable of executing. They are:[3]

- Arson
- Assassination
- Bribery
- Civic Actions
- Cyber Crime
- Extortion
- Fraud
- Gambling
- Hijacking
- Hostage Taking
- Information Warfare
- Kidnapping
- Maiming
- Money Laundering
- Murder
- Prostitution
- Racketeering
- Security
- Smuggling
- Terrorism
- Theft
- Trafficking

The endless variations and combinations of these criminal activities would make replicating the singular, broad-based task of "crime" in a virtual reality environment or at a combat training center a near impossibility. Therefore, "crime" as an opposing force task will seek to identify and articulate baseline functions that have broad application and are separate from kinetic tasks such as ambush or raid, which can cover criminal activities like assassination, kidnapping, murder, burglary, or theft.

Conditions. Criminal elements of the OPFOR are conducting operations independently or temporarily in concert with a larger element or force and receive a directive to execute a criminal activity at a specific location and time and/or saturate a geographic space with unorganized street crime. Task-organization provides the resource capabilities to accomplish the task. More-organized criminal elements of the OPFOR may have communications with higher, adjacent, subordinate, and supporting elements. Friendly forces, security forces, noncombatants, government agencies, nongovernment organizations, and local and international media may be in the operational environment. Criminal elements of the OPFOR are not constrained by standardized rules of engagement and do not necessarily comply with international conventions or agreements on the conduct of warfare.

Standards. The OPFOR conducts criminal activities in accordance with TC 7-100.2 and/or TC 7-100.3 and current criminal techniques. When considering which criminal activities to conduct, the OPFOR seeks to capitalize on opportunities within an operational environment, maximize power and profit, and create/foster conditions that enable its continued operations. The OPFOR displaces (temporally and spatially), reorients (victims, locations, and things), and adapts criminal activity based on learning and changes within the operational environment.

17.1 Protect

- Take all necessary active and passive security measures to maintain informational and operational security.
- Build, maintain, and leverage expansive informant and patronage networks via quid-pro-quo relationships with the population, corrupt security forces and government officials, and armed actors—both friendly and security forces—within the operational environment to ensure anonymity and impunity. This may also be achieved via cooption or coercion.
- Continually improve complex terrain, survivability measures, and camouflage, concealment, cover, and deception (C3D).
- Emplace obstacles—both virtual and physical—in defense of safe havens to reinforce terrain and deceive, disrupt, block, fix, or otherwise shape the area of operations and probable/possible security force actions.
- Establish caches and transshipment points in or near safe havens with redundant sustainment capabilities and robust road networks.
- As necessary, coordinate/collude with friendly and/or neutral elements/forces within the operational environment that are capable of support assistance in contingencies.
- Confirm redundant command and control communications.
- Execute information warfare (INFOWAR) in support of criminal activities to intimidate the relevant population, the media, security forces, and government officials.
- Improve safe havens with continuous review of C3D measures.

17.2 Plan

- Use the acronym MOM: motive, opportunity, means—to identify and prioritize types of criminal activities, create and/or exploit opportunities, and allocate personnel and resources.
- Collect and analyze current information on locations, goods/commodities, victims, and vulnerable populations that can be targeted.

- Collect and analyze current information on security force capabilities, limitations, and disposition and the operational environment.
- Identify the need for temporary relationships with affiliated forces such as insurgent organizations, guerilla units, adjacent criminals and/or criminal groups, and a coerced or willing relevant population.
- Analyze action and enabling functions that must be performed to achieve mission success, such as tasks to deceive, defend, disrupt, fix, contain, and/or neutralize.
- Determine the functional tactics to be applied by action, enabling, and support elements.
- Identify task-organization requirements for elements/forces by function in accordance with TC 7-100.2 and/or TC 7-100.3.

17.3 Prepare

- Evaluate ongoing surveillance to provide the situational understanding of security forces and the operational environment required for criminal activity success.
- Coordinate the activities of logistics support elements and identify logistics linkup points.
- Assess current countersurveillance actions to prevent security forces from obtaining situational understanding of criminal intentions and/or activities.
- Conduct limited mission and task rehearsals of action and enabling elements/forces.
- Confirm communications requirements and capabilities.
- Execute INFOWAR in support of the criminal activity, such as fomenting public unrest by sensationalizing the acute or chronic grievances of the relevant population.
- Conduct reconnaissance of withdrawal and/or exfiltration routes if a mission condition requires friendly elements/forces to vacate safe haven or abandoned the desired course of action.

17.4 Execute

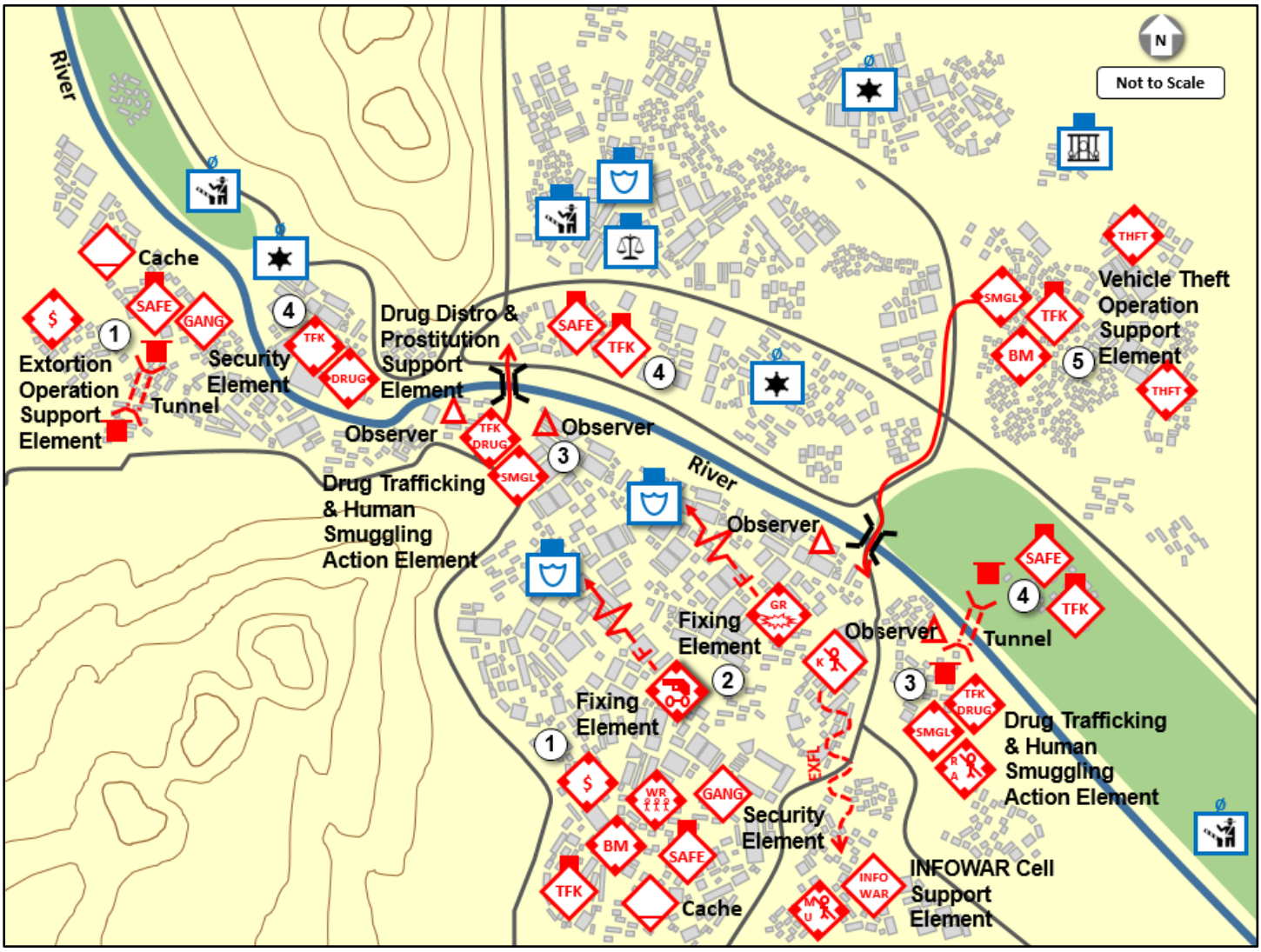
- Activate expansive informant network and surveillance capabilities to inform decisionmaking.
- Fix, isolate, and deceive security forces as necessary with kinetic means—such as drive-by shootings or grenade attacks, or non-kinetic means—such as riots or mass demonstrations.
- Conduct criminal activities consistent with current techniques and through the application of functional tactics.
- Exploit gaps within the legal system and security force capabilities such as agency jurisdiction, the use of force continuum, and illegal search and seizure technicalities.
- Execute INFOWAR technical and psychological capabilities to deceive, deter, and/or dissuade behavior that is disadvantageous and encourage behavior that is advantageous.
- Minimize forensics and biometrics modality signatures to counter evidence collection and exploitation, e.g. sterilize a firearm of latent prints after its use in a murder or wear a balaclava when committing a crime in an area covered by a closed-circuit TV system to counter facial recognition software.

17.5 Assess

- Displace (temporally and spatially), reorient (victims, locations, and things), and adapt criminal activities based on learning and changes within the operational environment, to include increased security force presence and/or targeting, changes in crime opportunities, and the sentiment of the relevant population.
- Employ continuous surveillance to achieve situational awareness and understanding and provide early warning of security force activities that can influence criminal activities and safe havens.

Understanding Unorganized Street Crime

The framing bias that some within the military intelligence community—and admittedly even the military police community—have towards crime frustrates a true appreciation for less-organized criminal actors or activities. This framing bias is perhaps best articulated as the "organized-crime fallacy."[4] The truth is that policing strategies used to control crime within an environment are more consistent with counterinsurgency doctrine than they are with lethal targeting means and processes or unfocused saturation patrols. From an OPFOR role-player perspective, the best way to accurately replicate the unorganized crime threat is to understand a few critical elements of crime: opportunity, displacement, adaptation, and the *80-20 rule*.



1. Crime group and criminal associates operate out of safe havens. These are locations where they are deeply embedded in local civil society, wield considerable influence, and can avoid detection/arrest from law enforcement.
2. Criminal elements conduct limited direct action against law enforcement to temporarily fix or divert attention for a period of time to enable criminal activity elsewhere. They are also capable of reprisal attacks on law enforcement and rivals alike.
3. Crime groups and criminals traffic and smuggle goods such as humans, drugs, and contraband across the international border to associates on the other side. Observers facilitate this by monitoring and reporting the movements of law enforcement and border guards.
4. Cross-border crime group and/or criminal partners move trafficked and smuggled goods further along the supply chain, participate in street-level narcotics distribution, and oversee prostitution and forced-labor operations.
5. Cross-border crime group and/or criminal partners traffic and smuggle stolen goods such as motor vehicles and weapons back across the border.

Figure 1: Crime as an OPFOR task (example)

Opportunity. Opportunity plays a causal role in crime, and offenders make choices based on their perceptions of opportunities.[5] Until the blue force (BLUEFOR) raises the costs of committing a crime, either through situational crime prevention techniques (e.g. closing certain high-crime streets, employing access-control technology, enhancing surveillance capability) or environmental design modifications (e.g. urban and building design techniques that reduce crime opportunities), the OPFOR should continue to exploit the crime opportunities afforded it.

Displacement. Assuming BLUEFOR takes the necessary preventative measures to control crime, the OPFOR will be forced to displace in order to avoid being targeted. Displacement encompasses five different modes: geographical, temporal, target, tactical, and crime type.[6] It is important to note that a body of evidence exists suggesting that situational crime prevention techniques that increase both the effort needed to commit a crime and the risks incurred may dissuade potential offenders. Therefore it is important for the OPFOR role-players that are replicating the criminal threat to be attuned to the efficacy of BLUEFOR's policing strategy used during combat training center rotations as means to guide the waxing and waning of criminal activity.

Adaptation. There seems to be a half-life to crime prevention and control techniques. This half-life is likely brought about by the fact that criminals are constantly learning and adapting, both to the environment in which they operate and to the police that operate within that environment. Adept criminals adapt crime techniques, develop countermeasures, exploit jurisdictional seams, employ protection techniques, and leverage acute public sensibilities (e.g. anti-police sentiment) to their advantage. The criminals that learn, adapt, and act with greater speed and creativity than the police will remain at-large, further victimizing vulnerable populations, fomenting instability within urban communities, and unraveling trust between the citizenry and the police.

The 80-20 Rule. Crime is highly-concentrated on particular people, places, and things. These concentrations can be classified as: repeat offenders, repeat victims, hot spots, hot products, and risky facilities. The origin of the 80-20 rule eludes to the theory that 20% of things are responsible for 80% of the outcomes.[7] Admittedly, this is not a hard-and-fast rule, but more of a rule of thumb that should help guide conceptual thinking about crime and disorder. The critical take-away here is that OPFOR role-players should focus on having repeat offenders commit crimes against repeat victims, at concentrated hot spots or risky facilities, with an end-game oriented on hot products.

Implications for Training

The variegated nature of crime and criminal groups makes a comprehensive "how to" guide a difficult task. There are, and will always be, a diverse and ever-changing set of environmental factors, relationships, motivations, objectives, and so forth and so on, that influence the nature of criminal activity. Mexican drug trafficking organizations have a different *modus operandi* from the run-of-the-mill car-jacking ring in South Kansas City or the freelance hacker subcontracted by a Russian organized-crime group. The articulation of crime as an opposing force tactical task is intended to be a baseline of understanding from which the OPFOR role-player can pull and adapt as necessary to meet the rotational unit commander's training objectives.

Notes

[1] Headquarters, Department of the Army. ATP 2-01.3, Intelligence Preparation of the Battlefield/Battlespace. November 2014. Pg B-2.

[2] Headquarters, Department of the Army. Training Circular 7-100.3, Irregular Opposing Forces. TRADOC G-2 Analysis and Control Element (ACE) Threats Integration. January 2014. Pg 7-14; Headquarters, Department of the Army. Training Circular 7-101, Exercise Design. TRADOC G-2 Analysis and Control Element (ACE) Threats Integration. November 2010. Pg B-2.

[3] Headquarters, Department of the Army. Training Circular 7-100.3, Irregular Opposing Forces. TRADOC G-2 Analysis and Control Element (ACE) Threats Integration. January 2014. Pgs 4-8 to 4-17.

[4] Marcus Felson and Rachel Boba. Crime and Everyday Life. SAGE Publications. 2010. Pg 11.

[5] Ronald Clark and John Eck. Crime Analysis for Problem Solvers in 60 Small Steps. US Department of Justice. 2005. Pg 30.

[6] Ronald Clark and John Eck. Crime Analysis for Problem Solvers in 60 Small Steps. US Department of Justice. 2005. Pg 38.

[7] Ronald Clark and John Eck. Crime Analysis for Problem Solvers in 60 Small Steps. US Department of Justice. 2005. Pg 48.

by H. David Pendleton, TRADOC G-2 ACE Threats Integration (CGI Federal Ctr)

Despite the national uproar in India that occurred after the January 2016 attack on its Pathankot Air Base,[i] four militants successfully attacked an Indian Army base near Uri, India, on Sunday, 18 September 2016. In the deadliest attack suffered by the Indian Army in Kashmir over the past 26 years, the militants initially killed 17 soldiers and injured over 35 others using a combination of arson, small arms fire, and grenades. Fourteen of the soldiers stationed at the army base suffered severe burns that warranted evacuation to Srinagar for treatment. As the death toll continues to mount, the number of those who succumbed to their injuries now stands at 19.[1]

Figure 1. Jammu and Kashmir State (in red)

Background

Uri, an Indian town of just under 10,000 residents located in Baramulla district, which lies in Jammu and Kashmir State, is located only six kilometers from the Pakistani border.[2] Uri is 100 km west of the region's main city, Srinagar, and 400 km northwest of the scene of the militant attack at the Pathankot Air Base.[3] The town is located along the Jhelum River and, due to the high military presence, is 71% male in population.[4] The terrain in eastern Baramulla consists mainly of rugged mountains and forests. The area is mostly rural, and contains a smattering of scattered small towns and villages.[5] The army base, divided into three semi-separate compounds, is located in the lower foothills of the mountains along the river. The military base can be observed from high ground in Pakistan and the compound that the militants attacked is approachable from three directions because of dense vegetation that can provide concealment.[6] The highway that connects Muzaffarabad, Pakistan, and Srinagar cuts right through the military base, which typically houses 12,000–13,000 soldiers.[7]

Figure 2. The Location of Uri within Jammu and Kashmir State

The territory called Kashmir is claimed by both India and Pakistan, but the area is divided between the two countries.[8] Since 1989, over 68,000 people have died in fighting throughout Kashmir.[9] During the past several months there have been a number of anti-Indian government protests that culminated on 8 July 2016 in the death of an anti-Indian government rebel commander named Burhan Wani.[10] This death of a well-known rebel leader led to an increase in protests and a subsequent crackdown by the Indian military and police, with 80 protesters dying in riots, mainly at the hands of Indian security personnel, since Wani's death.[11] A week

[i] See the Pathankot Air Base Threat Report for more details.

before the Uri attack, the Indian Army launched Operation Calm Down in an attempt to bring the restless area back to normalcy. There is no direct evidence, however, that links the recent anti-Indian government protests to the 18 September 2016 attack.[12]

The Uri military compound is an administrative and logistical basecamp for the 12th Brigade, Indian Army, where infantry units process their soldiers when deploying to or from security missions along the Pakistan-India border.[13] During periods of peak occupation, the concrete and wooden buildings inside the camp are augmented by a large number of tents and other temporary structures that provide housing for soldiers.[14] In the absence of a hardened perimeter around the camp, an irregularly-maintained wire fence serves as the primary means of physical security.[15] The attack came as the 10th Dogra Regiment was transferring its security mission to the 6th Bihar Regiment after over two and one-half years of duty on the Pakistani border.[16] Although concrete buildings were available to house soldiers, the 12th Brigade chose to billet most of the 6th Bihar Regiment in tents.[17] This attack, while not routine, was not the first to occur in the Uri area: a raid nearby in December 2014 took the lives of eight soldiers and three policemen.[18]

Figure 3. The rural town of Uri lies in mountainous terrain with lots of vegetation, making concealment easy for militants

Pre-Attack

Prior to the attack, the Indian Intelligence Bureau (IB) received word that an attack by Pakistani-based militants might occur in Jammu and Kashmir State.[19] Separate IB reports generated on 12 and 13 September 2016 were followed with a 15 September detailed intelligence bulletin that noted the potential for a militant attack on army bases in the region. The suspected perpetrators consisted of three separate groups, with each cell composed of four individuals.[20] Security forces spotted one group in Poonch and engaged it, preventing the completion of its planned mission; the second cell attacked Uri, and the third group most likely sought refuge elsewhere in Kashmir after realizing its two counterpart groups had become "visible" to local security forces operating throughout the region.[21]

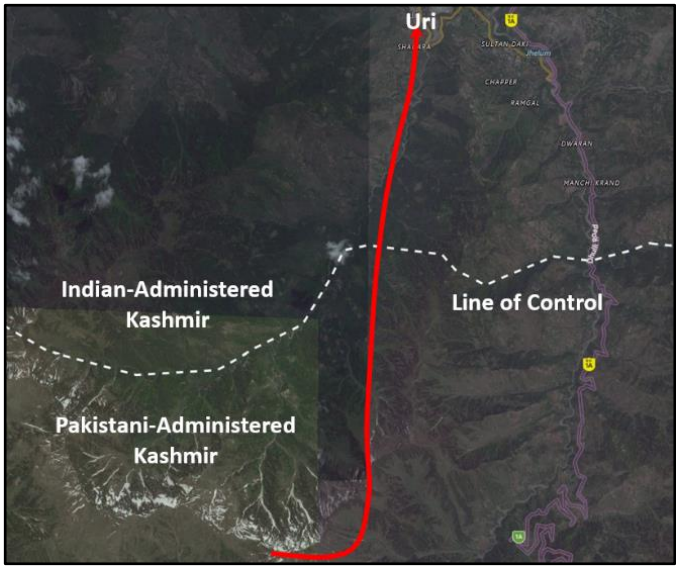


Figure 4. Most likely infiltration route

Four militants, most likely members of Jaish-e-Mohammed (JeM), who previously spent time at a training camp near Pir Chana Sai in Gyarahbad in Pakistan-administered Kashmir (PaK), illegally crossed the Pakistan-India border through the Haji Peer Pass on the night of 16–17 September 2016. In late October, the Lashkar-e-Taiba (LeT) terrorist group claimed credit for the Uri attack via a poster announcing funeral prayers for the deceased, but later other LeT members made the assertion that the poster was a hoax not authorized by LeT.[22] The militants navigated overland using a map elaborately marked with locations and other notes written in the Pashtun language.[23] The infiltrators likely crossed into India through Salamabad Nallah, a heavily-forested area located on the Pakistan-India border.[24] The four militants brought with them a ladder they used to cross the border fence, which was topped with razor wire.[25] Two PaK males from the Indian side of the Line of Control (LoC; another name for the *de facto* border between the two sides) brought a second ladder to place on their side of the fence.[26] Three of the militants crossed the fence at that location and also passed their own equipment, plus that of the fourth individual, over the fence.[27] The last individual then passed the cell's ladder to the Indian side of the fence, to remove any trace of the crossing. The final militant, sans equipment and weapons, then passed

through a nearby small gap in the fence.[28] After getting rid of the two ladders and guided by the two local PaK residents, the infiltrators followed a difficult route using a handheld GPS device that helped guide them to Sukhdar, a village not far from Uri.[29] During the daylight hours on 17 September, the group took shelter in one of two villages along the route before finishing its arduous trek.[30] Sukhdar overlooks the Uri military base and provided the militants with an unobstructed view of the base's layout.[31] The map and other documents, later captured by Indian security forces, indicated that the attackers had three objectives: kill unarmed sleeping troops; storm the Uri medical aid unit; and enter the officer's mess, where they intended to commit suicide using explosives strapped to their bodies.[32] On Saturday night, the attackers crossed the final stream before reaching the military base's perimeter fence.[33]

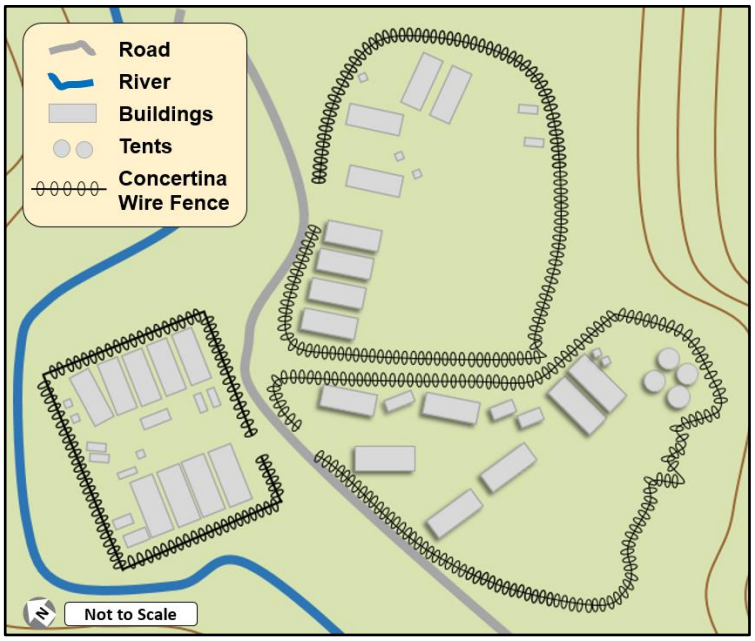


Figure 5. Overview of the Uri Military Base with its three separate compounds

Sometime before 0515 hours on Sunday 18 September, instead of storming the base in the manner typical of JeM behavior for attacking military camps, the four militants quietly cut the wire fence on the west side of the base and entered the compound undetected.[34] There is some speculation that the perimeter guards may not have been alert as they should have been, in light of the recent intelligence alert that warned of a possible impending attack on a military base—not to mention the recent incident in Pooch and the Pathankot attack the previous January.[35] The attackers chose an entry point hidden by tall grass, between two guard posts that were separated by only 50 meters.[36] Each of the infiltrators carried an AK-47 rifle with a grenade launcher mounted under the barrel.[37] The militants locked some Indian cooks inside two wooden buildings where they were preparing breakfast, and set fire to those structures. They also used incendiary grenades to burn soldiers' sleeping tents, then shot any soldiers who attempted to flee the fire.[38] After the flames inadvertently ignited a diesel fuel container, the resulting smoke disoriented the militants.[39] Instead of making their way via the medical aid station to their final target, the officers' mess, three of the militants moved toward the area where most of the soldiers were sleeping. As Indian Army reaction forces began to arrive on the scene, the attackers eventually took refuge in an empty wooden barracks.[40] One of the four attackers headed in a different direction because of the smoke.[41]

In the confusion that prevailed during the attack, one Dogra jawan (private) confronted the intruders and killed the single militant moving towards the officers' mess. Shortly thereafter, this Indian soldier died when a small-arms round penetrated his helmet and entered his skull.[42] After taking refuge in the wooden barracks building, the other three militants kept firing at the Indian military personnel until four para-commandos assaulted the building and killed all the perpetrators.[43] The final tally of the militants' equipment, in addition to their assault rifles with under-barrel grenade launchers (UBGLs), were 39 UBGL grenades, five hand grenades, two radios, two GPS devices, two maps, a cellular phone, food, and medicine.[44] Much of the equipment bore markings in Pashtun, one of Pakistan's primary languages.[45] The weapons themselves contained no Pakistani markings, but all the other equipment indicated that the attackers belonged to a group from Punjab Province in Pakistan.[46] By 1130 hours, the Indian military personnel had eliminated four attackers. A subsequent search of the camp revealed no additional assailants.[47]

The Indian Army called on helicopters from its 19th Division in Baramulla, about 65 km to the northeast, to evacuate the wounded soldiers to an army base hospital in Srinagar.[48] The Indian military airlifted some of the most severely burned victims to the Rashtriya Rifles Hospital in New Delhi.[49] Twelve of the soldiers died in the original blaze while five others died of gunshots.[50] The death toll continued to rise as some of the soldiers succumbed to their severe burns. At least 16 of those who died belonged to the 6th Bihar, the incoming unit for duty on the LoC, and many of these included support staff such as barbers and cooks.[51]

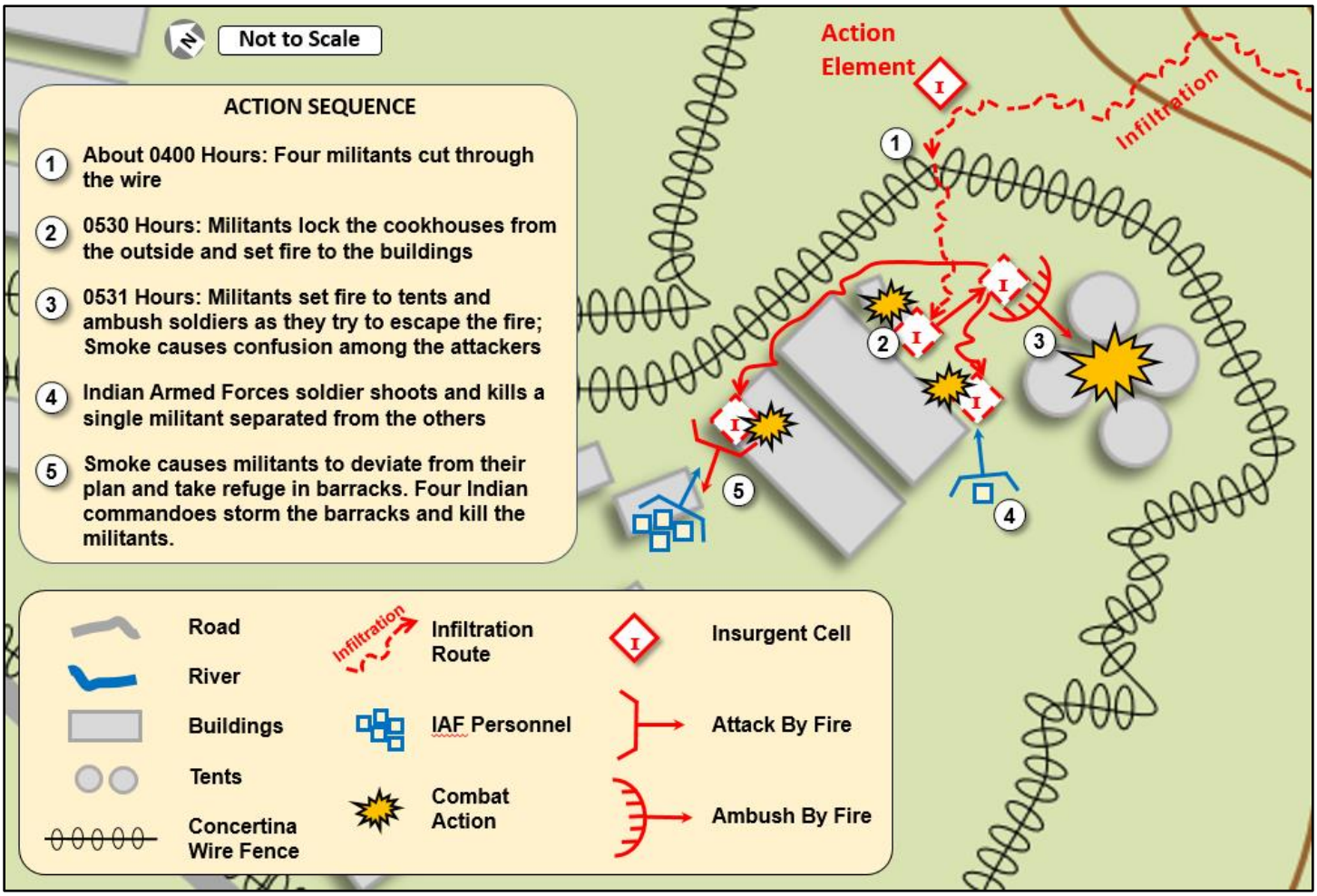


Figure 6. Uri attack, 18 September 2016

Aftermath

The Indian Army Chief, General Dalbir Singh, and Defense Minister Manohar Parrikar made an inspection of the site on the afternoon of the day of the attack.[52] The Indian Home Minister canceled his diplomatic trip to Russia, declared to the media that Pakistan should be declared a terrorist state by the international community, and called for an emergency meeting of India's top defense officials.[53]

The Indian government took many actions after the attack at Uri. The Border Security Force increased the number of personnel patrolling the border; added more patrols along possible infiltration routes, including the riverine area in the Ajnala sector; and tightened security procedures for the thousands of tourists who come to watch the daily retreat ceremony at the Attari checkpoint.[54] Security forces in the Pathankot and Gurdaspur districts, also close to Pakistan, were placed on higher alert with additional guards assigned to protect military bases, including the Pathankot Air Base.[55]

Besides the actual physical actions taken to increase security, Indian civilian and military leaders made a number of statements within 24 hours of the attack. Indian officials accused their neighboring country of supporting terrorist attacks including this attack at Uri, but Pakistan denied any involvement.[56] The Indian Home Minister, Rajnath Singh, went on Twitter to blame Pakistan for the attack; alleged that conclusive evidence existed linking the attackers to Pakistan; and declared that Pakistan should be branded a terrorist state.[57] The Indian Prime Minister, Narendra Modi, vowed that those responsible for the attack would be punished.[58] Both the Indian Army Chief and the Director General of Military Operations, Lieutenant General Ranbir Singh, issued statements affirming India's right to respond to any act of aggression and violence at a time and place of India's choosing.[59] The Pakistani Ministry of Foreign Affairs immediately responded that the Indian leaders' allegations were outrageous, and denied any connection with the Uri attackers.[60] A few days later, Pakistani Defense Minister Kahawaja Asif accused India of staging the Uri attack, and suggested that India's refusal to allow investigations by external organizations, or even to lend assistance to Indian authorities in conducting their own

investigation, amounted to evidence that supported his charge.[61] Indian government representatives left all options on the table with regard to framing a response to the militants' attack at Uri.

Indian Government Investigation

The Indian National Investigation Agency (NIA) opened a case to collect evidence related to the attack and to determine if any locals helped the militants.[62] The NIA took DNA samples from the four militants and forwarded the attackers' cell phones and GPS devices to forensic analysts to ascertain their route into India and any connections between them and their handlers.[63] After completing the investigation and verifying the identities of the militants, the NIA planned to formally request Pakistan to provide additional information on the assailants.[64] In a departure from the approach it took in the aftermath of the Pathankot attack, however, the Indian government limited information provided to the Pakistani officials to the fingerprints and DNA samples of the deceased militants.[65] Moreover, the Pakistani government would not be allowed to send its own officials to Uri to conduct a separate, concurrent investigation into the attack.

On 21 September 2016, Indian security personnel arrested two PaK nationals for serving as guides for militants crossing the border from Pakistan into India.[66] The Indian military did not actually apprehend the guides, but local villagers detained the pair and turned them over to Indian authorities after observing their suspicious behavior.[67] The Indian government claimed that it was not the first time that Ahasan Kursheed, age 19, of Khaliana Kalan and Faisal Hussain Awan, age 20, of Pottha Jahangir had abetted militants on the Indian side of the LoC.[68] The two guides may have led up to five groups of JeM militants across the LoC since February 2015 in return for 25,000–50,000 Indian rupees ($360–$720) paid for each incursion.[69] Both Khaliana Kalan and Pottha Jahangir are villages located in Muzaffarabad district on the Pakistani side of the LoC.[70] After Indian authorities showed photographs of the attackers to the guides, Awan identified one of the militants as Hafeez Ahmed, son of Feroz who resided in the village of Dharbang in Muzaffarabad, Pakistan.[71] Despite confessions by the two guides, Awan's brother and a medical doctor in Lahore asserted that the brothers had not assisted the militants and only crossed the border accidently on their way to school.[72] Indian officials continued to follow the clues to determine the militants' routes, accomplices, and any connection to the Pakistani government.

Following the Pathankot attack in early January 2016, a tri-service Indian military committee conducted an investigation of security measures operative in the country's military facilities. The committee subsequently submitted a classified report of its findings to the Defense Ministry in mid-May 2016.[73] Many of the recommendations contained in the report had not been implemented by any branch of the Indian military when the militants attacked Uri the following September. The report noted that base guards are poorly equipped with obsolete Indian Small Arms System rifles, which are generally regarded as inferior to the AK-47s often used by militants; that security forces lack bullet-proof vests and night-vision goggles; and that soldiers have an overall lack of training, especially training tailored for quick reaction forces.[74] The Pathankot attack, however, caused the Indian Armed Forces to create an additional 12 "flights" of Garud Special Forces to supplement the 900 commandos in the current 15 flights—a process already in progress at the time of the Uri attack.[75]

Retaliation Against Pakistani-Based Militant Groups

On 28 September 2016, ten days after the Uri attack, Indian Armed Forces (IAF) personnel conducted what they called "surgical strikes" against alleged terrorist units operating on the Pakistani side of the LoC.[76] It is also likely that as early as the night of 20 September 2016, 18–20 elite soldiers from the 2nd Parachute Battalion of the Indian Parachute Regiment crossed the LoC near Uri to strike three militant training camps in the PaK region.[77] The Paras, as they are nicknamed, may have caused up to 200 casualties during these raids.[78] Pakistan, on the other hand, called the IAF's actions "cross border fire" that resulted in the death of up to 14 of its soldiers and claimed that India's actions were war crimes.[79] IAF officials denied the accuracy of casualty figures Indian media outlets published about the operation.[80] The Indian Army even declared that the Indian soldier currently held by Pakistani authorities was not part of any surgical strike operation, but instead was a lost individual who accidently strayed across the LoC, as often happens in the area.[81] Indian officials claimed that indirect fire from the Pakistani side of the border targeted some of the units participating in the mission.[82] On 13 October 2016, the US finally released a statement affirming the right of every country to defend itself, implying support for IAF retaliatory actions against PaK-based militant bases.[83]Regardless of differing interpretations voiced in the war of words between these contending countries, India indeed carried out retaliatory strikes against militant training bases in Pakistan as retribution for the attack on Uri.

Opposing Force Tactics

Since the militants never planned to leave the Uri military base alive, the operation could be considered an attack. The action, however, contains more aspects of a raid than an attack, as found in paragraphs 3-174 and 3-175 of Training Circular 7-100.2, *Opposing Force Tactics*. Paragraph 3-175 indicates that raids may have an Information Warfare (INFOWAR) dimension "to keep the enemy off balance, and to cause the enemy to deploy additional units to protect critical sites."[84] The INFOWAR dimension of the Uri attack acted as a catalyst in forcing an IAF response. Four militants caused the IAF to shore up its force protection posture at all military installations in Kashmir along the Pakistan-India border; required the deployment of military personnel to search for the possible third group of infiltrators; and triggered an Indian incursion into Pakistani territory that entailed strikes against militant training camps in the PaK region. The perceived violation of Pakistani sovereignty in reprisal for the Uri attack gained Pakistan sympathy in the international community. Although the comprehensive intent of the Uri army base attack may never be known, one thing is almost a certainty: any IAF member stationed in Kashmir has an historical reason to doubt the adequacy of measures taken to protect soldiers on Indian military bases.

Summary

Pakistani-based militants caught an Indian military base in Kashmir off guard, despite concerns raised by attacks on bases in the preceding year and intelligence reports warning of a potential new wave of impending attacks. A small group of terrorists inflicted heavy casualties at the Uri army base, resulting in the highest death toll suffered by the IAF in any single action within the past 26 years. Due to the courage of other base personnel who avoided the brunt of the main attack, all the terrorists were killed in a short span of time. The following week India struck back against alleged militant training camps located on the Pakistani side of the LoC. Although the Pakistani government denies any responsibility for or connection with the militants who perpetrated this attack against an Indian army base, the incident marks a significant milestone in the downward-spiraling relationship between the two countries. A spate of meetings attended by high-level officials representing India and Pakistan, held about a year ago, raised hopes that an impending rapprochement was coming within reach. The Pathankot attack of early January 2016, and the recent Uri attack eight months later, effectively dashed those hopes. Once again these two perennial adversaries appear to be at an impasse that will likely last into the foreseeable future, with all the danger that implies for a rules-based international order.

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Opposition Forces versus Rotational Training Unit Small Unmanned Aerial Vehicles/Systems at the Joint Multinational Readiness Center

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The rapid expansion of commercially-available small unmanned aerial systems/vehicles (sUAS/sUAVs) enables many countries to easily collect information in support of offensive and defensive operations. System employment is significant to modern operations due to its ability to provide collection for reconnaissance, target acquisition, and battle damage assessments. At the Joint Multinational Readiness Center (JMRC), 1-4 IN (Warriors), the United States Army Europe's opposing force battalion (OPFOR BN), replicates real-world threat tactics, techniques, and procedures (TTPs) to engage and challenge rotational training units (RTUs). The Warriors' utilization of sUAVs[ii] as a collection and target acquisition asset is crucial to their success and provides lessons for the larger Army in terms of practical considerations as well as tactical employment.

This article is a broad assessment focusing on the sUAV threat posed to RTUs, briefly compares the relative combat power of the Warrior BN to RTUs, discusses the factors causing a lack of sUAS utilization by RTUs, describes best practices and preferred employment techniques from the perspective of 1-4 IN, and offers recommendations for future RTUs to effectively employ sUAS as part of the combined arms effort.

Threat

Over the last three decades, technological advancements have revolutionized the modern battlefield. Commanders have more information about a battlefield in their possession today than at any point in history. One of the most important links in this transformation is the proliferation of sUAS in increasing quantities and capabilities. Today these assets are capable of providing a real-time stream of information, which feeds both a commander's decisionmaking process and his accurate targeting of enemy assets. Despite this significant impact, RTUs lack an appreciation for the lethality tied to information collected from sUAS/sUAVs.

A clear example of this lack of appreciation is repeatedly observed in the training environment, where soldiers often ignore sUAVs completely or assume a 1-4 IN Raven is friendly.[1] Incoming units receive briefings on the presence of OPFOR sUAVs; however, activity is routinely not reported or countered. Units allow their battle positions, seams, attack positions, and schemes of maneuver to be reconnoitered. This unimpeded collection assists 1-4 IN in answering priority information requirements to exploit the RTU's vulnerabilities.

1-4 IN collection assets effectively acquire and pass on time-sensitive targeting information, which queues the targeting cell, generally resulting in continual RTU losses. This largely-unanswered reconnaissance and fires on RTU positions enables 1-4 IN to effectively neutralize an RTU course of action both offensively and defensively. When all aspects of these collection opportunities are combined, a smaller unit is capable of rapidly neutralizing or defeating a much larger force. A timely real-world example occurred in eastern Ukraine, where this reconnaissance and target acquisition ability, combined with mass fires, resulted in the destruction of two Ukrainian mechanized battalions in a matter of minutes by rebel forces.[2]

A final observed vulnerability in RTUs is poor password protection or operations security (OPSEC) procedures when employing sUAS, which enables open viewing of the sUAS feeds and allows 1-4 IN to better assess the current RTU common operating picture of its elements. JMRC has observed this OPSEC vulnerability across much of the RTU digital infrastructure. Despite the various threats outlined above, RTUs have the capacity to disproportionately exploit these same capabilities based on their superior combat power relative to the 1-4 IN BN.

[ii] Editor's Note: UAS is the title given to platforms used by US, allied, and friendly forces, such as the RTUs. When these platforms are used by adversaries of the US—to include the OPFOR—they are referred to as UAVs.

Relative Combat Power and Results

Rotational units have at least a two-to-one advantage in collection capacity compared to 1-4 IN. In an infantry brigade combat team (IBCT), this collection capacity typically consists of 15 RQ-11B DDL systems, each composed of three Raven aircraft. A usual allocation is three systems per reconnaissance squadron, four per maneuver battalion, two per artillery battalion, one per support battalion, and one system in the special troops battalion. An IBCT also has four shadow RQ-7BV2 UAS in a tactical unmanned aerial vehicle platoon.[3] In total, this gives an IBCT 49 airframes for employment across its area of operations.

In comparison, 1-4 Infantry currently has only three Raven systems, three Rapidly Deployable Aerial Surveillance Systems (RDASS), and one Puma system, which gives the unit a total of 13 airframes to employ in response. To more accurately replicate a near-peer capability, 1-4 also employs a virtual UAV capable of two flights a day. Despite this advantage in sUAS/sUAV capacity, RTUs are routinely outmatched by 1-4 in the employment of these systems.

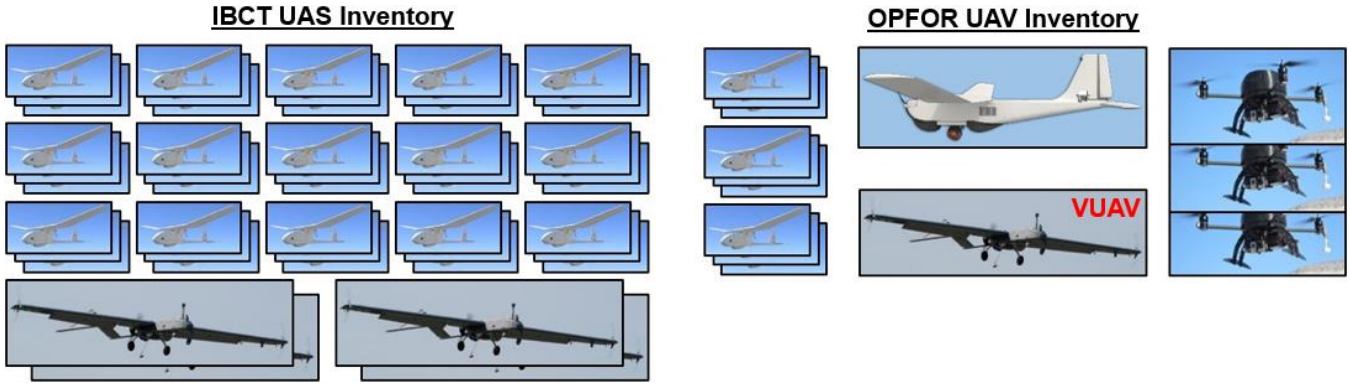


Figure 1. RTU 2:1 advantage in relative UAS/UAV combat power

Based on the reporting of sUAS/sUAV use in ongoing conflicts, 1-4 IN has made a deliberate effort to accurately replicate an active sUAV environment. During the 14-day exercise 16-04, 1-4 IN flew 69 hours of sUAV coverage compared to the RTU, which only flew two hours (see Figure 2). During the 13-day exercise 16-06, 1-4 IN had aerial collection assets on station in the battle and disruption zones even longer, at over 100 hours compared to the RTU's four hours (see Figure 3).

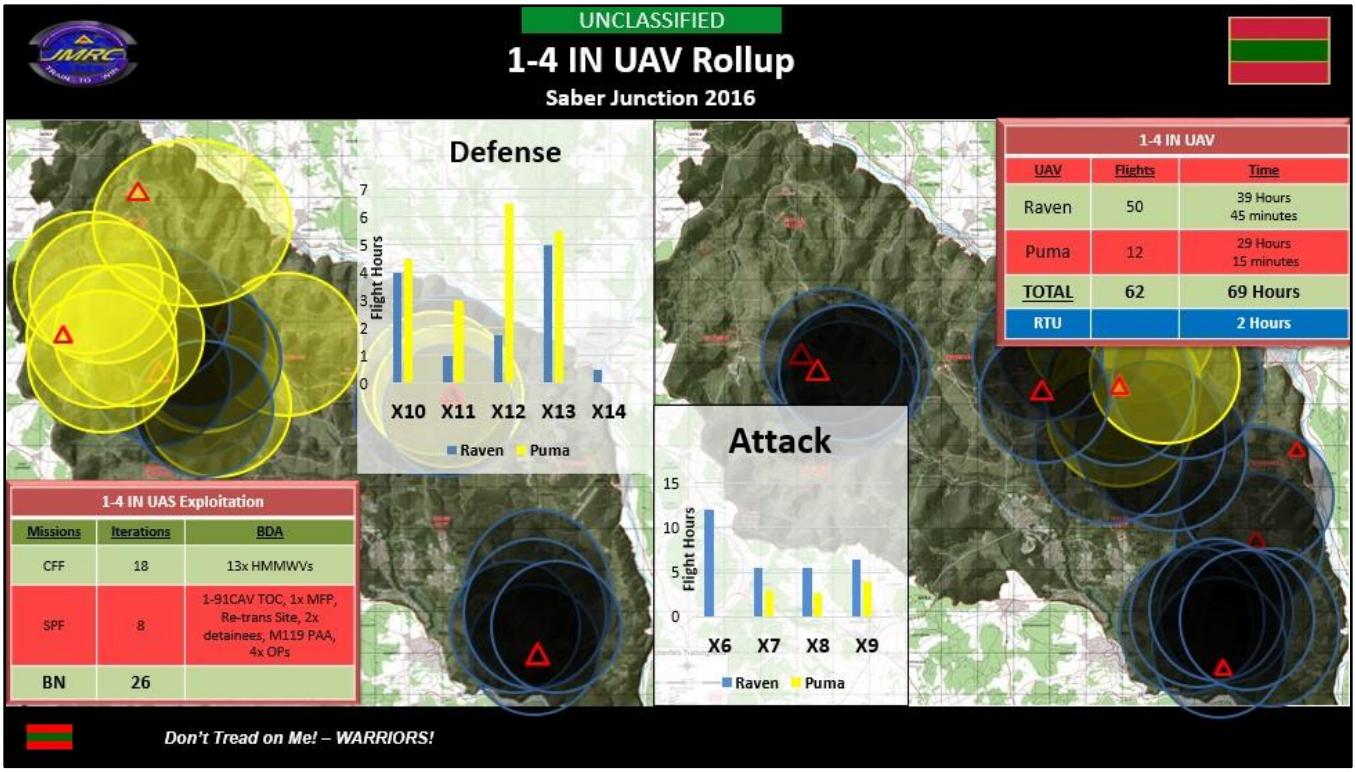


Figure 2. Saber Junction 2016 graphical UAV rollup

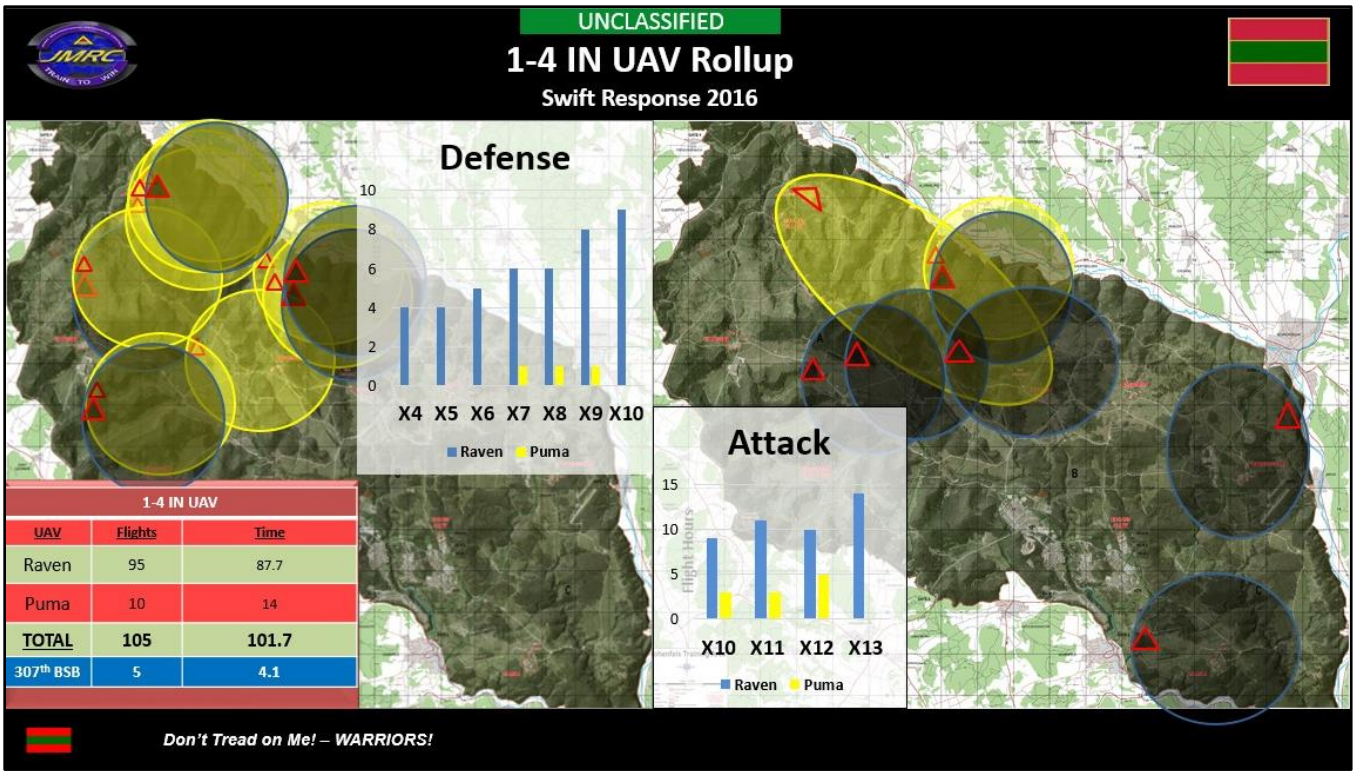


Figure 3. Swift Response 2016 graphical UAV rollup

The combat power of 1-4 IN is significantly enhanced due to its disproportionate advantage in information collection. The 69 hours or more of uncontested sUAV coverage enabled unfettered target acquisition, the accurate identification of emplaced RTU obstacles, and the exploitation of the RTU's coordination seams. By maintaining sustained and accurate fires, bypassing emplaced obstacles, and massing forces at the decisive point, 1-4 IN successfully used sUAVs to maximize its combat power. As the capability to employ sUAVs expands within 1-4 IN, the presence of sUAVs in the battlespace and the battalion's combat power will grow.

sUAS Employment Limitations

One of the critical limiting factors to sUAS employment is the training unit's mindset toward sUAS. Almost all sUAS employment experience stems from a largely-permissive counterinsurgency battlespace. Many training units ineffectively transition their planning and training for operations in a competitive sUAS/sUAV environment. Effective development and execution of vital tactical integration techniques and well-trained counter-sUAV procedures are lacking. The result is ineffective or non-existent communication within the RTU about friendly or opponent sUAS/sUAV operations.[4]

A lack of prioritization of sUAS employment during an RTU's training cycle at home-station is another limitation resulting in untrained operators and undeveloped operating procedures. The effective employment of an RTU's sUAS capabilities must begin and be maintained at the home station. Command-level emphasis and command-level emphasis only will ensure certification and training currency of sUAS operators, otherwise sUAS will not reach its true capability as a force-multiplier for a unit's operations. Command-level emphasis ought to result in a standard operating procedure that establishes the roles and responsibilities for Master Trainers, pilots, and the chain of command through battalion and brigade level.

An additional limitation to sUAS employment occurs during the airspace deconfliction process and when synchronizing restricted operating zones (ROZ). Again, these are processes and procedures that must be coordinated and practiced in order to gain proficiency. Consistent employment of battalion-level graphic control measures on intelligence, surveillance, and reconnaissance overlays significantly aided in the synchronization of tower operations. Ultimately, pre-coordination, while not always possible, is the best method to facilitate ROZ deconfliction and enable simultaneous flights.

A final limiting factor is risk aversion. Many RTUs maintain their sUAS capabilities securely in their battle zone, limiting their range and collection potential. In comparison, 1-4 IN accepts tactical risk by placing some of it sUAV operators

forward with scout elements in the disruption zone or deeper to fully employ their capabilities. For 1-4 IN, the payoff of reconnoitering and targeting enemy positions significantly outweighs the risk faced by forward sUAV teams. To stay competitive, RTUs must adapt tactics that support the targeting and survivability of the brigade as a whole.

Best Practices & Preferred Methods of the Warrior Battalion

As discussed earlier, 1-4 IN has three primary sUAV platforms, all of which are used in different ways based on their respective capabilities. The rapid launch and return of a Raven provides a company commander with quick target identification and the flexibility to maneuver Raven control station sites. The Puma system has a longer range and flight time, allowing for deeper operational views and support to fires as enemy elements enter the 1-4 IN kill zones. Both systems have an infrared camera and laser target designation, which support 10-digit grid identification of a target. Depending on environmental factors such as wind, 1-4 IN sUAV operators prefer to use Ravens in the offense and the Puma system in the defense, although pairing the systems to queue their capabilities has provided significant advantages if a Raven is engaged. The newly-implemented RDASS system, which replicates a non-conventional UAV capability, has a high-definition camera, but limited range and target-support capabilities. UAV operators prefer to use this system in a reconnaissance capacity while in towns or along tree lines in order to fully employ the system's abilities and minimize risks associated with detection.

In order to use these platforms, it is vital that the Warrior Battalion maintain a Master Trainer. 1-4 IN currently has one Master Trainer, a staff sergeant, who conducts all standards, currency, and proficiency tasks, and coordinates Class IX[iii] support for 32 sUAV operators and 13 airframes. The Master Trainer plays a crucial role in planning and employing the Battalion's sUAV capabilities. Alongside the Reconnaissance Company Commander and Intelligence section, the Master Trainer develops an sUAV scheme of maneuver and named area of interest overlay/observation plan. Simultaneously, he coordinates with the installation Tower Chief to operate multiple sUAV systems while deconflicting for live aircraft and fires throughout the training area. While all of these tasks are important, the Master Trainer's most important role is instructing and certifying operators.

The Master Trainer is the only soldier authorized to instruct and certify new operators. In addition to ensuring all Puma, Raven, and RDASS operators are current with their airframes, he must also keep track of soldiers who are scheduled to change duty stations or leave the military. Each company must maintain a total of six Puma/Raven operators and five RDASS operators. Therefore the Master Trainer must find time between rotations to conduct a 10-day initial qualification course to replenish each company. Once soldiers have completed this course, they go through an up to 60-day program to progress from Mission Preparation to Mission Qualified. After these formal training gates are passed, the experienced operators practice more technical or new TTPs gained from recent rotations. The unit trainer and the Master Trainer mold their newest operators to eventually fly unassisted. When outside of rotation, the Master Trainer designates evaluation days where operators are tested on basic knowledge, skills, and emergency procedures that they are required to know as experienced operators.

Prior to a rotation, the Master Trainer consolidates certified personnel into an sUAV squad-sized element covering the Puma, Raven, and RDASS systems. The squad is further divided into two-man sUAV assault teams who are responsible for a specific airframe. These teams are in uniform or dressed as innocent civilians to penetrate deep into enemy territory. Most importantly, these teams are either accompanied by a forward observer or personnel capable of effectively coordinating fire support, dramatically shortening the sensor-to-shooter timeline.

The night prior to each rotation, the Master Trainer and his team conduct rehearsals, layouts, and final reconnaissance planning for their initial collection areas. Once the rotation begins, the Master Trainer takes the new operators into the fight so they can receive on-the-job training. Here the operators construct a ROZ plan, route, flight path, and rules of engagement with the oversight of the Master Trainer. Once the plan is developed successfully, the new operators execute their plan alongside the Master Trainer. The experienced operators are briefed prior to operations by the Master Trainer and are subsequently mentored throughout the rotation. In addition, the Master Trainer also conducts a linkup with each team throughout the rotation, to conduct a rolling after-action report (AAR) and to ensure they are maximizing their sUAV capabilities.

[iii] Repair parts

Once a team is in position, the senior team member takes charge and shifts the team as required to provide the best security and overwatch for his position. Each sUAV operator can fly in different types of environments and terrain. They operate by means of launching, driving, and recovering while mobile; working from rooftops in cities; camouflaging themselves to blend in with terrain; or operating in the tops of trees while working beyond the forward line of protection. At every position the sUAV teams conduct a short reconnaissance and fortify their positions to give them time to evade if discovered.

At the end of every rotation, the Master Trainer conducts a 100% inventory for each company to annotate all shortages and damages. The Master Trainer then contacts Redstone Arsenal and the Movement Branch Control Team to coordinate shipping of replacement parts. When ordered, each replacement part is assigned to a specific company to ensure its proper tracking. In addition, at this time the Master Trainer builds an in-depth AAR sUAV tracker detailing every flight, location, and battle damage assessment report from the rotation. This report is submitted to the battalion commander and is used for the battalion rotational AAR. The following week the Master Trainer resumes the coordination of flights to qualify and progress operators.

Recommendation Roll-up

RTUs must embrace and prepare for the sUAS/sUAV fight through aggressive training, planning, and employment of UAS assets. Below is a concise list of recommendations for RTUs to implement.

- Change the mindset: the RTU is fighting in a competitive UAS/UAV environment.
- Implement and train counter-UAV drills, including the consistent employment of cover, concealment, camouflage, and deception.
- Ensure OPSEC is closely adhered to and all information technology systems are secure and protected.
- Commanders must emphasize and prioritize the certification and training currency of sUAS operators.
- Master Trainers are not limited by the Army's personnel structure. Train at least two Master Trainers per brigade and two per battalion. Empower them to lead and coordinate their elements.
- Commanders must enforce the development and implementation of an sUAS standard operating procedure.
- The synchronization of UAS, fires, and maneuver elements must be incorporated and practiced at home-station training events.
- Leaders must aggressively employ sUAS and exploit the collected information.

Conclusion

The Warrior Battalion's mission is to provide the toughest, most realistic threat to train US military personnel and multinational partners. Additionally, during mission execution the Warriors are constantly learning and refining their skills in the critical areas of a maneuver battlefield, gathering lessons valuable to all units in the US Army and our partners. Hopefully this paper demonstrated how to leverage the sUAS to support maneuver as well as some helpful TTPs for maximizing their capability.

Notes

[1] "AWG training experiments…have been consistent with the findings at JMRC in similar training environments, the training units often ignore proximate UAS [UAVs] and assume it is operating in a friendly capacity." LTC Eric Remoy, former JMRC Senior Intelligence Officer. "Summary of Current Counter-Unmanned Aerial Systems Efforts." 18 February 2016.

[2] Fire Strike at Zelenopilly: "…a combination of artillery and MLRS [multiple rocket-launcher systems], with the latter employing top-attack munitions and thermobaric warheads, caught two Ukrainian mechanized battalions in the open. This intensely concentrated fire strike created high casualties and destroyed most of the armored vehicles in a shelling that lasted only a few minutes…without having the means of real-time target acquisition, Ukrainian forces were at a severe disadvantage." Dr. Phillip A. Karber. "Lessons Learned from the Russo-Ukrainian War, Personal Observations[DRAFT]." The Potomac Foundation. 8 July 2015.

[3] Scott R. Masson. "Unmanned Aerial Vehicle use in Army Brigade Combat Teams: Increasing Effectiveness across the Spectrum of Conflict." Naval Postgraduate School. December 2006.

[4] "JMRC assessed that the Combined Resolve V training unit in November of 2015 lacked procedures to inform the tactical formation of friendly overflights as a first step in characterizing the airspace, lacked procedures to feed information from tactical units to higher headquarters about the presence of UAS [UAVs], and lacked material solutions beyond engaging UAS [UAVs] with small arms and crew-served weapons." LTC Eric Remoy, former JMRC Senior Intelligence Officer.

Long Night in Dhaka:

The Holey Artisan Bakery Attack

by Jim Bird, TRADOC G-2 ACE Threats Integration (IDSI Ctr)

On 1 July 2016, as Americans prepared to enjoy a long Fourth-of-July weekend, most Muslims in Bangladesh were spending a quiet evening at home. Few would care to dine out that evening after breaking their fasts on the last Friday of Ramadan. Largely for that reason, mostly foreigners occupied tables at the Holey Artisan Bakery restaurant, located in the plush diplomatic enclave of Dhaka, Bangladesh, less than a mile from the US Embassy. It was a dual-function eatery, serving as a bakery in the daytime and a Spanish restaurant at night. Shortly after 2100 local time, shouts, bursts of gunfire, and explosions shattered the establishment's normally tranquil atmosphere. Patrons dove under tables or sat frozen in shock as the stunned wait-staff scrambled for exits or sought refuge in the building's backrooms and hidden areas. Members of the kitchen staff initially mistook the gunmen for *dacoits* (bandits), thinking they would "leave in 15 to 20 minutes" after relieving customers of their money and valuables.[1] Instead, the perpetrators headed to an upstairs area undergoing renovation that offered better firing positions for defense. According to one witness, the intruders shouted "Alahu Akbar [God is Great]" as they stormed the restaurant.[2]

Police arrived on the scene in less than ten minutes and were "met with a hail of bullets and grenades."[3] Two local police officers lost their lives in the ensuing gunfight: Mohammed Salahuddin, a police station chief; and his immediate superior, Ashraful Karim, an assistant police commissioner. Following this initial bloody repulse, the police fell back and established a cordon around the Holey Artisan Bakery restaurant, pending the arrival of reinforcements with firepower sufficient to subdue the attackers. Meanwhile the standoff would last throughout the night and into the early morning hours.[4]

Figure 1. Holey Artisan Bakery in relation to the US Embassy

As the ten-hour siege began, the perpetrators set about segregating native Bangladeshis from expatriate patrons. One of the attackers was heard to say, "We will not kill Bengalis…We will only kill foreigners."[5] At that point it became brutally clear that this was no mere gang of bandits; these were terrorists carrying out a distinct militant Islamist agenda. Once the terrorists had divided their victims into two groups, they began interrogating the non-Bangladeshis. "Through the long, terrible night, one eyewitness said, the attackers tested the hostages, torturing or murdering them if

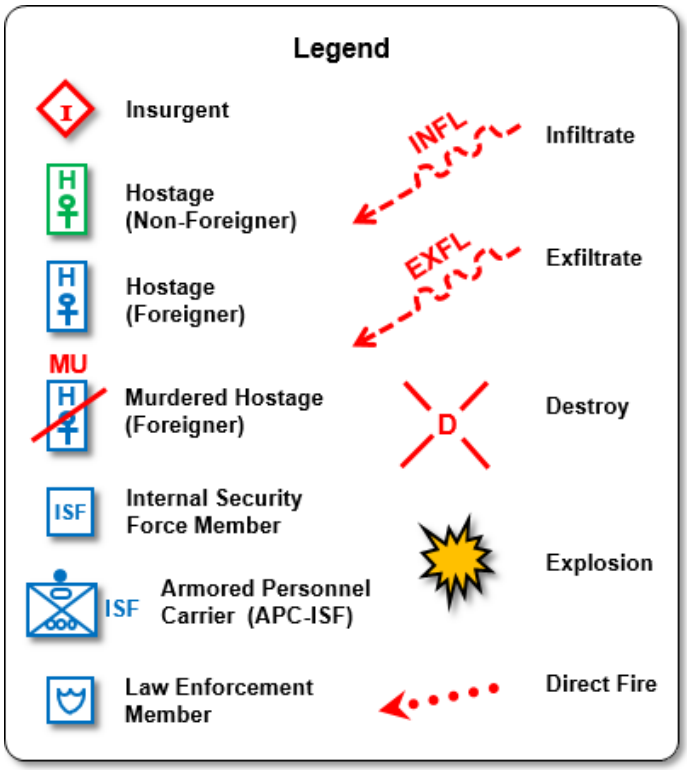
they couldn't recite verses from the Koran."[6] Conversely, local nationals inside the restaurant fared much better and received uniformly kind treatment from the attackers, even to the point of being provided dinner. By 2300 Friday night, the militants had killed all 18 of the foreigners inside the eatery. These included nine Italians, seven Japanese, and one citizen each from India and the United States. A restaurant employee who survived the ordeal confirmed that the Japanese were killed almost immediately.[7]

Figure 2. Holey Artisan Bakery, April 2016, and aerial view

Three students of US colleges numbered among the slain. An Indian woman, subsequently identified as Tarishi Jain—a 19-year-old student of the University of California, Berkeley—lay "badly injured [and] moaning in agony but a perpetrator took a sword to her and killed her without mercy," a survivor reported.[8] The American, Abinta Kabir of Miami, Florida, was in Dhaka visiting friends and relatives. She was a sophomore at Emory University's Oxford, Georgia, campus. The third student, Faraaz Hossain, though a native Bangladeshi, also attended Emory University's Oxford campus. He was a recent graduate, planning to begin studies in the university's business school in the coming fall.[9]

Propaganda of the Deed: the INFOWAR Dimension

An important feature of the Dhaka terrorist attack was the emphasis placed by perpetrators on maximizing the propaganda effect of the Holey Artisan Bakery atrocity. By the time the siege ended early on the morning of 2 July, the world already knew that the Islamic State of Iraq and the Levant (ISIL) claimed responsibility for the attack, thanks to word spread through its Amaq propaganda agency. Even as the attack was still unfolding, the perpetrators made establishing an Internet connection a top priority. As an article published in the *New Yorker* magazine explains, "the gunmen had clearly planned to take photos of the carnage, mid-siege, and transmit them for publication on ISIS [ISIL] channels."[10] However, when signals generated by smartphones confiscated from victims proved too weak to secure an effective transmission, "the restaurant staff was ordered to switch on the Wi-Fi network. One of the gunmen, survivors recalled, had also remembered to pack a laptop."[11] In short order, reported the Indo-Asian News Service, "gruesome pictures emerged on social media showing the inside of the bakery, splattered with blood and broken furniture."[12]



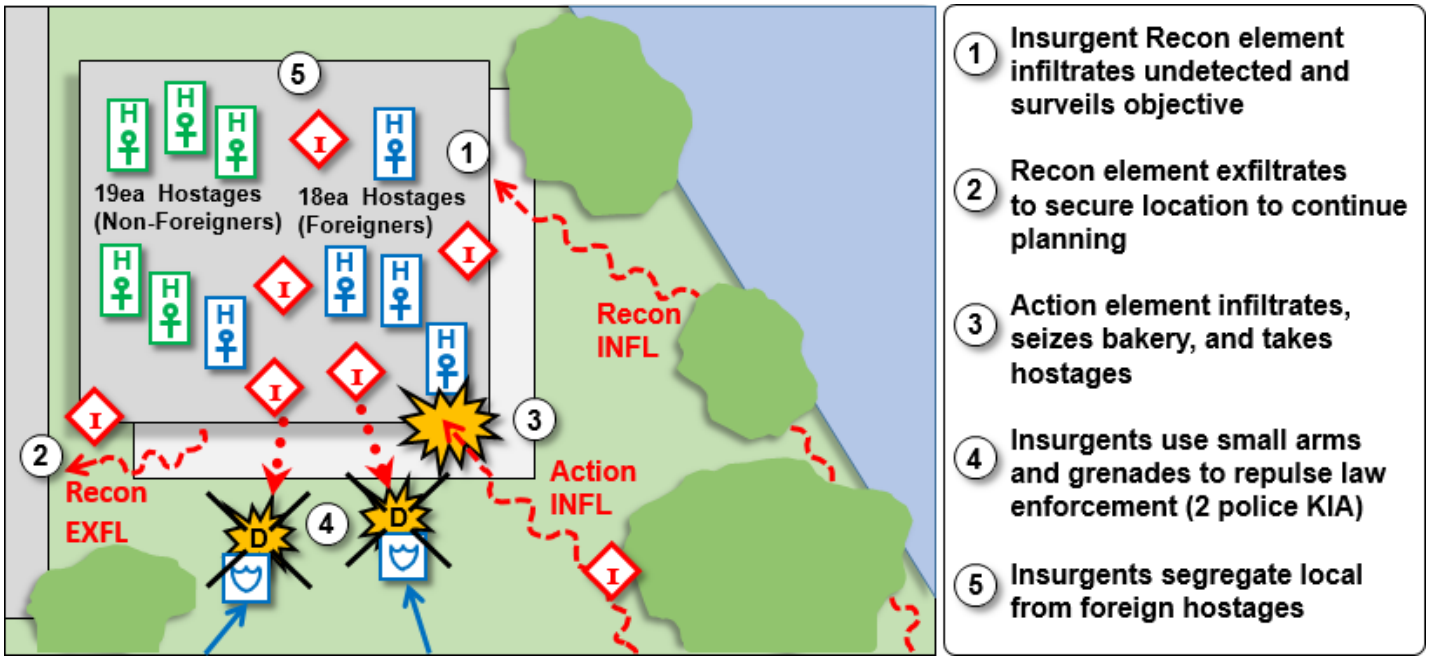


Figure 3. Initial phase of the 1–2 July 2014 Holey Artisan Bakery attack

"We are also ready to die now:" Operation Thunderbolt[13]

As the terrorists and their surviving captives waited throughout the night, Bangladeshi government officials counseled with military and other security force leaders on how best to end the standoff. At the direction of Prime Minister Sheikh Hasina, a rapid reaction battalion augmented by other detachments of local police and military security forces launched an assault, codenamed Operation Thunderbolt, to free the remaining hostages and bring the perpetrators to bay. The gunmen could see their adversaries assembling in the distance as dawn began to break. One witness said he observed commandos and armored vehicles approaching as the hostage-takers conferred among themselves. After a last batch of survivors—including women and children—had been released shortly after 0800, one of the attackers, 20-year-old Rohan Imtiaz, quoted a verse from the Quran before announcing, "we are also ready to die now."[14] Shortly thereafter, as the terrorists exited the building to ascend to a second-floor location, security forces dismounted armored personnel carriers (APCs) and overran their position. The area, related the survivor, "was enveloped in the sound of fierce gunfire."[15]

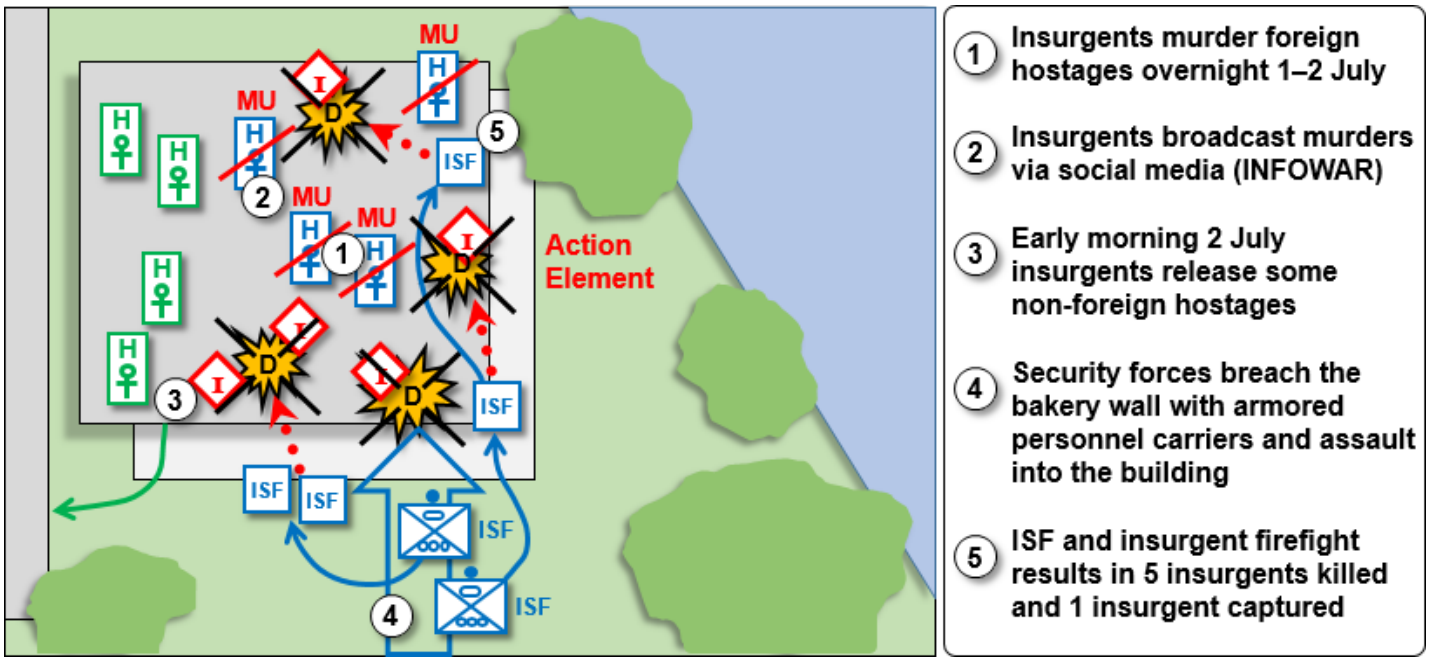


Figure 4. Concluding phase of the 1–2 July 2014 Holey Artisan Bakery attack

Bloody Aftermath

Bangladeshi APCs literally knocked down/shattered the glass walls of the café to create a breach that allowed dismounts to enter their objective area. Within minutes additional hostages were freed, although small-arms fire could be heard for an hour after the operation began, and security forces conducted controlled detonations of explosives left by the terrorists. During an afternoon press conference, Brigadier General Nayeem Ashfaq Chowdhury, the Bangladeshi Army's director of operations, declared that Operation Thunderbolt had ended around 0830 local time. He also confirmed the discovery of 20 bodies of foreign nationals, all killed the previous night. Prime Minister Hasina later announced that 13 hostages had been rescued alive, and that of 7 terrorists, 6 were killed and 1 had been captured alive. However, the number of attackers killed was reduced to five after police realized that they had killed the restaurant's pizza chef, mistaking him for a terrorist.[16]

Background and Motivation of the Attackers

Because the Holey Artisan Bakery attack occurred in the world's fastest-growing megacity, where over 70% of households earn less than $170 per month, it would be reasonable to expect that the perpetrators would come from deprived, perhaps even indigent, backgrounds.[17] This was anything but the case. In the 1 July incident the gunmen, besides being fluent in English and Arabic, were clean-shaven and dressed in Western clothes, creating an appearance that enabled them to blend undetected into Dhaka's elite Gulshan diplomatic neighborhood. With the advantage of hindsight, their dress and deportment was consistent with past terrorist attacks in Bangladesh. They were essentially inoculated against the poverty, unemployment, and sectarian madrassa education often presumed to fuel terrorist behavior. According to the US Department of State's Overseas Advisory Council (OSAC), "evidence suggests that not only do Bangladeshi Islamist militants come from middle/upper class backgrounds, but they are educated at elite universities and are likely to have a background in technical education. This parallels the overall factors associated with foreign fighters and domestically-based individuals linked to ISIL."[18]

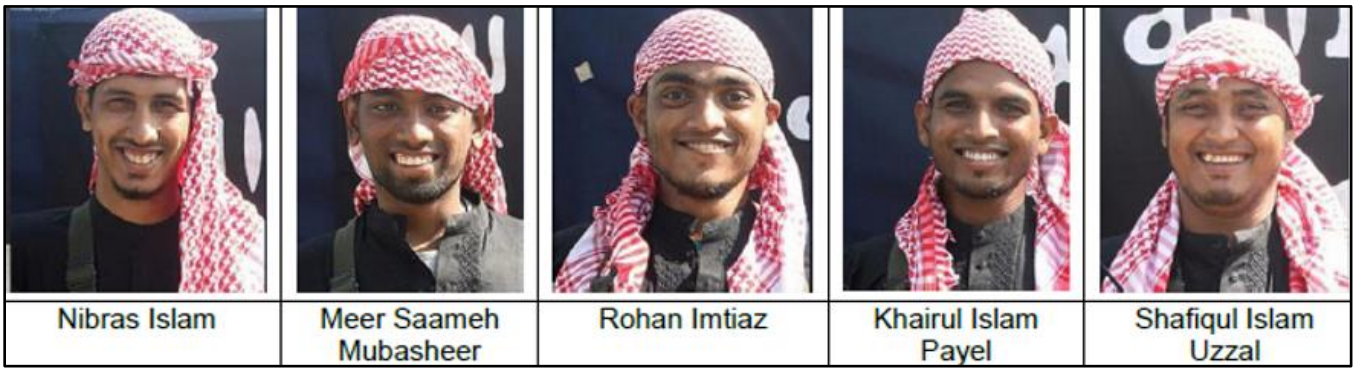


Figure 5. Perpetrators of the 1 July 2016 attack on the Holey Artisan Bakery restaurant

Their secular, well-educated, and affluent backgrounds did not prevent the Holey Artisan Bakery militants from succumbing to religious radicalization. OSAC also reported that "according to research, more than 70 percent of ISIL recruits are middle class or wealthier. They are also not particularly religious before radicalization, as…recruits come from secular backgrounds, 'learning about Islam from ISIS-linked preachers' on social media and the Internet, rather than through local mosques."[19] In any event, by the time they carried out their terrorist act, the attackers regarded themselves as pious Islamists. The ISIL website that publicized their deeds said the Holey Artisan Bakery restaurant was targeted because "it was well known for being frequented by the citizens of Crusader countries…a sinister place where the Crusaders would gather to drink alcohol and commit vices throughout the night."[20]

Of Knives and Guns: a Nexus of Preferred Weapons

A cursory view of the weapons used by the Holey Artisan Bakery terrorists may make a somewhat contradictory impression on a Western observer. Quoting Monirul Islam, chief of the Counter Terrorism Unit of the Dhaka Metropolitan Police, one South Asian media outlet reported that Bangladeshi authorities had recovered five 9mm pistols, three AK-22 rifles, eleven grenades, and an array of other explosives from the site of the attack. This is generally consistent with General Chowdhury's above-mentioned press statement indicating that "we have recovered a huge cache of IED explosives and AK-22 assault rifles."[21] The fact that most of the 20 deceased hostages were killed with bladed instruments, however, begs

the question: since the perpetrators were armed with automatic weapons, why did they decide to carry knives and swords along during their assault?

The answer may be grounded in religion. That the militants added swords to their arsenal of "small firearms with big magazines," as one witness observed, may not be so contradictory after all.[22] Amarnath Amarasingam, a Fellow at George Washington University's Program on Extremism, noted that some victims of the Holey Artisan Bakery were cut up with cleavers or machetes, and that "these attacks sometimes do have a sort of weird local flavor."[23] Part of the local flavor in Bangladesh may be accounted for by a belief apparently prevalent among some Islamist extremists there—and confirmed by the country's chief of the Counter Terrorism and Transnational Crime unit—"that killing with the blade earns more blessing and eases the path to paradise."[24] Availability of bladed weapons may provide terrorists an added incentive. Although an ancient colonial-era law prohibits the use of blades longer than 7.5 inches in Bangladesh, no restrictions limit the sale of such weapons, and poor record-keeping often prevents tracking identities of purchasers.[25]

The Brains Behind the Attack

Almost immediately after the Holey Artisan Bakery incident, a consensus emerged among authorities and analysts that the attack reflected meticulous planning and organization. Indeed, it was the most sophisticated to date in the history of terrorism in Bangladesh. In a report generated while the attack was still underway, OSAC affirmed that "the coordinated and complex nature of this assault indicates an increase in the scope and capability for ISIL in Bangladesh."[26] Authorities soon determined that the mastermind behind the attack was a Canadian expatriate of Bangladeshi heritage named Tamim Chowdhury.

Figure 6. Tamim Chowdhury

Formerly a resident of Windsor, Ontario, Chowdhury attended the University of Windsor, where he graduated in spring 2011 with an honors degree in chemistry. By 2013 he had left Canada, accompanied by another radicalized Islamist, and traveled to Syria to join ISIL. After leaving Syria, Chowdhury served as an ISIL recruiter in Bangladesh, where he inevitably drew the attention of the authorities. He adopted the nom de guerre of Shayk Abu Ibrahim al Hanif, and was featured in the April 2016 issue of ISIL's official publication, *Dabiq* magazine. According to OSAC analysts, "he reportedly accompanied the…attackers to the targeted [Holey Artisan Bakery] restaurant from their flats," leaving them there to complete their mission.[27] Authorities also considered Chowdhury their primary suspect for planning a massacre six days later (7 July) that targeted Shiites gathering for Eid prayers. On 27 August 2016, less than two months after the Holey Artisan Bakery attack, Chowdhury met his end in a firefight that erupted when authorities cornered him and some companions in a Dhaka apartment building.[28]

Reading the Tea Leaves: Same Event, Different Conclusions

Despite the consensus that the Holey Artisan Bakery attack was sophisticated, well-planned, and a milestone in the troubled history of terrorism in Bangladesh, plenty of controversy swirled around the issue of whether the perpetrators represented a local, as opposed to international, threat. Most analysts and observers outside of Bangladesh had little doubt that the perpetrators acted in the capacity of a local ISIL franchise. That said, the 1 July attack—though larger in scale and complexity than previous terrorist incidents—admittedly had a local flavor, and represented the latest iteration in a train of events that Bangladeshi authorities insisted were essentially domestic and contained within their own country.

Ironically, the bakery attack occurred only a week after the fifth in a formal series of Bangladeshi-US Partnership Dialogues concluded in Washington, DC, on 24 June 2016. Security topped the agenda at the two-day meeting, in the wake of several small-scale yet targeted terrorists incidents perpetrated in Bangladesh. The identity of the terrorist groups involved was a major point of contention. There was little doubt among Western analysts of ISIL involvement. An Asia News Network report reflected the disconnect between US and Bangladeshi perspectives: "Since October last year, the US has been suggesting that terrorists with links to the Islamic State [ISIL] have been preparing to increase their activity within the territory of Bangladesh. However, the Bangladesh government outright rejected the presence of Islamic State (IS) here. It is said some home-grown criminals were behind the attacks and that activities of criminals and militants are now under control."[29] Meanwhile, the Joint Statement released after the Fifth US-Bangladesh Partnership Dialogue, couched in

diplomatic language, predictably emphasized the meeting's positive outcomes and spoke in very general terms of both countries' common fight against terrorism: "Bangladesh and the United States recognize the shared threats they face and that countering violent extremist groups, including Da'esh (ISIL) and Al Qai'da, constitute a global challenge that must be addressed jointly…Our cooperation on security seeks to reinforce Bangladesh's ability to improve community policing, and provide training on counter-messaging, among others."[30] The issue of whether threat groups operating in Bangladesh were local or transnational in nature went largely unaddressed.

Almost two months before the Partnership Dialogue meeting in Washington, a BBC news reporter in Bangladesh raised the issue of who was behind a series of recent "hacking deaths targeting secular bloggers, professors, foreigners and religious minorities."[31] Local militant groups professing an affiliation with ISIL or Al Qaeda had claimed responsibility for the latest attacks, including some that targeted members of the lesbian, gay, bisexual, and transgender (LGBT) community. The Bangladeshi government, however, refused to recognize the connection between the local attacks and the threat of international terrorism. Its information minister, Hasanul Haq Inu, declared, "to our knowledge…IS has not been involved in the recruitment of militants, or any militant activities within the boundaries of Bangladesh…The government is working hard to tackle the problem. If you look at our track record, Bangladesh is safer today than Europe or America."[32]

Figure 7. YouTube video screenshots showing APCs immediately after ramming Holey Artisan Bakery walls and Bangladeshi security forces storming the bakery

Other Bangladeshis were less sanguine about the threat international terrorism posed to Bangladesh. One retired army brigadier recently turned security analyst remarked, "we have 90% Muslims concentrated in a small place. Many of them are highly educated youth who are unemployed. So they get attracted to [militant Islamist] ideology…If these groups get a foothold here, it could be dangerous not just for us but for the region."[33] Thus during the run-up to the 23–24 June Partnership Dialogue in Washington, some observers in Bangladesh were accusing their country's government of being in denial about the imminent threat of international terrorism.

One reason why the US was so focused on security as the date for convening the Partnership Dialogue meeting drew closer concerned the 16 April 2016 murder of 35-year-old Xulhay Mannon, a local national employed by the US Agency for International Development headquarters in Dhaka. On his personal time Mannon edited the country's first LGBT magazine, making him a target for militant Islamists. Shortly after Mannon and another person were hacked to death in the same incident, Al Qaeda on the Indian Subcontinent (AQIS) took to social media to claim responsibility. The furor surrounding the incident soon gained the attention of Secretary of State John Kerry, who condemned the dual killings as "barbaric murder."[34]

Will the Real JMB Please Stand Up?

It is possible that the Bangladeshi government's reticence to acknowledge what outside observers interpreted as a shift in the regional security environment sprang in part from the challenges inherent in differentiating between local and transnational threat actors. A terrorist group calling itself Jamaatul Mujahideen Bangladesh (JMB) actually falls within both categories. According to analysts at OSAC, some of JMB's founding leaders "participated in the war against the Soviet Union in Afghanistan, returning to Bangladesh seeking to promote an Islamic revolution and install a Taliban-style

government" in their homeland.[35] The resulting network of terrorist groups, which included factions supporting Osama Bin Laden, continued throughout the post-9/11 decade and persists to this day.

The original JMB's heyday lasted from 1998 through 2003, as the group garnered recruits and spread its militant gospel, mostly under the radar of Bangladeshi security forces. Inevitably it ran afoul of the generally secular, tolerant, and pro-Western government of the ruling Alawi party. In 2005, when JMB planned and carried out about 500 coordinated bombings in 63 out of the country's 64 districts, it captured the undivided and hostile attention of government authorities. In the crackdown that swiftly followed, all of the group's senior leaders were executed, while hundreds of its operatives throughout the country were rounded up and incarcerated.[36]

The government succeeded in decimating JMB, but not in eradicating it; a vestige still remained. Over time this remnant resurfaced as the Neo-JMB. Meanwhile the group's linkages to international terrorism had been reinforced, even as the government insisted that it had effectively eliminated what it believed to be a domestic terrorist threat. National authorities were willing to believe that the above-mentioned Tamim Chowdhury's involvement in the Holey Artisan Bakery attack reflected a re-invigorated local JMB; but foreign analysts soon realized that Chowdhury "was not only leader of the neo-JMB, but ISIL also described him as the head of their 'military and covert operations'" in Bangladesh.[37]

Stakeholders' Preferred Interpretations

At the end of April 2016—in the aftermath of Xulhaz Mannan's murder—Bangladeshi authorities still insisted that "IS has no foothold in Bangladesh and that local militant groups, supported by opposition parties, are behind the crimes."[38] Prime Minister Sheikh Hasina declared then that the Bangladesh National Party (led by a former prime minister) and its allies were part of a "conspiracy" that sought "to destabilize the country" by plotting a series of secret killings.[39] The government continued to stand by this interpretation even after the Holey Artisan Bakery attack. The perpetrators, said home minister Asaduzzaman Khan, "are members of the Jamaeytul Mujahdeen Bangladesh…They have no connection with the Islamic State."[40] Meanwhile ISIL behavior in Bangladesh seemed to be giving credence to an alternative narrative.

28 September 2015—when an Italian national was fatally shot while jogging—marked the first occasion that ISIL claimed responsibility for a terrorist attack on foreigners in Bangladesh. A few days later, on 3 October, ISIL also claimed responsibility for killing a Japanese worker in north Bangladesh as he was riding in a rickshaw. By the end of the month, indigenous Shia Muslims had been targeted for the first time.[41] By the time of the Holey Artisan Bakery attack on 1 July 2016, ISIL had claimed responsibility for about 25 attacks since January of the previous year. By October 2015, the US Embassy in Dhaka had released six security messages warning of potential threats to Westerners in Bangladesh.[42]

If Bangladeshi authorities focused on denying the linkage between the rising number of militant attacks and outside terrorist groups, the US State Department warning issued on 28 September 2015 focused more specifically on the increasing danger to Westerners. It cautioned US citizens to "maintain a high level of vigilance and situational awareness and [to] exercise caution in public places including restaurants, hotels and other places frequented by foreigners…Terrorists have demonstrated their willingness and ability to attack locations where U.S. citizens or Westerners are known to congregate or visit."[43] Looking back on the Holey Artisan Bakery attack with the advantage of 20/20 hindsight, the State Department warning proved tragically and uncannily accurate. A couple of months prior to the attack, in April 2016, ISIL published the 14th issue of its propaganda mouthpiece, *Dabiq* magazine. It featured an interview with the then still-living Tamim Chowdhury, who it hailed as the "Amir of the Khilafah's soldiers in Bengal."[44] During the interview, Chowdhury affirmed Bangladesh's strategic importance to the global jihad because of its geographic proximity to Pakistan, Afghanistan, and India.

The South Asian Operational Environment

The author of this discussion of the 1 July 2016 Holey Artisan Bakery attack concurs with OSAC that the preponderance of existing evidence supports the conclusion that international terrorist groups—especially ISIL and AQIS—are actively operating in Bangladesh and regard the country as "a strategic operations base for establishing a caliphate and [for facilitating] attacks inside India, a symbolic target for ISIL."[45] It is also noteworthy that, in the context of ISIL beginning to lose its grip on Syria and Iraq, "its leader, Abu Bakr al Baghdadi specifically includes Bangladesh in his communications, telling ISIL members to 'champion your brothers in…Bangladesh, and everywhere.'"[46]

For units facing possible deployment to South Asia, the extent to which JMB has maintained its own identity, as opposed to being subsumed by ISIL, makes little practical difference. "The fact that Neo-JMB has already established networks with other groups has significant implications for [its own] future, as its web of relationships, operational linkage, and shared ideology could make it easier for ISIL to expand its reach in Bangladesh, while making it difficult for…security forces to effectively target and eliminate the group."[47]

The possibility of deploying to South Asia is real, as is the threat posed by international terrorist groups like ISIL and AQIS. One observer who resides near the bakery—and before the attack was a regular customer there—commented, "There may be 10 million police, they are very incapable…Bangladesh is not prepared for these sorts of things."[48] Whether it ever will be prepared remains a matter of speculation. In any event, the Partnership Dialogue between the US and the country's pro-Western government will likely continue indefinitely. Bangladesh's ruling party—the Awami League—regardless of its ability to improve security effectiveness, is generally considered "the sole guardian of secular fibre of Sunni-majority Bangladesh."[49] How long this Awami League stewardship can last is questionable, given that Bangladesh's Muslim population is larger than that of any country in the Middle East. Meanwhile, all signs point to ISIL as the group responsible for the Holey Artisan Bakery attack. As a Washington Post writer pointed out, "a coordinated strike on Gulshan, the epicenter of wealth and elite power in Dhaka has all the hallmarks of the terrorist organization's strategy."[50]

Implications for Training

Training Circular (TC) 7-100.2, *Opposing Force Tactics*, contains insights related to urban combat that commanders may find useful in replicating events that transpired during the Holey Artisan Bakery attack. The perpetrators clearly regarded "urban combat as a vital subcomponent of [their] tactical actions. Complex urban terrain provides significant advantages to the side that is ready to make use of them."[51] Paragraph 6-41 in the training circular discusses the multidimensional nature of the battlefield and ways that the opposing force (OPFOR) can operate vertically as well as horizontally—"from basements or sewers to upper stories or on tops of buildings" (see also paragraph 6-61).[52] This dynamic definitely played out during the terrorist attack on the bakery, when militants fanned out to take up firing positions throughout the restaurant, including its second-floor area.

TC 7-100.2 also discusses tailoring urban detachments to the specific mission at hand, and provides a functional break-out of the various elements that typically comprise urban detachments. Without question, the militants who carried out the Holey Artisan Bakery attack tailored their force to meet their specific requirements. Their planning entailed advanced reconnaissance, a thorough familiarity with the objective area, and provision for logistical support and financing well in advance of the attack date. It is also noteworthy that, as previously mentioned, the planning mastermind, Tamim Chowdhury, accompanied the action element to the restaurant before the group initiated its assault.[53]

The "Planning for Urban Combat" section of TC 7-100.2 explains that "the OPFOR can use the population to provide camouflage, concealment, cover, and deception (C3D) for its operations," and that "the civil population may serve as a key intelligence source for the OPFOR."[54] There is a high probability that local hires or residents of Dhaka's Gulshan district had information the perpetrators needed to accomplish their mission. Another important dimension of this attack was how successfully the terrorists avoided detection by blending in with the local population. This capability enabled their special purpose team and reconnaissance assets to "infiltrate and move among civilian groups," another principle discussed in Paragraph 6-57 of TC 7-100.2.[55]

Perhaps most important of all, the Holey Artisan Bakery attack provided a real-world demonstration of how "portable video cameras, Internet access, commercial radios, and cellular phones are all tools that permit the OPFOR to tell its story. This can influence the local population and/or affect the national wills of countries other than the state."[56] It is a certainty that the terrorists in this instance intended to (1) embarrass the Bangladeshi government and the United States by demonstrating the former's inability to guarantee the safety of Dhaka's local population, and (2) undermine the government's authority by placing the local population in harm's way.

Finally, the Holey Artisan Bakery attack reflected certain characteristics of a raid, which TC 7-100.2 defines as "an attack against a stationary target for the purpose of its capture or destruction that culminates in the withdrawal of the raiding force to safe territory."[57] The willingness of the perpetrators to die in place in order to accomplish the INFOWAR dimension of their mission is the primary feature that differentiates the Holey Artisan Bakery attack from a raid: members of the action element apparently had no intention of surviving their mission, thus eliminating the need for an egress route to

facilitate withdrawal to a safe area. The Holey Artisan Bakery attack was an inflection point in the history of Bangladeshi and South Asian terrorism, and offers considerable insight into challenges facing security forces operating in dense urban terrain.

Notes

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by Jon H. Moilanen, TRADOC G-2 ACE Threats Integration (DAC)

The Russian Federation is advancing one of the most significant design evolutions among the several current leading armored fighting vehicle and tank producers—the T-14 main battle tank (MBT). Observers state this tank development as revolutionary in Russian tank design given the innovative decisions in crew compartment configuration, modernized weapons fire control and battlefield management, main armament, ammunition location, protection, and mobility-automotive power plant performance. Public appearance of the T-14 MBT in 2015 caused renewed interest by other nations that produce main battle tanks to review their ongoing armored weapon systems and antitank development programs.[1]

> ***Note*. This article presents information on the T-14 main battle tank that describes several Russian claims in performance capabilities that are yet to be proven in an unclassified venue. Initial reports from a government or industrial partner can be inflated; however, as unclassified data are confirmed on T-14 MBT developments and testing, weapon system effectiveness, and actual production and fielding timelines, updates will be provided in future *Red Diamond* newsletters.**

Russia's New Main Battle Tank: T-14

The T-14 MBT can be a significant capability to Russia's tank fleet once a substantial number of T-14s appear in operational units. Although varied ways exist to classify tanks by characteristics of weight, roles, or main armament, current tank design descriptions sometimes blur terms, such as main battle tank versus medium tank. Overall size of a tank appears less important than developments to optimize technological advantages in automotive performance, weapon system lethality, and vehicle and crew survivability within a general category of main battle tank. To describe this type of armored fighting vehicle, a tank weapon system considers characteristics as a "self-propelled armored fighting vehicle, capable of heavy firepower, primarily of a high muzzle velocity direct fire main gun necessary to engage armoured and other targets, with high cross-country mobility, with a high level of self-protection, and not designed and equipped primarily to transport combat troops."[2] Tanks in Russian operational units also have the capability to fire a guided missile from their main gun tube.

Figure 1. Russian Federation T-14 main battle tank[3]

A traditional visual recognition of Russian tanks since the Cold War era has been low silhouette, medium weight, and standard dimensions. In more recent years, weapon system improvements include an increase in firepower capabilities of main gun ammunition, gun/missile range and

munitions lethality, fire control system, automotive performance, and advanced vehicle protection with explosive reactive armor appliques and active protection systems. Passive protection norms continue in use.

Differences are immediately evident with the larger exterior dimensions of the T-14 from its predecessor Russian models, up to and including the T-90 MBT series and its variants for domestic and export markets. The T-14 is clearly a weapon system in the main battle tank category.

Armata

After Russian cancellation of developmental tank programs such as the "Black Eagle" and T-95, Russian tank research and development (R&D) refocused on improvements to its T-90 program.[4] The T-72 fleet also continues to receive system upgrades that provide a modernized and cost-effective solution with currently-available tanks. The chief successor to this R&D and modernization effort is Russia's decision to shape its next generation of armored vehicles around the Armata program. As a universal chassis for a family of armored military vehicles, ongoing Armata development, trials, and field testing include the T-14 MBT, a heavy infantry fighting vehicle, and other Armata functional variants for engineering, mine laying, bridge laying, and thermobaric multiple rocket launcher capability.[5]

During the May 2015 Parade in Moscow, Russia publicly displayed the Armata chassis T-14 MBT with its obvious size difference from earlier Russian tank designs. Other Armata chassis vehicles in the parade included a replacement for the BMP family of tracked armored infantry fighting vehicles, and a new self-propelled artillery tracked vehicle. The annual Russian parade in May 2016 included similar Armata vehicle presentations to include the T-14 MBT.[6]

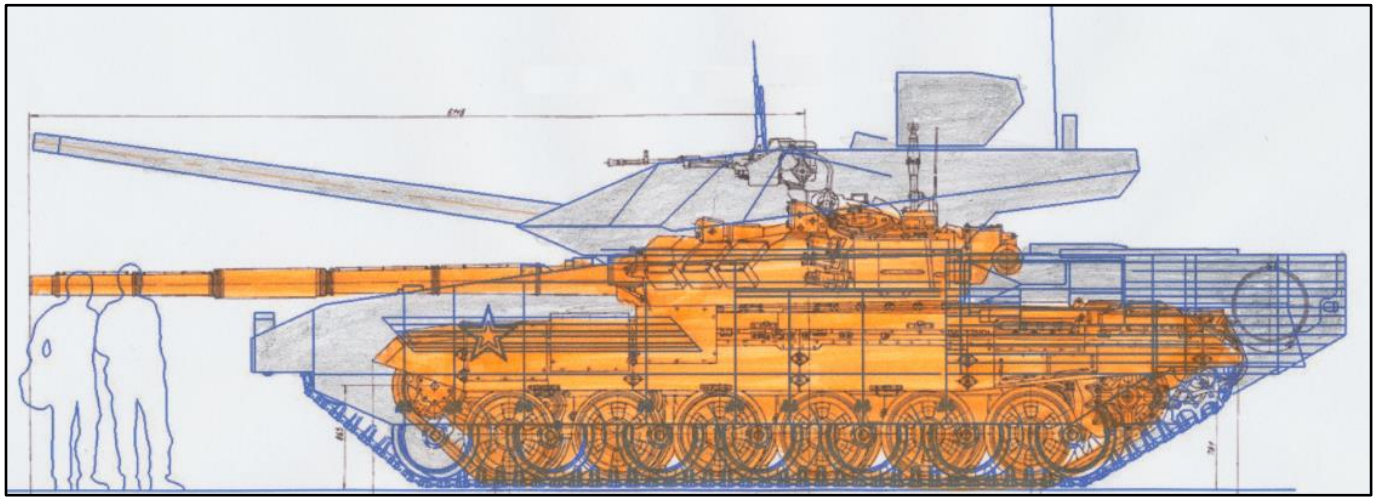


Figure 2. Silhouette contrast of T-14 main battle tank (gray) with T-90 medium tank (orange)[7]

The Armata chassis now presents the ability to apply major improvements to Russia's tank fleet that were previously constrained by the chassis and turret dimensions of the basic T-72 MBT design and those of its predecessors.[8] Some of the most significant changes in the T-14 design, besides its visual dimensions, are—

- Unmanned turret with a 125mm main gun and autoloader of main gun ammunition from a cassette within the turret base, and a remotely-controlled weapon station (RCWS) on top of the turret that mounts one medium 7.62mm machinegun (there is no machinegun mounted coaxially to the main gun);
- Crew compartment capsule separated and protected from the turret and main gun ammunition to enhance crew survivability if turret area stored ammunition experiences a catastrophic explosion;
- Vehicle survivability armor appliques and active protection systems that improve the probability to defeat main gun, missile, large rocket-propelled grenade, and mine threats; and
- Improved automotive engineering, crew situational awareness systems, weapon system effectiveness, and digital command and fire control systems.

The larger dimensions of the T-14 allow for future design modifications as Russian requirements evolve and technology advances. Although some designers suggest a fully-robotic Armata vehicle could be considered in the future, or that a

larger cannon or gun could be mounted to the Armata MBT, neither robotics nor a larger main weapon appear to be in the current program.[9] Other capability claims have yet to be fully substantiated, such as radically-reduced emission signatures to diminish or negate infrared or thermal detection.[10]

T-14 Main Battle Tank System Description

Although several specific capabilities of the T-14 remain to be proven in public forum, Russian defense industry and government sources state several aspects of this advanced weapon system are quite impressive. Examples from open source material, as well as some speculation of capabilities in the T-14, are as follows:

Crew Compartment

The tank crew is three individuals: tank commander, gunner, and driver. When viewing the MBT from in front of the tank, the commander is on the left side, the driver is on the right side, and the gunner is positioned in the middle of the crew compartment. Interior views of the crew capsule from Russian promotional videotapes show much more crew space than in previous Russian tank hull or turret compartments.

Design aspects of ergonomics and crew efficiencies greatly improve conditions from the cramped crew space of earlier Russian tank designs. Digital displays span the entire width of the crew capsule compartment and illustrate the computerized nature of the T-14 command and fire control systems.

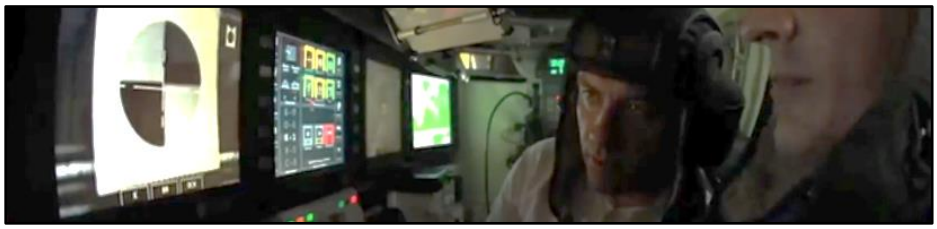


Figure 3. Interior view of crew compartment capsule-computerization

Automotive Performance

Some reports estimate a turbocharged diesel engine capable of producing up to 1500 horsepower (hp) that functions with an automatic transmission.[11] However, other comments indicate that an engine is being tested that operates more typically in the 1200–1350 hp range.[12] The gross vehicle weight estimate is approximately 57 metric tons.[13] This weight is realistic versus early open source speculation that the T-14 would remain in the relative weight category of 46 to 48 metric tons of the T-90 MBT series. Some reports suggest that an improved basic armor composite might reduce overall weight of the tank by hundreds of kilograms.[14] Nonetheless, length, height, and width comparisons of the T-14 with a T-90 series MBT suggest that the T-14 is heavier than the T-90 MBT.

Cruising range in favorable terrain is approximately 500 kilometers, and the maximum speed in field conditions may exceed 80 kilometers/hour. An adjustable suspension system assists in greater mobility and improved target engagement in rugged or sloped terrain. Improved engine and transmission capabilities enhance more effective driver operations and maneuverability. The larger chassis has seven road wheels rather than the six of most former tank designs.

Armament

The main armament is a 125mm 2A82-1M smoothbore gun.[15] The main gun tube has a thermal sleeve and a muzzle reference system.[16] However, the main gun barrel does not have a bore evacuator on the gun barrel, which is very visible in many other tank models. This is different from most tanks, since the unmanned turret of the T-14 does not have the requirement of previous tank models to evacuate fumes for the crew in the turret after firing the main gun. The T-14 has an integrated fume extractor.

The main gun fires three types of conventional ammunition and an antitank guided missile. The armor-piercing fin-stabilized discarding sabot round has a heavy-metal alloy tungsten-based penetrator. A high-explosive fragmentation (HE-FRAG or HEF) round has the capability to be detonated over a target, as well as to engage a target using direct line-of-sight.[17] With an *Ainet* system, targets can be engaged by HEF rounds with a special electronic detonator at extended distances and within the acquisition of the laser rangefinder. This capability allows engagements several kilometers beyond the typical range of main gun direct fire. A tank gunner must lase to a target before this HEF round is loaded into the gun breech. With the registered laser targeting data, the system automatically sets the fuse to detonate at the designated distance. This type of fragmentation round can be particularly effective on infantry, light armor or vehicles in

entrenched positions, or hovering helicopters.[18] The other typical main gun round is high explosive antitank (HEAT)—a shaped charge—that can defeat various types of armor or materiel targets. Special main gun rounds such as antipersonnel canister are available, when required, in a tank's ammunition combat load for particular mission conditions, but are not promoted in the typical ammunition on-board load.

The T-14 carries up to 45 main-gun rounds.[19] An autoloader system in the hull stores up to 32 rounds of ammunition for immediate use.[20] The mix of stowed 125mm rounds can be adjusted depending on how many antitank guided missiles are configured for a tank's combat load of ammunition.

Figure 4. 125mm ammunition types

One auxiliary weapon is a 7.62mm machine gun turret mounted in a remote-controlled weapon station atop the turret, with a full 360-degree traverse capability. The ability to engage ground and aerial targets spans a depression of -5 degrees to an elevation of +75 degrees. The RCWS carries up to 500 rounds of machinegun ammunition for immediate use.[21] Additional ammunition is stowed to manually replenish the weapon station.

Antitank Guided Missile Launcher

The main gun can fire an antitank guided missile (ATGM), *Sprinter*, with a tandem HEAT warhead.[22] The tandem warhead reduces the protection provided by modern types of armor, to include variants in the appliques of explosive reactive armor (ERA). The missile tracks with semiautomatic laser beam-riding guidance controlled by the tank gunner and has a maximum range of 5,000 meters.[23]

Earlier versions of ATGM *Refleks* (AT-11), or *Sniper* as its NATO designation, can also range five kilometers. Although a tank-to-target track could be feasible at this missile maximum distance, tactical conditions can typically limit effective long-range ATGM engagements.

Fire Control

The tank houses an advanced fire control system and battlefield management system. The commander has an independent sighting system from the gunner's sight to assist in targeting and tactical situational awareness. A panoramic sight mounted on top of the turret complements optics with improved day and night acquisition, and complements thermal imaging and integrate laser range-finding for acquisition and tracking of targets.[24] This provides a tank commander-to-gunner hunter/killer capability to identify multiple targets and pass engaging a target to the gunner while the tank commander acquires and tracks additional targets.[25] Several cameras mounted on the T-14 provide for 360-degree visual coverage and situational awareness of the tank's immediate surrounding area.[26]

Fire control system components of the *Kalina* system in the T-14, including the automatic target tracker and fire control computer, are also being planned for use in the modernization upgrade to selected T-72 and T-90 MBTs. The T-72B3 and T-90 MBTs selected for upgrading are already fitted with an earlier version of the *Kalina* computerized fire control system (FCS). The most current FCS version is installed in the T-14 MBT.[27] This modularity concept and example of modernization of other tanks in Russia's tank fleet will significantly improve the capabilities of acquisition, tracking, and engagement of targets for probability of a first-round target hit or kill.[28]

Protection

Additional armor protection applique, a norm among modern MBTs, is visible on the T-14 turret, front glacis, and along each side of the tank from the front glacis to about three-quarters the length of the tank. The remaining one-quarter side-to-rear area of the T-14 mounts bar/slat armor.[29] Other applique armor provides a degree of protection to other areas of the tank.

The T-14 has a new advanced ERA suite according to Russian production sources. An ERA called *Malachit* may provide a significant increase in tank hull and turret protection from kinetic penetrator and shaped charge main gun rounds, guided missiles, or large rocket-propelled grenades.[30] Russian sources state, "specifications exceed those of *Kontakt-1*, *Kontakt-5*, and *Relict 9* [ERA systems]."[31] Metal-ceramic plates comprise the vehicle main armor of this new tank, and Russian sources claim the new metal-ceramic armor applied to the T-14 MBT has "one-and-a-half times more resistance than fully metal systems."[32]

The T-14 has active protection systems (APSs). The *Afghanit* system comprises five launch "hard-kill" tubes recessed under the left and right side of the turret base. Detection by radar of an incoming threat by the APS causes a launcher to automatically slew toward the incoming projectile, intercept it with a counter-projectile, and defeat its trajectory to the tank.[33]

Figure 5. *Afghanit* APS launchers (outline) turret right-side

Four "soft-kill" countermeasure launchers complement overall protection of the tank. Two launchers on rotating pedestals carry twelve small charges in each pedestal to counter attacks from the flanks. Two other launchers orient upward to counter incoming engagements from above the tank. The launch of these projectiles are soft-kill in that they create a thick, multi-spectral smoke screen that obscures to defeat the tracking lock by guided missiles, laser, or similar targeting systems and weapons.[34] The manufacturer describes its operation to disrupt the guidance system of precision-guided munitions as a "powerful electromagnetic pulse or the creation of securable multispectral aerosol cloud."[35] The T-14 may also have a vehicle engine exhaust smoke system capability. This provides the ability to produce a smoke screen, as in previous Russian tank models, by injecting diesel fuel into the exhaust channel outlet, which creates a thick cloud of obscurant.[36]

An active mine countermeasure system, mounted on the lower front edge of the tank hull, can detect and disable some types of mines in front of the tank.[37] Mounting a retractable blade under the front slope of the tank, as in some previous tank designs, allows for limited self-entrenchment and protection to create an expedient fighting position with multiple scrapes by the blade. Other protection means counter aspects of chemical, biological, radiological, and nuclear weapons.

Training Implications for US Army

The public debut of the T-14 in May 2015 supported a Russian Land Forces statement in 2014 that 32 Armata chassis T-14 tanks would start field testing in 2015.[38] Other official Russian announcements noted that T-14 field tests would occur through the end of 2016 and possibly into 2017.[39] Recently, Russian authorities report that a pilot set of 100 T-14 MBTs are contracted for production and initial MBTs of this set are already arriving at locations for field trials.[40] Recent Russian statements claim that the T-14 MBT is in serial production; however, public information to confirm production numbers and how fast a significant number of T-14 MBTs will be fielded to operational units remain to be proven.[41]

The modernization of the Russian armored fleets with the Armata chassis vehicles has experienced challenges in meeting the objectives stated in the Russia Federation's State Armaments Program. Delivering the large number of modernized main battle tanks—2,300—to its operational forces by 2020 seems more than ambitious given the actual limited number of systems being currently tested.[42] Cost and production scheduling of the T-14 program have been a concern for several years.[43] Speculation in the media on cost of the T-14 has ranged from a high estimate of $8 million per tank to a more recent estimate by the tank manufacturer of approximately $3.75 million per T-14.[44] Although reports of cost estimates still vary, massed serial production and possible technology modifications of the T-14 can typically reduce cost per tank.[45] The Russian Deputy Defense Minister recently stated that the original plan to produce 2,300 T-14 MBTs by the year 2020 has been extended to 2025.[46] This production timeline appears to be a very optimistic estimate, and any actual fielding will probably be a substantially lesser number of T-14 MBTs.

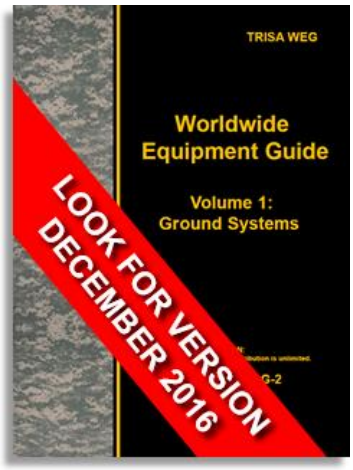
As the Russian Federation completes its trials and field tests on the T-14 MBT and production begins in at least limited numbers, the tank will be gradually introduced and issued to designated Russian Army units. If large numbers of T-14s

are fielded to operational units at some point in the future, their employment in a zone of action will be a major consideration of combat power comparison and contrast among adversaries in that operational environment.

US Army training must accurately represent a threat—in training—as a robust, realistic, and relevant composite threat of opposing forces (OPFOR), adversaries, or enemies.[47] In training for US Army sustained readiness, another critical consideration is understanding the operational environment of potential near-term or mid-term military confrontations. The T-14 MBT is a planning assumption in that type of operational environment as the "composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander."[48] Other key considerations related to shaping the challenging training conditions with a new main battle tank such as the T-14 include but are not limited to the tactical impacts of terrain trafficability, line-of-sight acquisition distances, non-line-of-sight designators and tracking ability, weather obfuscation, artificial obscurants, rules of engagement, degraded weapons, crew training, command and control, and crew fatigue.

Whether operating in a tactical urban or rural operational environment, adversaries and enemies will employ forces typically as combined arms to optimize available capabilities. Assessing current conflicts suggests that persistent conflict will continue to be a norm in the coming decades. Improved armored fighting vehicles and modern antitank weapon systems will also be an ongoing contest of capabilities among traditional military forces, as well as surrogates in a particular region. Regular and irregular forces may have the most modernized systems in service, but may also employ fundamental tactics and techniques to defeat such systems in an enemy. The OPFOR, used in lieu of a designated real-world threat force for training and readiness, is tailored to replicate or represent highly-capable regular and irregular threats that can affiliate or associate to act as a hybrid threat. Practical limitations in training environments will exist; however, an OPFOR must challenge the skills and abilities of US Army unit leaders and soldiers, allies, and partners to achieve specified and implied mission tasks. A consideration in presenting a hybrid threat can be affiliate actors employing any combination of traditional/conventional, irregular, catastrophic, or disruptive capabilities to achieve a mutually beneficial effect. Employing capabilities of an OPFOR is conducted with the tactics and techniques published in the US Army Training Circular (TC) 7-100 series.[49]

To catalog and support fully-unclassified examples of weapon systems such as a main battle tank, the Analysis and Control Element Threats Integration (ACE-TI) Directorate of the US Army TRADOC G-2 produces the TRADOC G-2 *Worldwide Equipment Guide* (WEG).[50] The three-volume set, updated annually as an online document with selected representative systems from sophisticated MBTs to other in-service MBTs with varied levels of system upgrades, is available on ACE-TI's page of the Army Training Network (ATN) with common access card (CAC) entry.



When the T-14 is fielded to operational units in at least limited numbers and additional open source data on capabilities and limitations are confirmed, a T-14 MBT information sheet will be added to the *WEG Volume 1 Ground Systems* as one of the main battle tanks of the Russian Federation. The TRADOC G-2 ACE Threats Integration Directorate will post periodic updates on the T-14 MBT in issues of the *Red Diamond* newsletter.

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What ACE Threats Integration Supports for YOUR Readiness

- Determine Operational Environment (OE) conditions for Army training, education, and leader development.
- Design, document, and integrate hybrid threat opposing forces (OPFOR) doctrine for near-term/midterm OEs.
- Develop and update threat methods, tactics, and techniques in HQDA Training Circular (TC) 7-100 series.
- Design and update Army exercise design methods-learning model in TC 7-101/7-102.
- Develop and update the US Army *Decisive Action Training Environment (DATE)*.
- Develop and update the US Army *Regionally Aligned Forces Training Environment (RAFTE)* products.
- Conduct Threat Tactics Course resident at Fort Leavenworth, KS.
- Conduct Threat Tactics mobile training team (MTT) at units and activities.
- Support terrorism-antiterrorism awareness in threat models and OEs.
- Research, author, and publish OE and threat related classified/unclassified documents for Army operational and institutional domains.
- Support Combat Training Centers (CTCs) and Home Station Training (HST) and OE Master Plan reviews and updates.
- Support TRADOC G-2 threat and OE accreditation program for Army Centers of Excellence (CoEs), schools, and collective training at sites for Army/USAR/ARNG.
- Respond to requests for information (RFIs) on threat and OE issues.

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