



Red Diamond

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Analysis & Control Element Threats Integration



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For e-subscription, contact:

[Nicole Bier](#) (DAC),
Intel OPS Coordinator,
G-2 ACE-TI

Topic inquiries:

[Jon H. Moilanen](#) (DAC),
G-2 ACE-TI
or
[Angela Williams](#) (DAC),
Deputy Director, G-2 ACE-TI

Copy Editor:

[Laura Deatrick](#) (CGI CTR),
G-2 ACE-TI



by TRADOC G-2 ACE Threats Integration

The December issue of the TRADOC G-2 *Red Diamond* newsletter will be a selection of articles published during calendar year 2017 that showcase current, real-world threats and how they can be represented or replicated in US Army learning venues for training, professional education, or leader development. The ACE Threats Integration (ACE-TI) Directorate produces the *Red Diamond* monthly newsletter for the TRADOC G-2 Operational Environment Enterprise (OEE) as one of several OE, threat, and/or opposing force collaboration and outreach resources. Interest continues on training topics, doctrinal dialogue, and leader considerations for future tactical conditions of multi-domain threats, precision long-range fires, information warfare, air and missile defenses, and other areas of warfighting functions to sustained readiness.



***Red Diamond* to Bi-monthly Publication**

The *Red Diamond* newsletter will be a bi-monthly publication in calendar year 2018. JAN/FEB 2018 will be issue 1 of volume 9—to be published at the end of February—followed by issue 2 (MAR/APR), to be published in late April.



RED DIAMOND TOPICS OF INTEREST

by TRADOC G-2 ACE Threats Integration

This issue of *Red Diamond* opens with an article on illegal mining operations. These activities are not normally associated with having an impact on military operations, but they may present a unique threat condition for both training and real-world operational environments (OEs). US and coalition forces may be deployed in support of peacekeeping or stability operations in areas where they could come into direct conflict with multiple hybrid threat actors operating directly or indirectly in support of illegal mines and smuggling. The illicit operations may also fuel ancillary criminal activities, such as the trafficking of drugs and weapons, money laundering, human trafficking, and increased local governmental corruption.

Open sources consistently highlight the large number of special-purpose forces (SPF) personnel in the Korean People's Army (KPA) as a major factor for the anticipated high casualties from any war with North Korea. But how "special" is the KPA SPF in actuality? Is it on the same level as the special operations forces in the US armed forces? Or does "specialness" just mean that the SPF is better equipped than other KPA units and better trained than other KPA soldiers? The second article will examine the KPA SPF mission, size, organization, training, and equipment.

Russian military doctrine has long centered on its artillery. As early as the 14th century, the Russians began placing a greater emphasis on larger artillery formations in proportion to their infantry in order to repel Mongol invaders. The second installment of a two-part series

shows how Russian air defense and electronic warfare are designed to extend operational reach against its adversaries with superior air power and significant intelligence, surveillance, and reconnaissance capabilities, and discusses recent Russian artillery techniques shifts, modernization, and capability.

In the days leading up to Ramadan, Philippine President Rodrigo Duterte and selected members of his cabinet traveled to Russia on a diplomatic mission. Only days later, a storm of violence erupted in Marawi City, on President Duterte's home island of Mindanao. There, on 23 May 2017, elements of the Armed Forces of the Philippines and Philippine National Police raided a safe house to arrest an Islamist extremist and take him into federal custody. The authorities got more than they bargained for: a firefight erupted that ended in a standoff by nightfall, leaving three members of the government security force dead and eleven others wounded. The second article in a two-part series discusses how the dynamics of the Marawi operational environment evolved between 23 May and 23 October 2017, when NSF successfully concluded its campaign to retake the city. It emphasizes the cycle of adaptation and counteradaptation that played out between enemies throughout the duration of the siege, as well as the unique features of warfare in dense urban terrain that allowed the militants to compensate for the inherent disadvantages they faced while fighting a numerically superior, well-equipped, and highly trained Philippine military.

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Training Implications of Illicit Mining Operations



by [James \(Jay\) Hunt](#), TRADOC G-2 ACE Threats Integration (CGI CTR)

This article is part of a series to introduce unique conditions that may be incorporated into training events to enhance realism and add complexity in a training context.

Illegal mining operations are not normally associated with having an impact on military operations, but these activities may present a unique threat condition for both training and real-world operational environments (OEs). US and coalition forces may be deployed in support of peacekeeping or stability operations in areas where they could come into direct conflict with multiple hybrid threat actors operating directly or indirectly in support of illegal mines and smuggling. The mere presence of external forces could be viewed by these actors as a threat to their illegal operations or territorial claims and lead to increased violence.

Illegal mining operations are present in almost all potential OEs, but more so in areas experiencing severe economic or stability challenges. These mines are often former commercial operations that were abandoned due to poor production or extremely hazardous conditions. Gangs, militias, and organized criminal groups lay claim to these sites in order to scrape out what gold, gems, or mineral deposits remain. These groups can be extremely territorial and have demonstrated a propensity for indiscriminate brutality and rapid hostility escalation. Criminal syndicates have collaborated with illegal mine operators or have seized control of the mines for themselves. Some operations have been taken over or are supported by foreign nationals.

The illicit operations may also fuel ancillary criminal activities, such as the trafficking of drugs and weapons, money laundering, human trafficking, and increased local governmental corruption. The violence and related turmoil create waves of internally displaced persons that wash across the region, creating additional pressure on local economies. The mining operations may, in fact, be the instigating cause of more widespread security problems, leading to uprisings in areas far from the actual operations.

Operational Segmentation

The organizational specifics of these illegal mining operations vary greatly, but their operations can be divided into distinct segments to facilitate understanding of potential threats related to military operations. Broadly described, these segments are labor acquisition, illicit mining sites, and commodity smuggling. Each may have unique locations, force structures, and response profiles.

Labor Acquisition

While some of the illicit mines are loose collections of individuals scraping out a living, others are highly organized criminal ventures. In the latter case, the criminal leadership will likely use labor acquired from a variety of sources. Dangerous conditions in the mines and the operators' brutality make casualty rates high, leading to an ever-present need for more labor.

Miners may be desperate people from nearby villages or illegal immigrants seeking wealth. These “*zama zamas*” may be, or be aided by, former mine employees. Even if they start working in the mines for the money, they may become enslaved and forced to continue working against their will. These miners will usually come from areas with rampant unemployment or socio-economic problems.

Many miners are acquired by force. Gangs will conduct violent raids on farms and villages to kidnap potential laborers. In urban environments, gangs often prey upon homeless or



Figure 1. Potential forces related to forced labor

other vulnerable populations. Gang and militia violence is extremely vicious, as laborers are also stolen from other mines. Street gunfights and nighttime gunfire is common in the areas near these illicit mines. Migrants may also be vulnerable to kidnapping: If a transport middleman is not paid enough, he may sell the travelers as slaves to the mines. Modern slave markets of kidnapped labor have been reported in urban street markets.

Private prisons have also been a source of illicit labor for mining operations. Prisoners may be held for a variety of dubious charges until a ransom/bail has been paid. These private institutions may directly sell or rent prisoners to work in the mines, and laborers frequently die once sent to client worksites. The prisons are usually as remote as the mines and often hire private security companies to provide internal security and facility defense.

Military forces involved in operations near these mines may encounter gangs or militias that would view their presence as a threat and respond violently. In rural or outlying areas, these groups may be up to platoon-sized elements with small arms and improvised hand weapons; they may also have small trucks or vans. In urban areas, there may be a safe house or other sanctuary to collect kidnapped victims until they can be moved to a mine. Incidental contact with these groups and their victims in transit may also elicit violent reactions.

Illicit Mining Sites

The actual production sites of the illicit mining operations may range in size from small artisanal worksites to sophisticated large-scale operations. While the sites will likely be located off main roads, military units or security forces operating in areas near a site could encounter associated security, refinement, and smuggling elements.

The mining sites are usually a grouping of mining worksites and support buildings. These buildings could include support buildings for cadre and worker barracks, refining sheds, security elements, and various administrative or support functions. The mechanics of the operation are less important than potential actors that will defend it from external forces. These can be divided into forces at the actual site and those in the immediate vicinity.

The cadre at the worksite may consist of a hybrid grouping of organized criminals, guerrillas, militia, and even private security forces. The ratio of which types are present can vary greatly. Their focus is divided between managing site operations and ensuring their continued security and freedom of movement. Internal operations security is tight and punishments for perceived violations are harsh, even deadly. If attacked, these forces will fiercely defend the operation with a mix of small arms and improvised weapons. Private security or guerrilla forces may possess heavier weapons mounted on trucks (“technicals”) in conjunction with improvised defensive positions.

Guard posts and patrols are common near the mining sites. These early warning and protection forces will be a mix of local gangs, guerrilla elements, or contracted private security forces. They will likely have small arms and possibly light machine guns. Handheld radios may be used to alert heavily armed reaction forces. Difficult-to-patrol or sparsely patrolled areas will likely have antipersonnel mines or booby traps. Platoon-sized guerrilla or militia elements will be in the vicinity of the mining site to ensure territorial control and could be used to respond to external threats.

Because of the range of loyalties and fighting quality of the laborers, their responses are more difficult to predict. Those that came to the mines seeking wealth are more likely to defend their meager employment with mining implements or improvised weapons. Forced laborers, if allowed to defend the site at all, may respond with improvised weapons or be used as human shields.

Commodity Smuggling

Military units or security forces operating in areas near illicit mining will likely encounter armed and escorted commodity smugglers. The nature of the commodity will determine the size and detectability of the transport. Bulk minerals may be transported in convoys of trucks and smuggled out of country through sea ports. Precious gems and gold can be smuggled

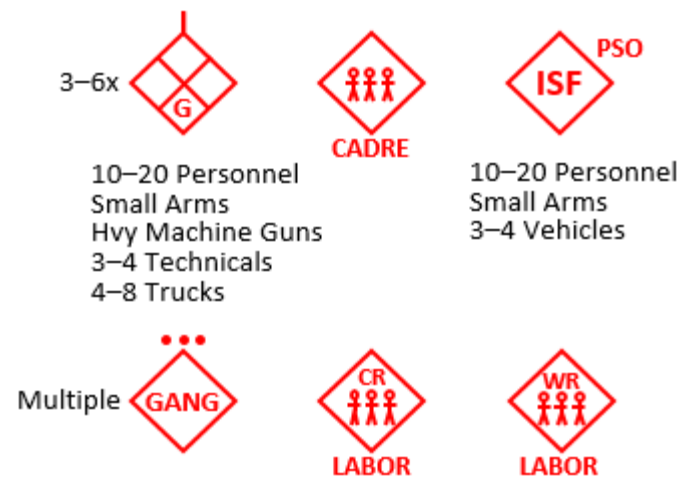


Figure 2. Potential forces present at/near mining sites

in cars and out of the country via individuals (“mules”) on commercial aircraft. These individuals may be either voluntary or coerced. Convoys will be guarded by squad-sized guerrilla or militia forces with small arms and possibly technicals with light machine guns. Individual smugglers may be armed and have visible or covert armed escorts for their protection and to ensure the product reaches its destination.

Conclusion and Implications for Training

While illicit mining operations may not be the primary focus of a training event, they can be a driver of conflict or be used as a “drop-in” condition to add realism and complexity in order to stress low-density tasks. The unique threat dynamics associated with illicit mining can result in a number of conditions that could be integrated into training events, as shown in Table 1.

Table 1. Example training linkages

Condition Segment	Potential Tasks from the Army Universal Task List (2015) ¹	Example Implementation “Hook”
Labor Acquisition	<ul style="list-style-type: none"> Establish Local Security (ART 6.4.3) Secure Supply Routes and Convoys (ART 6.4.6) Identify Potential Terrorist Threats and Other Threat Activities (ART 6.5.1) 	“Military unit becomes involved in inter-gang firefight while conducting area security patrols.”
Illicit Mining Sites	<ul style="list-style-type: none"> Secure Supply Routes and Convoys (ART 6.4.6) Establish Civil Security (ART 7.3.1) Provide Support for Domestic Civil Law Enforcement Agencies (ART 7.4.1) Interdict an Area or Route to Prevent, Disrupt, or Delay Its Use by an Enemy Force (ART 7.5.18) 	<p>“Military unit is ambushed on roads while moving to support security in adjacent region.”</p> <p>“Military unit supports host-nation military assault on suspected illicit mining operation and private prison.”</p>
Commodity Smuggling	<ul style="list-style-type: none"> Perform Law Enforcement (ART 6.13.1) Conduct Police Engagement (ART 6.13.5) Provide Customs Support (ART 6.13.6) 	<p>“Military unit encounters smuggling during checkpoint operations.”</p> <p>“Military unit discovers illegal goods during support to host-nation port security operations.”</p>

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Note

¹Headquarters, Department of the Army. [Army Doctrine Reference Publication 1-03, The Army Universal Task List](#). TRADOC, Combined Arms Doctrine Directorate. 2 October 2015.



by [H. David Pendleton](#), TRADOC G-2 ACE Threats Integration (CGI CTR)

Open sources consistently highlight the large number of special-purpose forces (SPF) personnel in the Korean People's Army (KPA) as a major factor for the anticipated high casualties from any war with North Korea. But how “special” is the KPA SPF in actuality? Is it on the same level as the special operations forces (SOF) in the US armed forces? Or does “specialness” just mean that the SPF is better equipped than other KPA units and better trained than other KPA soldiers? This article will attempt to shed some light on the KPA SPF by examining its mission, size, organization, training, and equipment.

KPA SPF Missions

KPA SPF missions generally fall within five categories:

- Reconnaissance: strategic, operational, or tactical, depending on unit composition and mission;
- Direct combat operations: conducted in conjunction with conventional operations, with the intent to facilitate the success of the KPA main conventional forces;
- Establishing a second front: focused on defeating the command and control (C2) elements and combat service support (CSS) units of the Combined Forces Command (CFC), the headquarters responsible for US and Republic of Korea (ROK) forces on the peninsula;
- Countering CFC SOF elements: provides security for the conventional forces, combat support, and CSS units in the KPA's rear areas; and
- Internal security: as the most politically reliable units, the KPA SPF would deal with any domestic disturbances that might break out within Democratic People's Republic of Korea (DPRK) territory.¹

Due to the CFC's air superiority and better equipment, DPRK President Kim Jong-Un realizes that the KPA would most likely lose a conventional war with the US-led CFC. Eliminating the C2 and CSS units in the CFC's rear area is potentially the most efficient way to render the US and ROK Army (ROKA) combat arms units combat ineffective. Other missions within the context of second-front actions include neutralizing ROK and US airbases, missiles, and weapons of mass destruction.²

Based on relatively recent events instigated by Russia in Crimea, it is likely that some KPA SPF will be inserted into South Korea or that the DPRK will activate sleeper agents already living in the ROK before hostilities begin. Their task would be to help gain any North Korean advantage that would slow down the mobilization of South Korean reserves. The SPF would do this in a number of ways:

- Social media: spreading the word that war is not imminent and that ROKA reserve mobilization is unnecessary, as well as expensive;
- Anti-war protests: leading/infiltrating rallies intended to convince the South Korean government not to act against its North Korean brothers;

- False-flag provocations: blaming any SPF actions in South Korea on others, especially those South Koreans who favor war preparedness;
- Political attacks: causing chaos and possibly advocating regime change during the crisis, thus diverting political attention away from DPRK actions;
- Terrorist-style attacks: if other means prove ineffective or as an approaching conventional attack date draws near, launching terrorist-style attacks to spread panic among the South Korean civilian population; and
- Attack key C3 nodes: Just prior to the North Korean assault, attacking important command, control, and communication (C3) centers to prevent the flow of true information throughout South Korea.³

Size and Organization

Difficult though it is to estimate exact numbers of North Korean SPF units and their personnel strength levels, most recent reports assign a figure between 180,000–200,000 soldiers, sailors, and airmen as part of these units.⁴ The most recent surge in KPA SPF strength estimates resulted from the conversion of seven infantry or mechanized infantry divisions into light divisions presumably tailored to replicate tactics the KPA deemed successful, based on observations of insurgents fighting conventional coalition forces in Iraq and Afghanistan.⁵

There are two primary organizations responsible for training and executing missions assigned to the KPA SPF—the Reconnaissance General Bureau (RGB) and the 11th “Storm” Corps.⁶ The former is the new name for what was once called “2nd Bureau (Reconnaissance),” while the latter is the current name for what was formerly the “Light Infantry Training Guidance Bureau” or “Training Unit Guidance Bureau.”⁷ The chart below reflects the North Korean SPF units and their estimated strengths.

SPF Unit Type	Level	Command	Number of Units	Soldiers (Estimated)
Reconnaissance Battalions	Operational or Strategic	RGB	8	4,000
Reconnaissance Brigades	Tactical or Operational	Forward-deployed corps	3 (17 Battalions)	4,500
Light Infantry Brigades	Tactical or Operational	11th Storm Corps or RGB	12	49,600
Light Infantry Brigades	Tactical or Operational	11th Storm Corps (Attached to the forward-deployed corps)	3	15,600
Sniper Brigades	Operational or Strategic	11th Storm Corps	3	16,800
Airborne Units	Operational or Strategic	11th Storm Corps	7 (includes 3 brigades, 2 sniper brigades, and 1 battalion)	30,000
Navy Sniper Brigades	Operational	RGB	2 (1 on each coast)	9,000
Amphibious Brigades (Maritime)	Strategic	11th Storm Corps	3 (13 Battalions)	5,000
Light Infantry Divisions	Tactical	11th Storm Corps	7	50,000–60,000
Deep Artillery Reconnaissance Battalions	Operational or Strategic	Strategic Rocket Command; Artillery Bureau; 518th Artillery Division; Army Corps (mechanized divisions)	11	Unknown
TOTAL				184,500+

Table 1. North Korean SPF⁸

Reconnaissance Battalions (Reconnaissance General Bureau)

The RGB fields eight reconnaissance battalions to conduct strategic or operational missions in support of the overall KPA mission.⁹ The RGB may field another battalion that is tailored to conduct clandestine operations in other countries.¹⁰ This type of specially designed unit may attempt to attack US military targets in Guam, Korea, or Japan.¹¹ Each of the four forward-deployed KPA corps (1st, 2nd, 4th, and 5th) arrayed along the Demilitarized Zone (DMZ) receives an additional reconnaissance battalion from this group of eight battalions, in addition to its organic reconnaissance assets and any assets from the reconnaissance brigades (see below).¹² Each of these 500-man battalions will likely serve as the lead element as an army corps crosses the DMZ into South Korea.¹³ These units' missions will be to gather intelligence, attack strategic targets, and assassinate military and political leaders.¹⁴ Other missions could include sniper shootings to create panic among the civilian populace, attacks against C2 centers, and assessing the reactions of the civilian population.¹⁵

Reconnaissance Brigades (Forward-Deployed Corps)

The KPA fields three brigades comprised of a total of 17 reconnaissance battalions, all distributed among the KPA's forward-deployed corps and mechanized divisions.¹⁶ Often a traditional relationship exists between the reconnaissance battalion and the unit it supports, with a view toward engendering an improved quality of performance. It is likely that the operational SPF units will rely on ground infiltration along predesignated routes, since strategic SPF units will receive a higher priority for air support.¹⁷ Some of this infiltration could be through pre-constructed tunnels under the DMZ, with just the final few yards needing to be dug to reach an egress point.¹⁸ An estimated 16–30 tunnels may exist under the DMZ, in addition to the four already discovered and blocked by South Korea.¹⁹ SPF personnel used in this manner may wear ROKA uniforms or civilian attire, to avoid confrontation with CFC forces.²⁰ It is believed that most of the reconnaissance brigades' soldiers can speak English, and some subordinate units are comprised exclusively of females.²¹ The reconnaissance battalions will attempt to determine enemy (US and ROKA) disposition and intentions, and serve as indirect fire observers.²² Reconnaissance battalions' missions may also include attacking high-value targets such as airfields, naval bases, port facilities, petroleum, oil, and lubricants (POL) storage facilities, or missile sites.²³



Figure 1. [All-female KPA unit on parade](#)

A 10-person squad-size unit is the essential building block of a reconnaissance brigade, but the KPA does not hesitate to use even smaller elements if the mission requires it.²⁴ An individual soldier may be part of a cell with a narrow functional focus, such as clearing and scouting, raiding, destruction, capture, security, or interdiction.²⁵ The clearing and scouting team leads the squad along its route, finding paths around obstacles, assisting in raids, and generally providing overall security for the team by advanced screening of enemy positions.²⁶ The raiding team assaults the objective to neutralize enemy defenders, while the destruction team detonates explosives to destroy the designated high-value target.²⁷ The capture team takes prisoners for later interrogation and searches the facility for useful intelligence.²⁸ The security team ensures the safety of all teams conducting the raid, primarily through the use of snipers.²⁹ The interdiction team provides additional security for the squad by disrupting any reinforcements to the raid site, blocking enemy pursuit of the team, and constructing obstacles or using deception to prevent the team's capture by enemy forces.³⁰

Light Infantry Brigades

The KPA fields twelve light infantry brigades that fall under the control of the 11th Corps or RGB during peacetime, but would shift to other commands prior to initiating combat operations.³¹ Three of the 11th Corps' brigades are attached to

the forward-deployed conventional KPA corps during peacetime, but the remaining eight Storm Corps brigades would most likely be similarly distributed among the four conventional KPA forward-deployed corps for combat operations.³² KPA soldiers assigned to a light infantry brigade must have previously served 4–7 years in the military and be considered politically reliable. These requirements probably stem from the likelihood that these units will operate far in advance of other units (20–45 miles) from the forward edge of the battle area and away from other KPA units.³³ Missions typically assigned to these brigades will include:

- Infiltrating to seize or destroy missile sites, C2 cells, and chemical or nuclear facilities;
- Infiltrating to disrupt or destroy high-value targets such as airfields or POL facilities;
- Infiltrating around enemy maneuver units to conduct envelopments or flanking attacks in support of friendly conventional ground units;
- Infiltrating, seizing, interdicting, or taking control of major lines of communication to prevent the arrival of supplies or reinforcements to front line ROKA or US units;
- Infiltrating to seize key terrain or facilities such as dams and power plants;
- Providing long-range reconnaissance support to KPA corps and divisions behind them; and
- Serving as a rear guard during withdrawal operations. Rear guard actions would include harassing the enemy or destroying bridges, tunnels, or other infrastructure that would facilitate the CFC's advance.³⁴

Light infantry brigades will most likely disperse to operate independently, employing tailored formations ranging from platoon-size to battalion-size during combat operations.³⁵ US and South Korean military and civilian personnel should expect the KPA SPF members to wear civilian clothing, ROKA uniforms, or even US uniforms in an attempt to disguise their true identity.³⁶ Soldiers from these units will likely cross the DMZ in small groups during hours of limited visibility, then reassemble at a designated rally point.³⁷ Some brigade members may infiltrate the DMZ through the previously mentioned tunnels or enter South Korea by using small landing craft or miniature submarines along the coasts.³⁸ Although KPA light infantry brigades normally operate in platoon-size or larger units, smaller elements containing as few as 3–5 soldiers can deploy to harass ROKA and US forces and generally create chaos in the CFC rear area.³⁹

Sniper Brigades

While the light infantry brigades operate at platoon or higher levels, the three army sniper brigades will most likely operate in 5- to 10-man teams.⁴⁰ While the term “sniper” aptly describes one of their purposes, missions assigned to these units are usually broadened. Leaving larger objectives to the light infantry brigades, sniper brigade teams will attack smaller C2 posts, isolated communications relay sites, logistical bases, and other vulnerable high-value targets.⁴¹ If given the opportunity, the sniper units will assassinate key political or military leaders.⁴² There are seven sniper brigades: three assigned to the army, two to the air force (airborne capable), and two to the navy.

Airborne Units

North Korea fields at least seven airborne units, ranging from battalion- to brigade-size elements, and the KPA regards all of them as SPF.⁴³ Two such units are airborne sniper brigades that, once inserted into an enemy's rear area, would conduct missions similar to those assigned to the aforementioned regular sniper brigades. Additional missions assigned to the airborne sniper units would include destruction/neutralization of CFC airbases and command, control, communications, computers, intelligence, surveillance, and reconnaissance assets.⁴⁴ The airborne sniper brigades receive priority access to aviation assets in anticipation of a requirement for airborne insertion in support of combat operations.⁴⁵ Each of the three regular airborne brigades contains about 3,500 soldiers spread among six battalions.⁴⁶ Due to aircraft shortages, most missions will entail air drops of battalion size or smaller.⁴⁷

North Korean SPF airborne training is similar to that conducted by the US, as the soldiers begin with static line jumps and then graduate to free falls from medium altitudes. Those SPF soldiers that are especially proficient with regular parachutes may receive high-altitude low-opening airborne insertion training. KPA SPF airborne soldiers can conduct day and night jumps in all types of weather with the capability to land in all types of terrain. In 2014, over 12,000 SPF members practiced infiltration parachute training within North Korea.⁴⁸ Some airborne troops learn to jump from helicopters, hot air balloons, sailplanes, and even ultralights.⁴⁹

Of the 30,000 airborne soldiers in the KPA SPF community, it is expected that about half would be inserted by parachute operations.⁵⁰ The remaining airborne SPF could arrive via air-mobile operations using helicopters or fixed-wing aircraft. Once on the ground, the airborne SPF would seek out C3 nodes, CSS units, or high-value targets to attack.

The KPA will use several techniques in order to deliver its airborne SPF. One is by using an ancient biplane, the AN-2 Colt, first flown in 1947.⁵¹ Due most likely to maintenance issues, the number of serviceable AN-2s for the KPA has dropped from 300 in July 2012 to 200 in April 2016.⁵² While the AN-2 Colt is relatively slow at 100 mph, it can fly at low altitudes to avoid enemy radar and its small signature makes its detection by radars more difficult than locating larger aircraft, even when the Colt increases altitude to facilitate tactical parachute drops.⁵³ To avoid visual detection, the KPA air force in the last decade has changed the AN-2 camouflage pattern to light blue on the aircraft's underside and a green pattern on top.⁵⁴ This will help the Colts to blend with the sky, reducing observation from the ground, and with the terrain to avoid observation from above.⁵⁵ The AN-2 Colt can land and take off using unimproved short runways.⁵⁶ The easily flyable airplane can take off from a dirt runway that is only 2,130 feet in length or from paved surfaces, including roads, at a shorter distance—1,300 feet.⁵⁷



Figure 2. [AN-2 similar to those used by the KPA](#)

Another aircraft that allows air-mobile insertion of SPF personnel is the MD-500, a US-made helicopter that North Korea obtained by circumventing US export laws.⁵⁸ Some CFC air defenders may be reluctant to shoot down the North Korean MD-500s because their appearance closely resembles an aircraft flown by the ROK Air Force (ROKAF).⁵⁹ Photographs exist showing North Korean MD-500s painted with ROKAF markings.⁶⁰ The identification, friend or foe (IFF) confusion could delay air defense personnel long enough to allow the KPA helicopter to complete its SPF insertion mission.⁶¹ The KPA has even experimented with delivering SPF personnel from the air using hang gliders, motorized paragliders, and 10-passenger gliders towed behind an AN-2 aircraft.⁶²

Aircraft	On Hand	Range (km)	Troops Carried
AN-2 Colt	200	300	10–12
MD-500D/E	65–80	600	4–10
Mi-2 Hoplite	100–139	340–580	6–10
Mi-4 Hound	40–48	120	12–16
Mi-8 Hip	15–25	795	24–30

Table 2. North Korean SPF aircraft⁶³

Depending on wind and weather conditions, KPA airborne forces can drop year round throughout the Korean peninsula.⁶⁴ Air-mobile operations could be conducted as far as 30 miles beyond the KPA's front lines, but most likely 9–12 miles.⁶⁵ The KPA usually conducts an airborne operation in three phases.⁶⁶ In phase one, a reconnaissance element and a small airborne force parachutes in to secure the landing zone (LZ) or drop zone (DZ).⁶⁷ The main force arrives later and expands the LZ/DZ perimeter.⁶⁸ The third phase occurs as the follow-on echelon lands 4–6 hours later with support units and additional supplies.⁶⁹ KPA airborne soldiers normally carry a three- to four-day basic load of ammunition and rations.

Resupply is considered unlikely based on the expectation that the CFC will maintain air superiority most of the time using US and ROKAF aircraft.⁷⁰ Should the KPA choose to resupply its forces from the air, such operations would probably be conducted at night or in hours of limited visibility.⁷¹ The KPA deception plan for aerial resupply will entail dummy drops and covering 2–3 different routes with fighter escorts to protect the transport aircraft.⁷² It is expected that, during most airborne operations, the airborne SPF will begin to run short of supplies within 72–96 hours, and will thereafter resort to foraging.⁷³



Figure 3. MD-500 helicopter type that the KPA will use to insert SPF into CFC rear areas, intending that the ROK/US forces will believe them to be ROKAF rotary-wing aircraft

Navy Sniper Brigades

There are two navy sniper brigades, one stationed on each coast, with about 3,000 combat troops apiece.⁷⁴ These units may actually be army units placed under the operational control of the navy in order to enable amphibious operations.⁷⁵ Construction of hovercraft bases for the navy sniper brigades has recently been observed at Sasulpo on the west coast and Tapchonri on the east coast.⁷⁶ The navy sniper brigades' missions are similar to those of the army and airborne sniper brigades, but the navy snipers will most likely land along one of South Korea's coastlines. North Korea fields numerous types of landing craft, and it is estimated that the KPA could deliver 5,000–7,000 in one lift targeting both coastlines.⁷⁷ Navy sniper brigade team missions would include:

- Supporting a KPA ground offensive by securing river-crossing sites;
- Conducting amphibious raids to destroy critical coastal targets in the rear area;
- Harassing the CFC rear area logistical operations;
- Attacking and/or destroying CFC CSS units;
- Attempting to delay the movement of enemy reinforcements forward to the main combat areas;
- Attacking and/or destroying airbases or naval facilities;
- Occupying or raiding critical coastal islands; and
- Attacking C3 nodes.⁷⁸

Should hostilities erupt between North and South Korea, a standing mission for navy sniper units is the capture of the five northernmost islands along the northern limit line in the Yellow Sea, called the West Sea by the DPRK.⁷⁹ There is a possibility that each of the navy sniper brigades contains a "manned torpedo" battalion for use against ships, a technique used successfully by Italian naval forces in December 1941 to sink two British battleships anchored in the harbor at Alexandria, Egypt.⁸⁰

Amphibious Brigades

The KPA fields three amphibious light infantry brigades totaling thirteen battalions.⁸¹ The primary difference from regular light infantry brigades is that these units routinely operate using naval landing craft and continuously practice amphibious landings on various types of beaches.⁸² One defecting navy sniper in 2011 boasted that he traveled more than 20,000

miles by sea on floating tubes during his training.⁸³ These units train on a variety of landing craft, from the 350-ton Hantae class utility landing craft, to hovercraft that can travel at 50 mph, to rubber rafts launched from larger ships for the purpose of infiltrating along the coastlines. The amphibious light infantry brigades also use mini-submarines or semi-submersible boats.⁸⁴ While the landing craft for both the navy sniper brigades and the amphibious brigades are the same, the KPA could conduct two brigade- and several battalion- or company-size landings along both coasts simultaneously.⁸⁵ Once on the ground, these amphibious brigades would attack CFC CSS units in the rear areas and seize key terrain to facilitate the onward movement of the KPA ground forces advancing from the north.⁸⁶



Figure 4. [Captured KPA Sang-O class submarine](#)

Type	Nomenclature	On Hand	Troops Carried	Organization
Submarine	Romeo	20	Unknown	KPA (Navy)
Submarine	Sang-O	28	11	KPA (Navy)
Submarine	Sang-O	10	11	RGB
Submarine	K-300 (Sang-O II)	5	11	KPA (Navy)
Submarine	Yugo	28 (10 in reserve)	4–6	KPA (Navy)
Submarine	Yugo	5	4–6	RGB
Submarine	Yono	5	2–7	KPA (Navy)
Submarine	Yono	5	2–7	RGB
Hovercraft	Kongbang II	57	40–50 (1 Platoon)	KPA (Navy)
Hovercraft	Kongbang III	78	40–50 (1 Platoon)	KPA (Navy)
Landing Craft-Personnel	Nampo	96–100+	30–35 (up to 60) ⁸⁷	KPA (Navy)
Landing Craft-Mechanized	Hungnam	18	100	KPA (Navy)
Landing Craft-Mechanized	Hanchon	7	200 (or 2 Tanks)	KPA (Navy)
Landing Craft-Mechanized	Hantae	10	3 Tanks	KPA (Navy)
Landing Craft-Tank	56 m	5	Unknown	KPA (Navy)
Landing Craft-Tank	59 m	5	Unknown	KPA (Navy)

Table 3. North Korean SPF naval delivery systems⁸⁸



Figure 5. [Captured KPA semi-submersible watercraft](#)

Light Infantry Divisions

The newest and most recently deployed type of SPF is the light infantry division.⁸⁹ Beginning around 2003, after observing US forces in Afghanistan and Iran, the KPA began converting seven infantry and mechanized infantry divisions into light infantry divisions.⁹⁰ Each new division will only contain approximately 7,000 soldiers, as the KPA stripped legacy units of most of their former organic support elements, including artillery, armor, and air defense. The KPA then changed the focus of training within the newly created units to combat operations in urban and mountain terrain, to include operating during periods of low visibility.⁹¹ Over time, the techniques of these units became increasingly unconventional due to the perceived success of irregular warfare techniques directed against US and other Western forces in the Middle East.⁹²

Deep Artillery Reconnaissance Battalions

The KPA also fields specially purposed deep artillery battalions, whose mission is to infiltrate deep into enemy territory, acquire targets, guide fires, and give battle damage assessment to their units. The following KPA units operate these types of battalions: the Strategic Rocket Command, the KPA Artillery Bureau, the 518th Artillery Division, all front-line army corps, and any mechanized divisions.⁹³

SPF Training

Individual combat skills and political indoctrination are the building blocks of all SPF training. All KPA soldiers are taught to perform the duties of those holding the next rank above them.⁹⁴ A regular day in the KPA lasts from 0500–2200, with at least ten of those hours scheduled for training, education, or political indoctrination.⁹⁵ This instruction does not include time for meals, where soldiers typically receive only 700–850 grams of food per day, depending on military specialty.⁹⁶ This sustenance level amounts to about half the rations KPA members received when Kim Il Sung ruled the country.⁹⁷ There have been recent reports of soldiers selling uniforms, fuel, weapons, and ammunition on the black market in order to obtain additional food.⁹⁸ No provision exists for time off—including weekends; leave is a rarity and corporal punishment is used regularly for even minor infractions.⁹⁹ Soldiers, when not training (often April–June), often perform other duties, such as planting or harvesting crops.¹⁰⁰ The KPA selects commissioned officers based on demonstrated loyalty to the party, while noncommissioned officers (NCOs) must show superior physical and combat ability.¹⁰¹ The KPA produces a physically tough soldier with individual discipline, who is firmly grounded in the political party line.¹⁰² The soldiers assigned to the SPF display an inordinate amount of *esprit de corps* and feel a sense of pride in belonging to an elite KPA unit.¹⁰³ SPF soldiers call themselves “human torpedoes” (translated from the Korean); naval personnel refer to themselves as “invincibles”; and those in the air force have adopted the sobriquet “human bombs protecting the center of the revolution.”¹⁰⁴ The KPA takes SPF collective training seriously and, even during a time of fiscal uncertainty North Korea found the means to build a replica of South Korea’s “Blue House” (the South Korean president’s residence) to enable SPF members to practice possible missions inside South Korea.¹⁰⁵

The KPA selects its best soldiers for SPF units, usually after 4–7 years of service in regular units.¹⁰⁶ These soldiers receive additional training on demolitions, infiltration, intelligence gathering, martial arts, mountaineering skills, night combat, and swimming.¹⁰⁷ SPF members endure more intensive physical training and additional political indoctrination to inure them to the temptation to defect, as they will be expected to operate deep behind enemy lines.¹⁰⁸ Potential defection

may not be as important an issue as some analysts previously thought, since some defectors have found it difficult to assimilate into South Korea's permissive society, and North Korean defectors are often at a disadvantage when competing for positions with South Korean workers in an open labor market.¹⁰⁹ If required for unit credentials, SPF soldiers will go through airborne or amphibious training.¹¹⁰ SPF soldiers practice food deprivation. Navy snipers swimming/floating all day with only a single candy bar for nourishment provides an apt example of this practice.¹¹¹ Soldiers who successfully complete SPF training are either promoted to NCO rank or receive commissions as junior officers. These personnel will likely serve in an operational SPF unit for the rest of their military careers.¹¹² The end result of this rigorous training regimen is a KPA SPF soldier who, on scant rations, can travel faster and cover more ground with a heavy equipment load than counterparts in most other armies.¹¹³ SPF soldiers are mentally conditioned to accept orders without question and will most likely fight to the death if cornered.¹¹⁴

Three examples have surfaced over the past 40 years that demonstrate the willingness of the KPA SPF to never surrender when engaged in combat. In June 1998, a KPA mini-submarine became entangled in fishing nets within South Korean waters. Nine of the crew members, about half of those on board, committed suicide instead of surrendering.¹¹⁵ In September 1996, two SPF members became stranded when a submarine sent to extract them ran aground on the coast near Kangnung. Despite an intense manhunt to capture the pair, it required 50 days to apprehend them, at a cost of 11 ROKA soldiers' lives.¹¹⁶ In January 1968, 31 KPA SPF soldiers crossed the DMZ to assassinate the South Korean president at the Blue House.¹¹⁷ The infiltrators were stopped in Seoul at the last checkpoint, less than a mile before their destination, where a firefight broke out.¹¹⁸ After weeks of searching, ROKA and US soldiers killed 28 of the assassination team, who fought to the death. One was captured alive.¹¹⁹ One of the remaining intruders was never unaccounted for, while the lone surviving infiltrator somehow made it back across the DMZ to North Korea, where he received a hero's welcome and was eventually promoted to the rank of general.¹²⁰ The human cost of eliminating the SPF unit came to 68 South Korean and US soldiers killed, 66 South Koreans wounded, and three US soldiers injured.¹²¹

SPF Individual Weapons and Equipment

Individual SPF soldiers will most likely carry a rifle (AK-47 or M-16 variant), a pistol (often with a silencer), a dagger or bayonet, and hand grenades.¹²² Some SPF team members, depending on their position or mission, may carry a sub-machine gun, rocket launcher (RPG-7 or AT-3), 60-mm mortar, or demolitions.¹²³ In some instances, the SPF will carry enemy small arms in an attempt to impersonate CFC personnel.¹²⁴ Some KPA SPF may ride bicycles specially designed for rapidly traversing the mountainous terrain of the Korean peninsula.¹²⁵

Analysis and Summary

Although the KPA regards its 180,000- to 200,000-strong SPF as elite forces, these forces differ significantly from US Special Forces, SEALs, or Rangers. Nonetheless, most of them are highly trained and motivated fighters, such as one might expect to find in the US Marine Corps, 82nd Airborne Division, or 101st Airborne Division (Air Assault). The SPF is the best the KPA can achieve, given a training environment where resources are constrained due to international sanctions placed on the DPRK.

While there are brigade-size SPF formations, the lack of aircraft and amphibious vehicles will likely force the SPF to fight in battalion-size formations or smaller, down to squad size. This does not mean that SPF units will quit their mission when their numbers are reduced to single digits. The units will attempt to continue their mission and, if they cannot, they will take out as many adversaries as possible. It is unlikely that any SPF member would defect or willingly surrender, even in the face of overwhelming odds. Instead, most of the SPF soldiers will fight to the death or commit suicide rather than allow themselves to be captured. The US and its allies cannot afford to underestimate the capability of individual SPF soldiers or SPF units when facing the KPA in a war.

For more information on North Korea, see the [North Korea Threat Tactics Report](#) on the Army Training Network (ATN). Articles on North Korea featured in the [Red Diamond](#) can also be found on ATN. Articles and their month of publication include:

- October 2016: "The North Korean Missile Program—How Big a Threat Is It?";
- October 2015: "North and South Korea August 2015 Standoff: Yeonpyeong Island déjà vu?";
- September 2015: "Threat Tactics Report: North Korea";
- July 2015: "North Korean Subterranean Activity";

- June 2015: “North Korean Tanks (Part 2 of 2)”;
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by [MAJ James Andersen](#), TRADOC G-2 ACE Threats Integration

In the previous articleⁱ it was demonstrated that Russian dependence on artillery is not a new phenomenon, but rather rooted in its history of hard lessons learned on the battlefield. The collapse of the Soviet Union left the once-mighty Red Army in disarray, a shadow of its former self. However, perceived NATO threats and a series of military reforms through the 1990s and early 2000s helped reshape the much smaller army under the Russian Federation. Additionally, new leadership under President Vladimir Putin has driven the country's military resurgence. With these military reforms, Russia has positioned itself as a regional power that can no longer be ignored on the diplomatic front. The military restructuring has included adapting doctrine to reflect the realities of modern combat. Although still a fires-focused military, recent Russian activities in Chechnya, Georgia, and Ukraine have indicated a shift in the methods used to preserve its forces, particularly artillery. In the previous article, the Russian predisposition toward deception to protect its forces was detailed. This article will demonstrate how Russian air defense and electronic warfare are designed to extend operational reach against Russia's adversaries, such as NATO, with superior air power and significant intelligence, surveillance, and reconnaissance (ISR) capabilities. Finally, Russian artillery will be discussed, along with its recent techniques shift, modernization, and capability.

Russian Air Defense

Russian air defense artillery (ADA), like its Soviet predecessor, places a heavy emphasis on robust and multi-layered air defense for redundancy in order to increase the survivability of its ground forces. The experiences of the Soviet surrogates in the Vietnam War and Egypt's war in 1973 taught the USSR that dense air defense could significantly reduce air power's effectiveness.¹ However, the Soviets also learned that air defense could not do so indefinitely. As the USSR discovered, "if an attacking aircraft has the determination to press on, take losses and attack their targets, all air defense can do is make it more costly and time-consuming for them to accomplish their mission."² Essentially, air defense extended an attacking force's operational reach and survivability, but only temporarily. The Soviets did not consider ADA's primary objective as the downing of aircraft, but rather the prevention of aircraft from striking their intended targets.³ For example, the Soviets noted that a significant portion of daily American sorties in Vietnam were committed to suppression of air defense.⁴ Without air defense, such sorties would have been able to support ground forces elsewhere.⁵ This effect was called "virtual attrition" of air power by Western analysts.⁶

While Russian air defense is still vulnerable to long-term sustained attack by precision-guided munitions (PGMs), advancements in Russian air defense technology have significantly extended the duration an air defense network may be maintained. Moreover, Russian ADA's effective range and lethality have improved. As Grau and Bartles noted, "Russia has fielded the most modern integrated ground-based tactical air defense system on the planet...Russian air defense assets are capable of destroying enemy means of air attack throughout the range of altitudes: extremely low (up to 200 m), low (200–1000 m), medium (1000–4000 m), high (4000–12,000 m), and in the stratosphere (above 12,000 m), and at different flight speeds...These air defenses are designed to protect maneuver brigades from airstrikes and cruise missiles."⁷ As with

ⁱ ["Russian Artillery: Adapting Ancient Principles to Modern Paradigms, Part 1."](#) Red Diamond. September 2017.

its artillery, Russian has shown a willingness to use ADA assets in non-traditional ways, sometimes task-organizing ADA to lower echelons based on mission requirements.

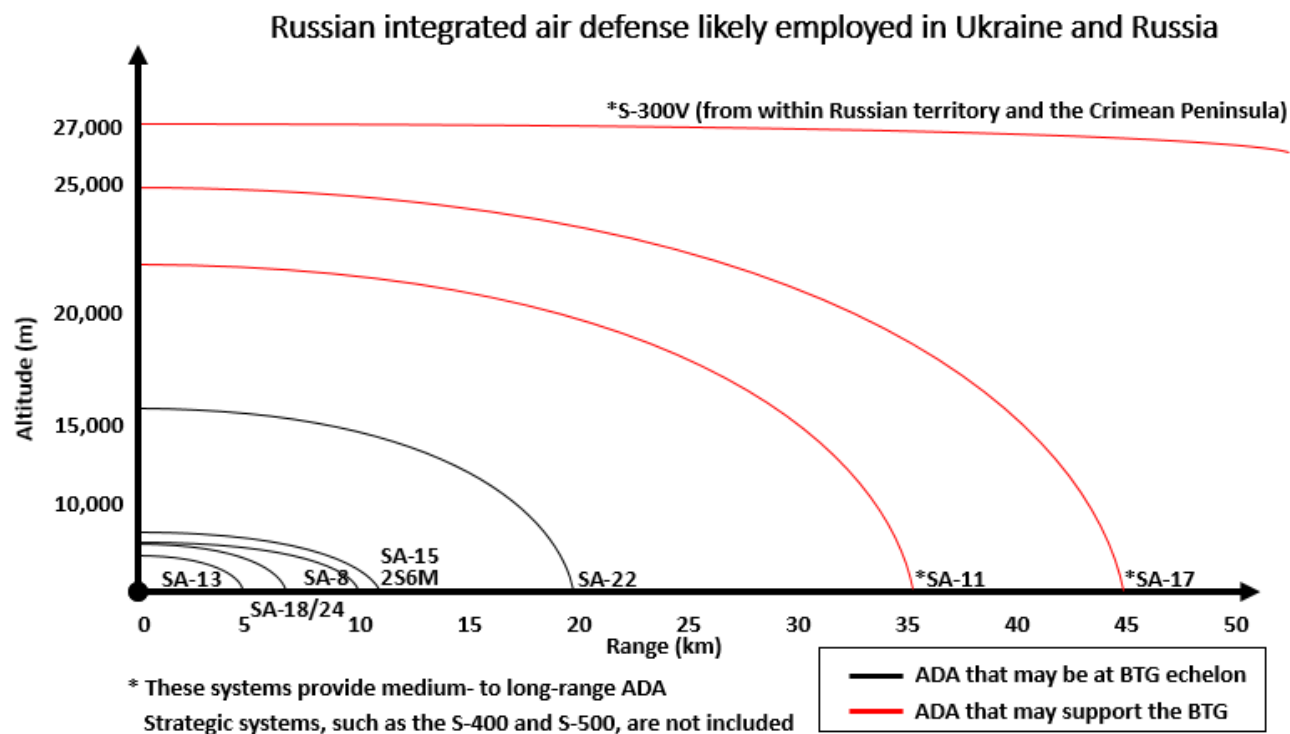


Figure 1. Russian air defense systems by range and altitude⁸

Russian efforts for ADA modernization have been focused in multiple areas. The first area is increased range and lethality of existing ADA systems in order to prolong their service life. The increased range is the result of improved missile warheads, while the lethality stems from better guidance systems and the ability to circumvent some aircraft missile countermeasures.⁹ The second area is creating new systems with improved radar capabilities, radar integration, improved target acquisition, increased survivability through minimal electronic signatures using passive radars, and increased mobility.¹⁰ Finally, electronic countermeasures and Russian electronic warfare capability have greatly increased the survivability of air defense assets.¹¹ Despite significant Russian advances in ADA technology, the ADA branch continues to adhere to the four Soviet principles of air defense with one addition: It has added the principle of protection.¹² The current Russian principles of air defense are as follows: mass, mix, mobility, integration, and protection.

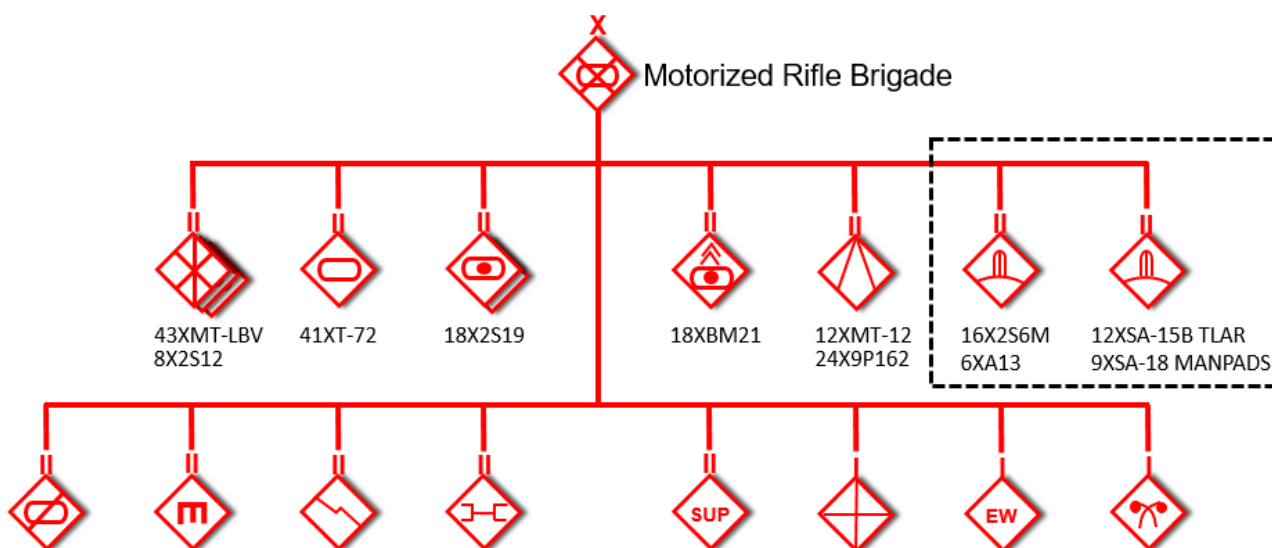


Figure 2. New-look Russian motorized rifle brigade ADA composition¹³

Mass

ADA is provided to all echelons of the Russian Army and in greater quantity than any other military.¹⁴ Russian air defense mass is achieved by placing organic ADA units at each echelon from military district to battalion, with even platoons having limited air defense capabilities. In a Russian motorized rifle brigade there is a ratio of two ADA battalions to four maneuvers battalions, with additional resources available from higher headquarters.¹⁵ In contrast, NATO and the US have largely eliminated their short-range air defense (SHORAD) capability from the brigade combat team organization. In addition to the inclusion of ADA in combined arms units, historically there have also been pure ADA brigades that were sometimes task-organized to support specific missions.








Russian Designation	NATO Reporting Name	Type of System	Detection Ranges	Operational Range
S-300VM 	SA-23 "Gladiator"	Self-propelled (wheeled) surface-to-air missile system	Detection: 250 km Acquisition (NOE): INA Tracking: INA	Operational Range: 200 km <u>Missile Altitude: 25–27 km</u>
9K37 Buk M1/M2 	SA-17 "Grizzly" SA-11 "Gadfly"	Self-propelled, medium-range surface-to-air missile system	Acquisition: 80 km Acquisition (NOE): 10 km Tracking: 32 km	Operational Range: 32–45 km <u>Missile Altitude: 22–25 km</u>
Pantsir SM 	SA-22 "Greyhound"	Self-propelled (wheeled) short- to medium-range surface-to-air missile and auto-cannon system	Acquisition: 75 km Tracking: 45 km	Operational Range: 40 km <u>Missile Altitude: 15 km</u> 30-mm Auto Cannon Maximum Range: 4 km
9K331 Tor-M1 	SA-15B "Gauntlet"	Self-propelled (tracked) short- to medium-range surface-to-air missile system	Acquisition: 25 km Tracking: 25 km	Operational Range: 12 km <u>Missile Altitude: 6 km</u> 30mm Auto-cannon Maximum Range: 4 km
2K22M1 Tunguska-M1 	2S6M1	Self-propelled (tracked) short- to medium-range surface-to-air missile and auto-cannon system	Acquisition: 18 km Tracking: 13 km	Operational Range: 10 km <u>Missile Altitude: 3.5 km</u> 30-mm Auto-cannon Maximum Range: 4 km
OSA-AKM 	SA-8B "Gecko Mod 1"	Self-propelled (wheeled) short-range surface-to-air missile system	Detection: 45 km Tracking: 20–25 km	Operational Range: 10 km <u>Missile Altitude: 5 km</u>
9K38 Igla 	SA-24 "Igla-Super"	Short-range man-portable air defense system	Radio DF: 20 km	Operational Range: 6 km <u>Missile Altitude: 3.5 km</u>

Table 1. Mix of air defense systems employed by Russia in Ukraine¹⁶

Mix

A mix is a complimentary mixture of weapon systems that increases capabilities against multiple threats and prevents a single countermeasure from disrupting an ADA network.¹⁷ Egypt, supported by Russian surfaces-to-air missiles (SAMs), radar-guided anti-aircraft guns, and man-portable air defense systems (MANPADS), significantly reduced Israeli air force effectiveness in 1973 during the Yom Kippur War.¹⁸ The wide range of systems made it difficult for the Israelis to conduct

suppression of enemy air defense (SEAD). More recently, in Ukraine, the Russians employed 2S6M ADA and SA-15/Gauntlet, SA-8B/Gecko, SA-22/Pantsir-SM, SA-11/Gadfly SAMs, and likely received radar coverage from SV-300 systems inside of Russia.¹⁹ This mix made SEAD nearly impossible for the Ukrainian Air Force. Furthermore, the redundant radar coverage provided early warning to Russian-supplied MANPADS teams with devastating effect. In fact, nearly 85% of Ukrainian aircraft that were shot down between March–July 2014 were downed by either MANPADS or ground fire.²⁰ The effective mass and mix of air defense systems forced Ukrainian pilots to fly low to mask their radar signatures, placing them in range of low-altitude systems and ground fire.²¹ Ukrainian Pilots discovered that “neither flying at extremely low altitudes, nor the onboard Ukrainian designed Adros system, proved capable of defeating the adversary’s prolific MANPAD systems.”²² The effective use of MANPADS by separatists limited Ukrainian rotary-wing assets to airlift missions, forcing the Ukrainians to rely solely on their air forces for offensive operations.²³

Mobility

Increasing the speed at which air defense assets can move, deploy their systems, fire, and relocate in order to survive has long been a Russian priority.²⁴ The 2S6M, SA-15/Gauntlet, and SA-22/Pantsir-SM can fire while moving, while the SA-8B/Gecko can set up, fire, and move fairly quickly.²⁵ More importantly, with the exception of the SV-300, the aforementioned systems are designed to travel with and protect brigade tactical group (BTG) formations.

Integration

Complete integration of air defense systems at all levels, from platoon to theater, allows the Russian Army to better defend its ground units organically.²⁶ More importantly, such integration provides overlapping air defense coverage and therefore protective redundancy. Multi-echelon integration allows multiple ground units to share radar coverage, increasing the ability to acquire targets at longer distances and provide early warning. Such integration ensures coverage and protection for ground systems and bases.

Protection

Forms of Maskirovka (Russian military term for deception) have always been used to conceal, camouflage, and otherwise protect air defense assets. Moreover, the increasing sophistication of these assets onboard electronic countermeasures and passive radar systems hinders their being targeted successfully, reducing the effectiveness of SEAD.²⁷ Finally, long-range systems such as the SV-300 can provide BTGs fighting near Russian territory with early warning, assist in target acquisition and, if need be, engage targets with SAMs from the safety of Russian territory.²⁸ Lastly, Russian electronic warfare (EW) systems—capable of disrupting communications and jamming GPS systems—make the rapid targeting of the country’s already-mobile ADA systems problematic.

Training Implications

The opposing force (OPFOR), during home-station and national training center scenarios, will employ integrated air defense systems (IADS) throughout its echelons, from brigade to platoon, to mitigate US or NATO air-power overmatch. Additionally, a mix of air defense systems will be employed to ensure redundant overlapping coverage in all zones on the battlefield. When used in a protection role, IADS will be positioned to prioritize the safeguarding of artillery, maneuver units, command and control nodes, maneuver reserves, and logistical hubs. Integration, in addition to overlapping protection, also provides early warning of incoming aircraft to each zone on the battlefield. When used offensively—often in the disruption zone—irregular forces, special-purpose forces, and other designated MANPADS teams may position themselves along likely air ingress and egress routes or in built-up areas. Such forces, possibly operating in noncontiguous disruption zones, may also aggressively target aircraft while on the ground near airfields or forward arming and refueling points.

Russian Electronic Warfare

The third method of protecting Russian artillery and rocket forces while enhancing fires capability is through electronic warfare. According to the Defense Intelligence Agency, “Russia has aspirations to develop and field a full spectrum of electronic warfare capabilities to counter Western Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance [C4ISR] and weapons guidance systems.”²⁹ Such a capability, combined with a robust air defense, would greatly enhance Russia’s anti-access and area denial capabilities against traditional US and NATO aerial reconnaissance, electronic means of surveillance, and fires assets, and provide protection from precision-guided

munitions. In addition to disrupting an adversary's ability to collect intelligence, electronic signals jamming can degrade command and control (C2) and greatly disrupt operations while delaying targeting cycles.

Although a focus under the Soviet Union, the Russian Federation placed a renewed emphasis on electronic warfare in 2008, learning from failures in the Georgian conflict.³⁰ During the conflict, Russia lost five aircraft in two days of fighting until a newly arrived EW element was used to suppress Georgian air defense network.³¹ Unlike the US, which relegates most of its EW assets to the Navy and the Air Force, the Russian military's EW capability resides largely with the Army. This enhances Russian protection of fires, maneuver forces, ADA, and C2 nodes while disrupting the enemy's communications, jamming radars, and interfering with GPS. Another facet of Russian EW is the jamming of counterbattery radar to prevent accurate counterfire against its artillery and rocket forces. While jamming the enemy, Russian EW is capable of detecting electronic emissions from radios and C2 systems to aid in the acquisition of targets for its fire systems.³²

An army facing Russia today can expect to have its operations disrupted by EW. For example, GPS jamming has had significant impact on Ukrainian operations, causing some operations to be canceled, and has interfered with Ukrainian unmanned aircraft (UA)ⁱⁱ operations.³³ Independent observers operating in Ukraine, such as the Organization for Security Cooperation in Europe, have also noted degraded UA operations due to suspected electronic warfare.³⁴ Given the US reliance on unmanned aircraft systems (UAS) for ISR collection, this could have significant impact on US ability to accurately provide situational awareness. To compound problems, US and NATO forces have become heavily depended on GPS for navigation and C2; GPS jamming conducted on even a small portion of the battlefield could significantly degrade operations. Another problem is that many PGMs rely on GPS for accurate strikes; jamming could cause these munitions to miss their targets or cause unwanted damage. Even tube-fired "dumb" munitions may have difficulty finding their targets, as Russian jamming is believed to be capable of preventing the electronic fuses in some artillery rounds from detonating, resulting in a dud or causing premature detonation away from the intended target.³⁵

Training Implications

Scenario developers may assume, for both home-station training and combat training centers, that an OPFOR will use EW to disrupt US and NATO allies' significant mission command and ISR advantages in select pockets of the battlefield. OPFOR EW assets will likely support disruption and electronic isolation of enemy ISR and targeting efforts within the disruption zone. Such efforts will prioritize electronic attacks, targeting enemy UAS assets, reconnaissance communications, and counterbattery radars from within the disruption and battle zones. In additions, the OPFOR may also utilize EW in a protection role in both the battle and support zones in order to mitigate the accuracy of enemy PGMs and artillery rounds employing electronic fuses. Limited EW assets will necessitate ranking of critical equipment for protection by the OPFOR commander. The OPFOR would likely attempt to protect its artillery, C2 nodes, and maneuver reserves.

Russian Artillery, Missile, and Rocket Forces Employment

Near the end of the Soviet Union, the thought on massed artillery fires began to change. The Soviets realized that the speed of the modern battlefield and the precision of NATO munitions would not allow for the massing of artillery as in previous conflicts.³⁶ Furthermore, the stockpiling of armaments required for such massed fires was a logistical strain. Finally, the concentration of artillery or munitions in support areas was vulnerable to NATO artillery and aircraft.³⁷ A new paradigm on modern artillery use had to be adopted; namely, protracted barrages on preplanned targets were changed to short, intense "fire strikes."³⁸ These shorter strikes by larger artillery units were believed to be less vulnerable to NATO counterbattery fire.³⁹ Shorter barrages were made possible by improvements in both communications and target acquisition capabilities. These improvements allowed the Soviets to mass fire without concentrating artillery in one area.⁴⁰ The need to effectively and quickly destroy NATO tank and artillery formations with fewer rounds changed the basic fire-artillery size from battery to battalion, unless when in restrictive terrain.⁴¹

Historically, Russian artillery and rocket forces may be found in separate brigades or attached to other units depending on mission requirements. In addition to separate fires brigades of artillery and missile troops, a BTG typically has two

ⁱⁱ Unmanned aerial vehicle (UAV) is the title given to platforms used by adversaries of the US—to include the opposing force (OPFOR). Platforms used by US, allied, and friendly forces, even in training, are referred to as unmanned aircraft systems (UAS). When these platforms belong to neutral parties or are discussed in general—i.e., without regard to ownership—they are referred to as unmanned aircraft (UAs).

organic tubed artillery battalions and an organic missile battalion. This is in stark contrast to a standard US armored brigade combat team, which has only one organic artillery battalion, and gives a Russian BTG commander a significant advantage in dedicated fire support over his US counterpart. There has been some speculation that the Russian military may add a fourth organic artillery battalion to its brigades.⁴² Furthermore, the Russians have a variety of indirect fire systems, some of which have range overmatch against US systems.

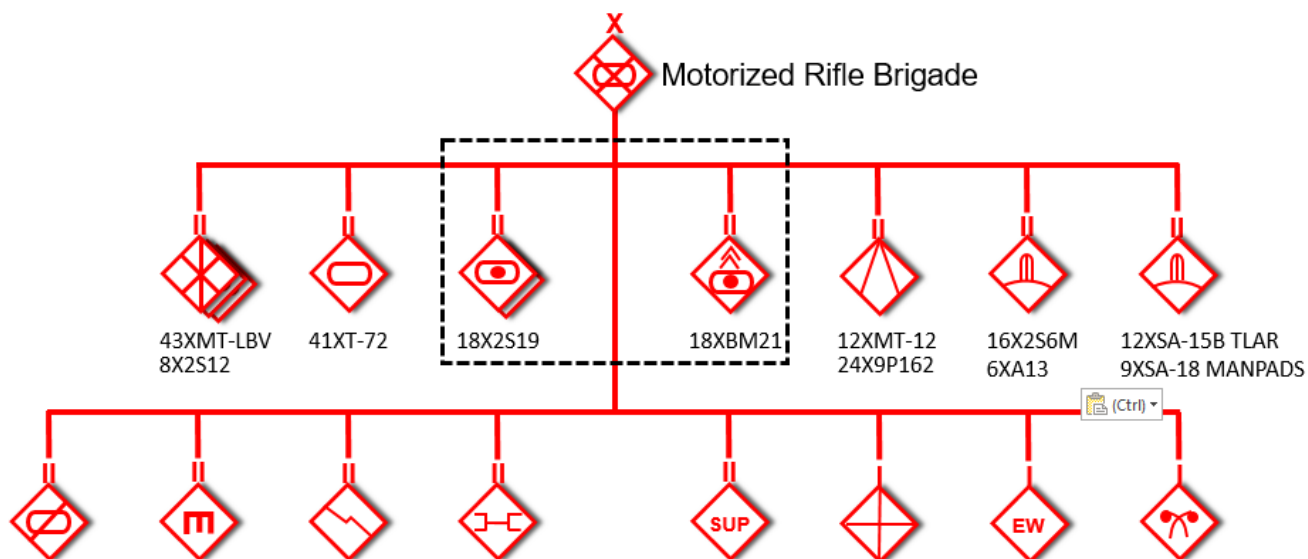


Figure 3. New-look Russian motorized rifle brigade indirect fire composition⁴³

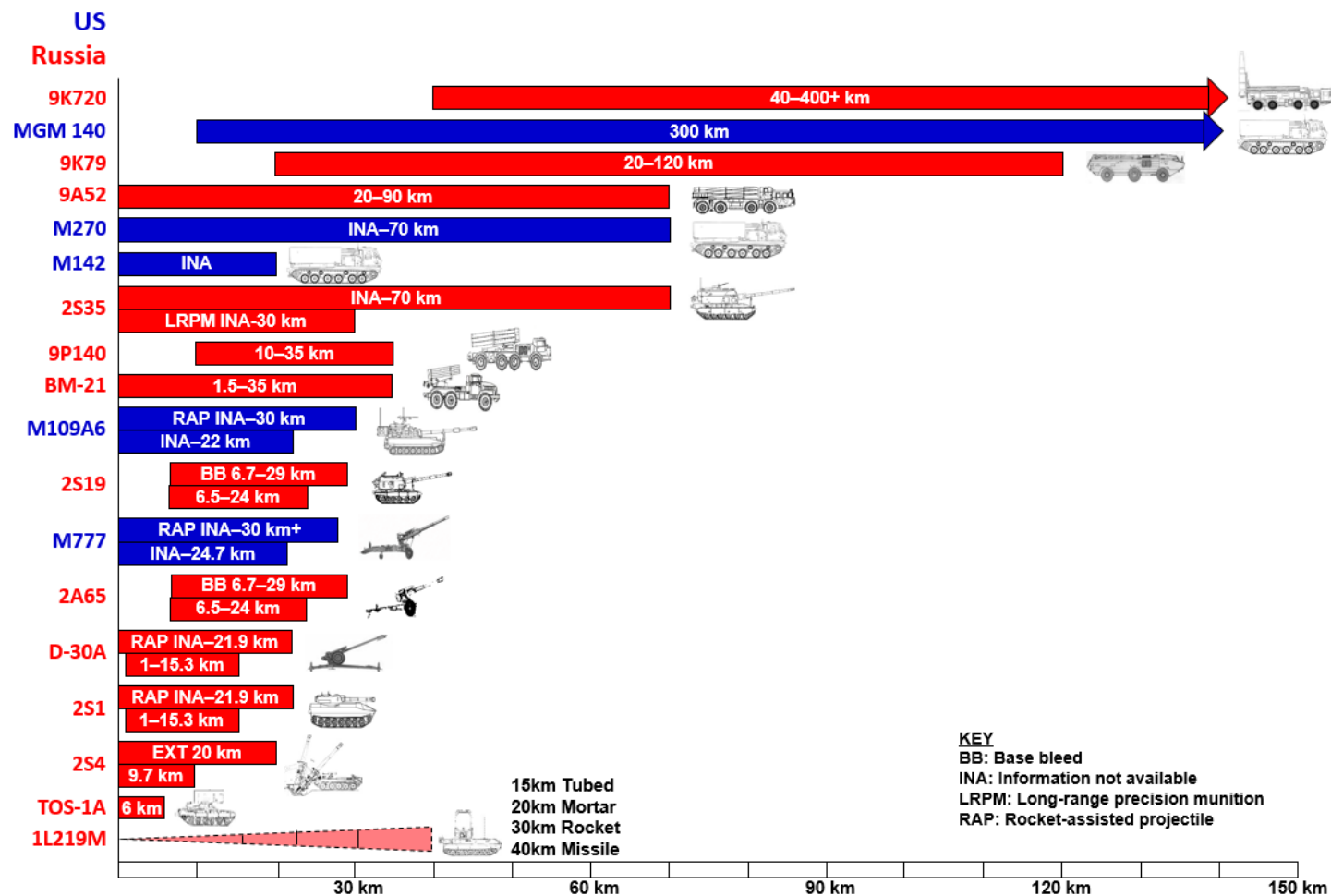


Figure 4. US and Russian indirect fire system comparison⁴⁴

Although Russian divisional artillery assets have been historically reserved for strategic objectives and the deep battle, it is not uncommon for Russians to task-organize fires assets to a brigade or BTG to assist in mission accomplishment when the need arises. For instance, in the Second World War during urban combat, the Soviets task-organized “shock groups” for urban fighting. These shock units typically consisted of infantry, engineer or armor, and artillery combined arms units.⁴⁵ To overcome communications and line-of-sight issues common to an urban environment, the Russians grouped artillery as part of the shock units in order to provide direct fire support.⁴⁶ Soviet lessons learned in the Afghan war reinforced the importance of mission-specific task-organized brigades with additional artillery and target acquisition in the form of reconnaissance.⁴⁷ Special artillery task organization was utilized by Russia next in Chechnya in 1994.⁴⁸ After suffering heavy initial losses, Russians infantry battalions were reorganized into shock groups, with an “attached tank or engineer platoon, two mortar batteries, smoke generating equipment, a howitzer battery and one or two divisional artillery batteries.”⁴⁹ Unfortunately for the Russians, poor coordination measures, lack of prior fire support training, and unsecured communications, as well as poorly trained conscripts, rendered these shock groups largely ineffective and caused considerable fratricide.⁵⁰

Russia learned valuable lessons in the first Chechen war. For instance, Russian conscripts performed poorly in combat against Chechen forces and were only able to leverage approximately 30% of capabilities of the artillery provided to them.⁵¹ This stemmed from lack of artillery training for conscripts, as well as unclear or restrictive rules of engagement while operating in Grozny and the surrounding villages.⁵² Furthermore, Russian armor, such as the T80 tank, proved very vulnerable to Rocket Propelled Grenades (RPG) fire because of insufficient top and engine compartment armor.⁵³ Another lesson learned was that 152-mm rounds were often insufficient for reducing or destroying reinforced targets.⁵⁴ Moreover, mobile Chechen targets moved quickly upon receiving artillery fire, and more accuracy and lethality were required to destroy the enemy in fewer rounds.⁵⁵ According to Major Richard Wallwork, the issue of “greatest note was perhaps that of the need for increased precision of artillery fires, coupled with the need for a suitable weapon and ammunition system to deliver the necessary effects required in urban combat.”⁵⁶ The Russians also learned in the first Chechen war that they could not rely on aviation assets in times of bad weather, leaving Russian ground troops with only heavy artillery support during inclement weather.⁵⁷ Lastly, rather than using information warfare to control the narrative, the Russians elected to enforce a media blackout.⁵⁸ This allowed the Chechens to largely control the information being viewed by both Russia and the international community.⁵⁹



Figure 5. [2S4 Tyulpan](#)

To combat these problems, the Russians implemented several changes before reentering Grozny, Chechnya, in 1999. These included the variety of artillery types employed and an increase in the amount of artillery deployed. There were two noticeable additions in types of artillery used during the second battle of Grozny. The first was the 2S4, a 240-mm mortar for attacking reinforced positions.⁶⁰ The 2S4, despite being produced in the 1970s, proved very effective in urban combat with the introduction of laser-guided munitions.⁶¹



Figure 6. [TOS-1 Buratino](#)

The second system was the TOS1 “Buratino” with thermobaric munitions, for removing Chechens in prepared or urban defenses.⁶² Per Major Wallwork, “The use of precision munitions was much wider, as was the use of Smerch and Uragan rocket artillery.”⁶³ The Russians also increased the number of artillery systems available to ground commanders. In fact, of the 2,130 total vehicles mobilized for the second Chechen war, 480—roughly 23%—of them were artillery, ensuring ground forces had adequate all-weather fire support.⁶⁴

The increased artillery support allowed the Russians to compensate for the poor quality of their conscript soldiers. Instead of allowing the Chechens to fix them in close proximity, preventing Russian artillery from providing effective fire support, Russian ground forces would often withdraw and instead engage their

adversaries with fire strikes from a distance.⁶⁵ The Russians made use of a variety of fires techniques, “such as the fire block, artillery fire sweeps, defensive barrage boxes, and fire sectors.”⁶⁶ Fire blocks and defensive barrages prevented the Chechens from effectively closing the distance with Russian forces or exploiting successful offensive operations. The artillery fire sweeps cleared entrenched Chechen positions and possible ambush sites, greatly reducing Russian casualties. As Major Wallwork notes, “It has also been suggested that the Russians used artillery to change a three dimensional urban battlefield into a two dimensional one by leveling many of the large buildings to make up for the poor quality of their infantry.”⁶⁷ Establishing unit fire sectors and embedding forward observers with forward units also greatly reduced fratricide.⁶⁸ The increased use of largely indiscriminate fires against the Chechens led to widespread international condemnation. However, Russia, by allowing the media to be present, controlled the narrative better with information warfare, thus mitigating this international outrage to some extent.

More recently, similar patterns in the use of Russian artillery emerged in Ukraine. In the battle for Donetsk Airport



Figure 7. [9A52 Smerch](#)

resorted to the use of artillery to compensate. These barrages, while successfully removing Ukrainian forces from the airport, made the latter unusable by either side. This clearly demonstrates Russian willingness, as in Chechnya, to disregard the international norms on minimizing damage to civilian and non-military infrastructure in order to achieve victory. Finally, as with Chechnya, Russian-backed separatists were supplied with a significant amount of artillery in proportion to other combat vehicles. For example, of the 890 known combat vehicles provided to the pro-Russian separatists in Ukraine from 30 October–9 December 2014, roughly 26% were indirect fire systems.⁷⁰ Although disputed by some Western analysts, Ukrainian officials believe the proportion has shifted even more, with 64% of Russia’s 2,838 combat vehicles in the Donbas region of Ukraine being either multiple launch rocket systems (MLRS) or tubed artillery.⁷¹



Figure 8. [9P140 Uragan](#)

Russian Artillery, Missile, and Rocket Future

In keeping with the deep battle theory, “[m]echanized and armored formations supported by aviation and artillery are to seize the initiative at the outset of hostilities, penetrate the enemy’s defenses, and drive deeply and decisively into the enemy’s rear area.”⁷² Artillery and missile forces support the close- to mid-range fight while rocket forces, with aviation support, shape in the deep fight. This allows the Russians to simultaneously engage a frontline adversary while striking C2 nodes, logistics, and key systems within his support zone. The ability to strike deep within an adversary’s support area gives Russia a distinct advantage, as its A2AD protects its rear area, limiting enemy targeting to short- or mid-range targets.

In recent years, Russian has put considerable effort into modernizing its indirect fires capabilities. The improvements have come in five areas: improved communications, increased range, automation of equipment, sub-munitions, and target acquisition. Communications have long been a problem for both the Soviet Union and Russia. The lack of secured communications was exploited by Chechen rebels calling fire missions on Russian positions, resulting in indirect fire fratricide.⁷³ Later, in the Georgian conflict, the need for improved communications became apparent when some Russian commanders were forced to resort to using cellular telephones to call for fire support.⁷⁴ In addition to enabling Russian commanders to communicate securely, enhanced communications systems allow for more rapid fire support requests.

Improved communications could also improve the ability to disperse an artillery battalion during a fire strike, thus reducing the risk of a counterbattery strike. Furthermore, upgraded communications capabilities permit better situational awareness—particularly important for dynamic strikes aided by unmanned aerial vehicle (UAV) target acquisition. Lastly, as it is likely the Russians will continue the practice of attaching forwards observers to maneuver units as they did in the second Chechen war, effective long-range secure communications is vital.

The increased range of indirect systems has come in the form of better munitions, upgrades to existing systems, and the replacement of aging Soviet-era systems. The limited Russian 2017 defense budget of approximately \$42 billion means most Soviet-era artillery will remain in service for the foreseeable future, kept relevant by systems upgrades and improved munitions.⁷⁵



Figure 9. [SS-21 Tochka](#)

command/reconnaissance vehicle's mission links allow battalions to utilize better displacement and operate in smaller numbers—a key capability for conducting fire strikes and avoiding counterbattery fire.⁸¹

Even with the upgrades, the venerable 2S19 Msta is currently scheduled to be replaced by the 2S35 152-mm beginning in 2020.⁸² The 2S35, with increased automation, reduces crew requirements from five to three.⁸³ In fact, the 2S35 can fire approximately 70 km at maximum range, 41% farther than the standard 2S19 round.⁸⁴ Aside from the obvious advantages of out-ranging an adversary's artillery, the extended range also makes effective counterbattery fire against Russian artillery more problematic, as some newer Russian systems are able to fire farther than US counterbattery radars can detect. The automation of equipment, such as the 2S19 and the 2S35, is likely to eliminate problems discovered in the Soviet era. For instance, because technical knowledge was largely limited to Soviet officers, senior noncommissioned officers, and technical experts within the army; a successful counterbattery strike could disproportionately affect an artillery battalion's effectiveness with the loss of key personnel.⁸⁵ New systems, such as the 2S35, have automated turrets that allow the crew to remain protected within the hull of the vehicle.⁸⁶



Figure 11. [2S19 Msta](#)

Additionally, auto-loaders and increased automation in targeting reduce the required crew size and expertise; this is particularly important in a much smaller Russian army that is still dependent on low-skill conscripts for much of its force.



Figure 10. [SS-26 Iskander](#)

Submunitions, like the variance in artillery systems, give Russian artillery more versatility in dealing with different situations and operational environments. Although the Russians use a wide range of munitions, those of particular concern are PGMs, thermobaric

munitions, and cluster submunitions. One of the advantages of PGMs is the ability to more accurately hit targets, meaning fewer rounds required to destroy targets—thereby reducing the potential for successful counterbattery fire. The second advantage of PGMs is that they allow aging Soviet equipment to maintain relevancy longer, as was demonstrated by the 2S4 with PGMs in the second Chechen war. The next munition of concern is thermobaric. As Major Richard Wallwork notes, “thermobaric warheads, also known as ‘fuel-air explosives,’ produce intense overpressure around the point of detonation around thirty times higher than normal atmospheric pressure (almost twice the pressure of conventional explosives) and a temperature of up to 3,000 degrees centigrade.”⁸⁷ Thermobaric weapons can be extremely effective against personnel in prepared defenses, built-up areas, or using urban terrain for protection.⁸⁸ As with cluster munitions, thermobaric munitions are more lethal than single-point warheads when an area effect is desired.⁸⁹ Thermobaric weapons were used to great effect in both the urban environment in Chechnya and, more recently, against Ukrainian armored units.



Figure 12. [2S35 Koalitsiya-SV](#)

The Russian willingness to use cluster submunitions instead of just point-area detonation is disconcerting because of their increased lethality and versatility on the battlefield. The US Army discovered the limited use of point-area detonation munitions during the Korean War, particularly against targets that were prone or in cover.⁹⁰ Because of the countermeasures adopted by both the North Koreans and the Chinese, “often massed American artillery units would hurl trainloads of shells in massive barrages to little effect.”⁹¹ It was later discovered that the ability of artillery shells to cause casualties could be greatly increased by developing ones with numerous smaller bomblets within each shell, drastically increasing the amount of shrapnel produced per round.⁹² As author Bob Scales notes, “the difference in lethality between conventional single points versus multipoint detonations was ten orders of magnitude.”⁹³ The cluster submunition lethality increases the ability of a fire strike by a single artillery battalion to destroy or suppress its targets in a single volley. This saves munitions and time, and reduces an artillery battery’s vulnerability to counterbattery fire.

As is a common feature in many facets of the Russian military, target acquisition has many redundancies. Historically, the Soviet Union relied on “electronic intercepts, radars, artillery radio direction finding, and sound and flash ranging.”⁹⁴ This was in addition to target information relayed by aircraft and organic reconnaissance units within the brigade’s structure.⁹⁵ It is likely that these target acquisition methods remain in use by the Russian military. Moreover, it is likely the Russians will continue to use forward observers attached to infantry and armor units to provide accurate fire support. However, it is the addition of UAVs that has greatly enhanced the Russians’ ability to acquire and strike targets. The presence of both smaller tactical quadcopter UAVs and longer-range fixed-wing UAVs supporting Pro-Russian separatists has been confirmed in Ukraine.⁹⁶ It has been suggested that the tactical UAV may have been used in Ukraine to queue larger UAVs prior to striking targets.⁹⁷ These platforms provide the ability to more rapidly acquire targets and keep “eyes on target” before, during, and after strikes, providing immediate battle damage assessment. It is believed that each Russian maneuver brigade possesses a UAV company.⁹⁸ This may be augmented by individual Russian companies purchasing small UAV on their own.⁹⁹

Training Implications

Scenario developers can extrapolate for both home station training and combat training centers that an OPFOR will use its fires advantage to compensate for maneuver units that are less trained than their US or NATO adversary. Furthermore, it should be expected that 25–30% of the combat vehicles within a BTG area of operations will be indirect fire systems supported by both ground (special-purpose forces, scouts, ground radar, counterbattery radar, ground signals intelligence platforms) and air (UAV, rotary-wing aircraft, and fixed-wing aircraft) ISR assets. The redundant reconnaissance and target acquisitions platforms will likely support the deep battle, aggressively targeting tactical operations centers, brigade support areas, forward arming and refueling points, indirect fire systems, and other key systems. Anticipate OPFOR to use fires missions in innovative ways and aggressively, to include direct fire when needed, in both the offense and defense in order to prevent enemy withdrawal or to prevent the enemy from closing the distance with its maneuver units. When

facing an adversary on the defense, in either urban terrain or restrictive terrain, expect the extensive use of artillery—especially thermobaric—to prevent OPFOR casualties, regardless of the potential collateral damage it causes.

System	Range	Munitions	Reload Time	Rounds/minute	CEP
9K720 (Iskander SS-26)	40–400 km+	HE, ICM, FAE, TEP, Nuclear	INA	15 ¹	IR: 5–7 m STD: 10–20 m
9K79 (Scarab SS-21)	20–120 m	HE, SM, Chemical, Nuclear	40 min	INA	IR/RA: 5–7 m STD: 10 m
9A52 (Smerch 300 mm)	20–90 km	Frag-HE, DPICM, SF, Tubed-launched UA ²	36 min	12 <1 min	INA
2S35 (Koalitsiya-SV 152 mm)	70 km ³	INA	INA	16	INA
9P140 (Uragan 220 mm)	10–35 km	Frag-HE, DPICM, AT	15–20 min	12 <1 min	INA
9A51 PRIMA/URAL 4320	STD: 5–20.5 km HE: 40 km DPICM: 30 km	Smoke, Frag-HE, Jammers, AT/AP Mines, Chemical, DPICM, ILUM	10 min	50 <1 min	190,000 sq m ⁴
BM-21/URAL 375 chassis	1.5–35 km	Smoke, Frag-HE, Jammers, AT/AP Mines, Chemical, DPICM, ILUM	10 min	40 <1 min	INA
2S19 (Msta-S 152 mm)	Frag-HE: 0–1 km STD: 6.7–24 km BB: 6.7–29 km	Frag-HE, Frag-HEAT, Frag-HE BB, Chemical	INA	8/6/2 ⁵	INA
2A65 (Giatsint 152 mm towed)	Frag-HE: 0–1 km STD: 6.7–24 km BB: 6.7–29 km	Frag-HE, Frag-HEAT, Frag-HE BB, Chemical	INA	8/6/4 ⁵	INA
D-30 (122 mm towed)	STD: 1–15.3 km RAP: INA–21.0 km	Frag-HE, Frag-HE FS, Frag-HE RA, Chemical	INA	8/6/4 ⁵	INA
2S1 (Gvozdika 122 mm)	STD: 1–15.3 km RAP: INA–21.0 km	Frag-HE, Frag-HE FS, Frag-HE RA, Chemical	INA	5/4/1–2 ⁵	INA
2S4 (Tyulpan 240 mm)	STD: 80 m–9.7 km EXT: 80 m–20 km	HE, LG, Nuclear, Chemical,	INA	INA	INA
TOS-1A (Burantino 220 mm)	400 m–6 km	FAE, Incendiary	INA	24 <1 min	INA

KEY
 AT: Antitank
 BB: Base bleed
 DPICM: Dual-purpose improved conventional munition
 FAE: Fuel-air explosive (thermobaric)
 FS: Fin-stabilized
 HE: High explosive
 HEAT: High-explosive antitank warhead
 INA: Information not available
 LG: Laser-guided
 LRPM: Long-range precision munition
 RAP: Rocket-assisted projectile
 SM: Submunitions
 STD: Standard round
 TEP: Tactical explosive penetrator

***Notes**

1. The 15 minutes includes emplacement/ launch/displacement. It can carry 2 missiles firing 1 minute apart before reloading.
2. There is currently a joint Russia/China venture developing a tube-launched UA, likely for target acquisition.
3. It is unknown if this range is achieved through RAP or LRPM.
4. Under optimal conditions, the 9A51 Prima can fire a 50-rocket salvo covering a 190,000 square-meter area.
5. Burst/rapid/sustained

Table 2. Russian indirect fire system munitions and capabilities¹⁰⁰

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by [Jim Bird](#), TRADOC G-2 ACE Threats Integration (IDSI CTR)

Terrorism met its doom in Marawi City, the Philippines, on 23 October 2017, five months to the day after fighting started on 23 May between militants linked to the Islamic State of Iraq and Syria (ISIS) and the Armed Forces of the Philippines (AFP). On that day, Department of National Defense Secretary Delfin Lorenzana officially proclaimed the end of the 154-day siege. “We now announce the termination of combat operations in Marawi City,” Lorenzana told reporters, adding “the Philippine forces, aided by [their] government and the massive support of the Filipino people, have nipped the budding [ISIS] infrastructure and defeated terrorism in the Philippines.”¹ Victory had been a long time coming. It followed a string of missed military deadlines and the deaths of 165 soldiers, marines, and police. Forty-seven civilian noncombatants lost their lives as well. Meanwhile, more than 300,000 residents of Marawi and the surrounding region had become internally displaced persons (IDPs). Although outnumbered 10 to 1 by the combined forces of the AFP and the Philippine National Police (PNP), the militants had held out for five months before leaving the pastoral lakeside town a moonscape of shell holes, bomb craters, and shattered buildings.²

The first articleⁱ in this two-part series provided an overview of events that prevailed during the opening days of the siege. It focused specifically on threat actors present in the operational environment and the information warfare (INFOWAR) challenges that confronted Philippine national security forces (NSF) in the days following the initial raid on a safe house occupied by Abu Sayyaf leader Isnilon Hapilon. The present article describes how the dynamics of the Marawi operational environment evolved between 23 May and 23 October 2017, when NSF successfully concluded its campaign to retake the city. It emphasizes the cycle of adaptation and counteradaptation that played out between adversaries throughout the duration of the siege, as well as the unique features of warfare in dense urban terrain that allowed the militants to compensate for the inherent disadvantages they faced while fighting a numerically superior, well-equipped, and highly trained Philippine military.

The Flow of Battle

Some of the graphics used in the initial article are also instructive in helping to understand how the fighting in that city evolved over the five-month period. Geography played an important role, mainly because the Argus River, running north to south and terminating in Lake Lanao, essentially splits the city into two halves. The red lines in Figure 1 essentially reflect the general flow of the fight throughout the first several days of the siege. In that initial timeframe, the militants managed to fan out to a number of key locations throughout the city and exploit their INFOWAR advantage. There really was no front line. Soon, however, the terrorists found themselves enclosed within a fairly sizeable but ever-shrinking perimeter east of the Argus River.

Although the Philippine NSF gradually gained the upper hand, the militants demonstrated the truth of the old adage that the enemy always gets a vote. Instead of disappearing into the dense urban environment, they consolidated in Banggolo, a market area packed with tall and strongly built structures. Occupying key terrain that offered clear fields of fire above ground and well-fortified defensive positions at ground level and below, the militants could bring their weapons and adaptive skills to bear with telling effect on their AFP/PNP adversaries. Observers were soon commenting that the Marawi operational environment was reminiscent of fighting previously witnessed in Mosul, Iraq.³

ⁱ “[Turbulent Ramadan, Part 1: The Terrorist Siege of Marawi](#).” Red Diamond. August 2017.

By the end of the first week it was generally true that Marawi consisted of a so-called safe zone, located on the western side of the Argus River, and a battle zone on the eastern side. This battle zone, according to AFP military spokesman Brigadier General Restituto Padilla, consisted of only 10% of the city's territory. That percentage, however, contained about 3,000 structures that had to be cleared of insurgents before residents could safely return to their homes and places of business.⁴ General Padilla was essentially correct in characterizing the militants as trapped, contained, and "never...able to come [out] alive unless they surrender."⁵ Yet their refusal to surrender, as he aptly phrased it, was "holding the city captive," and effectively turned it into a no-go zone for inhabitants and national security forces alike.⁶ Moreover, for as long as fighting continued, even the area within the safe zone remained perilous. Stray rounds from weapons fired east of the river jeopardized everyone, making no distinction between soldiers and noncombatants. For example, a 14-year-old boy was killed while praying at a mosque near Camp Ranao, and an Australian journalist suffered a superficial wound to the neck while video-recording at the provincial capital.⁷

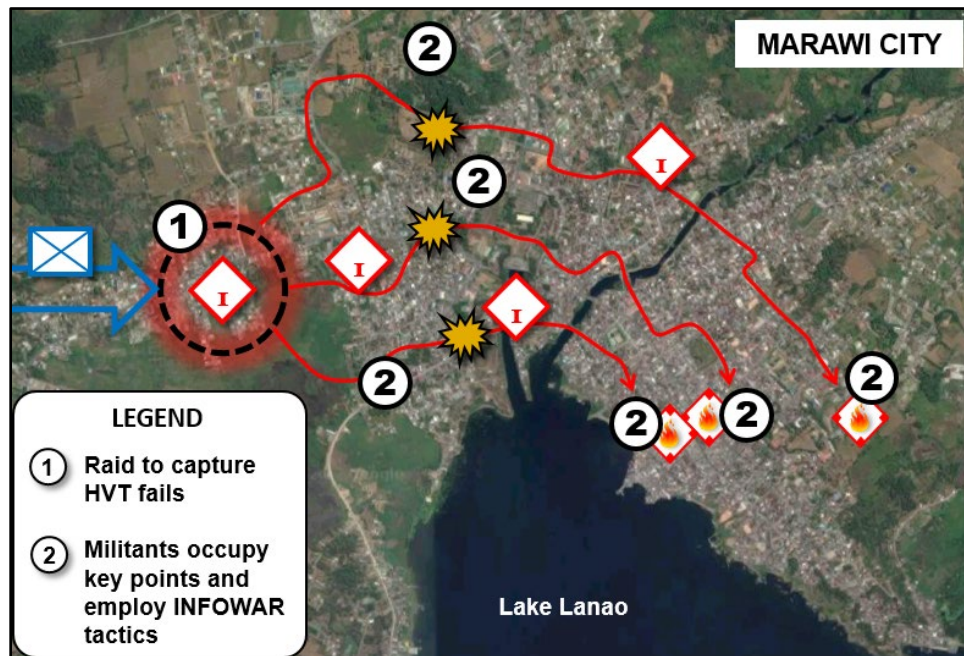


Figure 1. Flow of battle in Marawi ([Google Maps/ACE-TI](#))

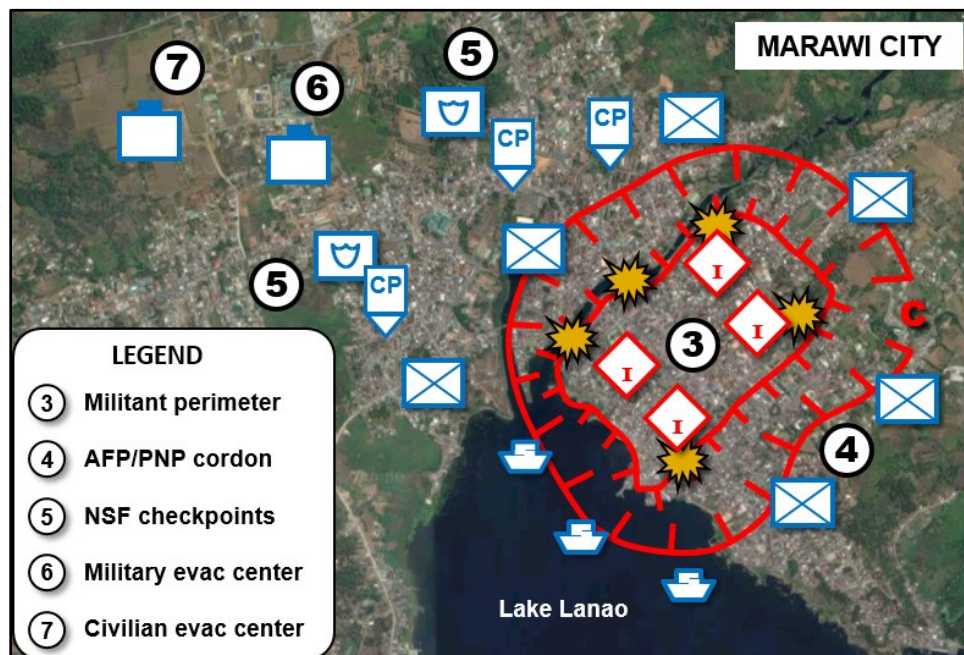


Figure 2. Militant perimeter as of 25 May 2017 ([Google Maps/ACE-TI](#))

A Story of Three Bridges

By 25 May—just a couple of days into the fight—the AFP had sealed off major entry and exit points into Marawi’s business district and established a naval cordon on Lake Lanao. The interior of the militants’ perimeter, besides being situated inside the geographical hub of Marawi’s trade and commercial district, incidentally contained a considerable number of private dwellings.

One week after hostilities commenced, a media outlet reported that “[g]overnment forces [had] regained control of two bridges leading to the center of Marawi City where most of the...bandits were holed up.”⁸ The article’s optimistic tone proved premature. It correctly indicated that government forces had driven the militants out of the safe zone across two bridges—the Baloi Bridge and the Bayabao Bridge—to the eastern side of the Argus River, meaning that the ISIS-linked forces could no longer use these bridges. Then came a significant caveat: denying the militants use of these bridges “didn’t mean [government forces] can now go back and forth across the bridges due to the continuing gunfire from the enemy.”⁹ In other words, the situation had stalemated: neither side could use the bridges, which now became chokepoints that

temporarily stymied further advance by government forces to the eastern side of the Argus. Any such movement ran the risk of drawing intense mortar, rocket propelled grenade (RPG), and sniper fire from concealed militant positions.

ISIS-linked groups’ control of the eastern end of these bridges also increased the danger for noncombatants trapped in the battle zone. Local residents and captives—some being held as human shields by the militants—could only move toward the safe zone at great personal risk. Attempting to traverse open spaces would likely draw fire from the militants seeking to prevent their escape, entail a risk that government forces might mistake them for ISIS supporters, or expose them to AFP artillery fire and government airstrikes.¹⁰

Eventually the two bridges mentioned in the media report would be retaken—the Baloi Bridge on 20 July and the Bayabao Bridge on 31 August—marking important milestones in the battle for Marawi. The Baloi Bridge (often called the Mapandi Bridge) is the northernmost bridge in the battle area. The middle bridge, often referred to by soldiers as the Banggolo Bridge because it leads to Marawi’s Banggolo Market area, is the Bayabao Bridge. A third causeway required to control traffic entering and leaving Marawi’s commercial district is the Masiu Bridge, located nearest to the mouth of the Argus River adjacent to Lake Lanao. Philippine journalist Carmela Fonbuena suggested that whichever side in the conflict gained control of all three bridges would win the battle.¹¹ By 31 July, the terrorist groups had been confined to less than a one-half square-mile pocket in the city’s center. Stressing the importance of the AFP’s capture of the Baloi Bridge, General Padilla observed, “We now have access to ground zero.”¹² By that he meant that government forces could finally use the extension road on the eastern side of the Argus River to shuttle troops and supplies directly into the main battle area. Prior to that time, the AFP had been forced to take a long, circuitous route via external lines to reach the enemy perimeter; but as of 20 July, the time required to reach the main battle area was reduced to less than 10 minutes.¹³ In this context, the subsequent capture of the remaining two bridges—the Bayabao Bridge and the Masiu Bridge—over the Argus was equally significant.

The formal name of the extension road associated with the Baloi Bridge in the foregoing paragraph is Sultan Omar Dianalan Boulevard. Brigadier General Melquiades Ordiales of the Philippines’ 1st Marine Brigade has first-hand knowledge of that street, because his troopers were decisively engaged there. What happened on 9 June 2017—the bloodiest day of the war—provides considerable insight into the nature of combat in Marawi City. The Marines, having reached the eastern



Figure 3. Marawi’s three strategic bridges ([Google Maps/ACE-TI](#))

side of the Baloi Bridge, systematically began clearing the area block by block, house by house, and floor by floor. As Carmela Fonbuena described the scene, they cleared “one house and building after another until the ground suddenly shook. Molotov cocktails flew in their direction, setting troop positions on fire. The Marines ran for safety, away from the burning houses, only to face mortar rounds fired by terrorists atop buildings. A ferocious 14-hour close quarter battle followed, killing 13 Marines on that bloody Friday.”¹⁴ In late September—four months into the fight—General Ordiales directed the attention of reporters to a badly shot-up portion of Sultan Omar Dianalan Boulevard. Looking across the road he noted, “it took us one week [to get] from this point to that point...It was really very, very tough.”¹⁵

Painful Preview: Bad Omen on Day 1

General Ordiales’ observations benefitted from a perspective drawn from hindsight and four months of grueling experience. Early in the siege, however, no one was quite sure what lay ahead. On 23 May 2017, First Lieutenant Geraldo Alvarez received a mission to cross the Baloi Bridge to rescue a wounded officer trapped on the eastern side. Around midnight he set out with two light armored vehicles (LAVs) and 19 soldiers to effect the rescue. No sooner had they departed their brigade headquarters area than something about their surroundings made Lieutenant Alvarez uncomfortable.¹⁶

As soon as the vehicles reached the Baloi Bridge, they immediately began receiving heavy fire from their front. Lieutenant Alvarez remained confident when he noticed a civilian vehicle ahead, positioned in a way that blocked his path: After all, what were LAVs for, anyway? The two armored vehicles rammed their way through. Upon reaching the eastern side of the bridge, the intensity of enemy fire reached a crescendo, and now included RPGs. Just as the lieutenant gave the order to withdraw to the western side of the Argus, an RPG slammed into one of the LAVs, causing it to stall out. At that point the militants attacked and attempted to overrun the AFP rescue element.¹⁷

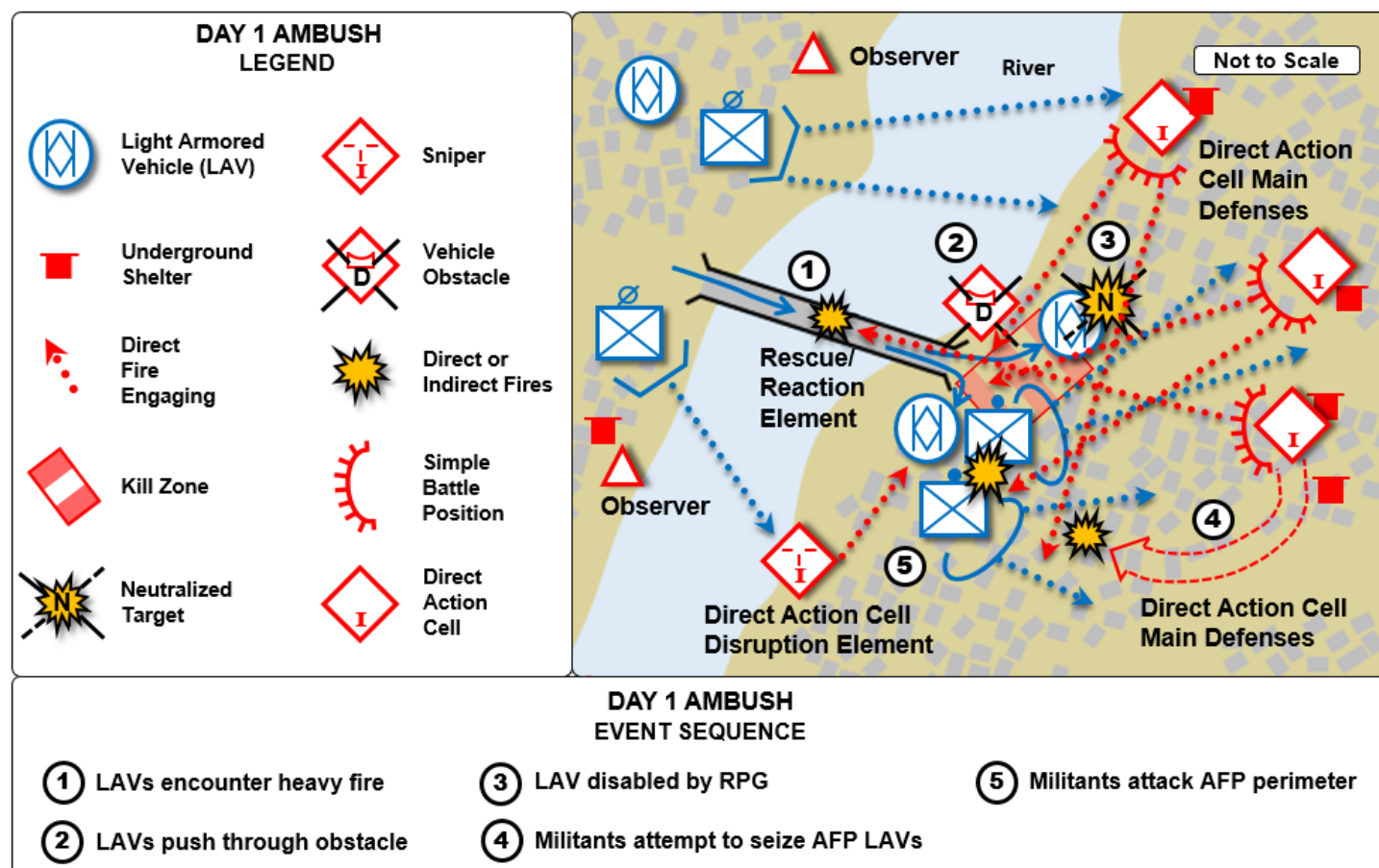


Figure 4. Day 1 fight at Baloi Bridge

The troopers dismounted and established a defensive perimeter that included their remaining operational LAV and some nearby houses. One man had been literally cut in half by enemy fire while dismounting. In the darkness, Lieutenant Alvarez enjoined his men to use their hearing and positioned firing stakes: “I aimed their guns so they only needed to pull the

trigger.”¹⁸ Another soldier who had lost his leg from the RPG detonation died while Lieutenant Alvarez was out checking firing positions. By daybreak, continuing intense enemy fire prevented friendly forces from crossing west to east across the bridge. Enemy fire also kept a helicopter from touching down on a landing zone near Alvarez’s men, delaying their extraction.¹⁹

Still weathering enemy fire, the men tried in vain to get their shot-up vehicle running again. With their ammunition running low, the driver of the operational LAV volunteered to retrieve ammo that remained inside the stalled vehicle. Though mortally wounded in the attempt, he succeeded. His sacrifice enabled his comrades to survive their ordeal. Meanwhile, a fourth man went down to sniper fire and the attacking militants set fire to the houses occupied by the AFP soldiers.²⁰

After the troopers had held out for four days, on the fifth day a helicopter gunship silenced a key enemy position with rocket fire. Still under heavy fire, the Filipino soldiers made their way to an extraction point where they were finally airlifted to safety. Fifteen of Alvarez’s 19 men made it out, and he subsequently received the Medal of Valor, the Philippine Army’s highest combat award. Two months later, the AFP finally gained full control of the Baloi Bridge and, with it, access to what General Padilla called ground zero.²¹

Improvised Force Protection

If achieving a higher level of protection against RPGs called for better armor, Philippine soldiers, like counterparts everywhere, could become masters at improvisation. Two weeks into the fight, LAVs appeared in the battle area covered with wooden armor fashioned from discarded ammunition crates and salvaged lumber. The hope was that the ad hoc innovation would cause incoming RPGs to explode prematurely before penetrating the hulls of armored vehicles. Although reminiscent of the cage armor used to protect US Army Stryker vehicles in Iraq, using wood to achieve the same effect was a dubious proposition. If nothing else, the wood-augmented vehicles might boost morale through comic relief. After the first week in June it was not uncommon to see wooden planks on LAVs bearing a spectrum of graffiti ranging from “Armor of God,” to “Mad Max,” to “Free Wi-Fi.”²²

Sniper Against Sniper: Dense Urban Terrain Makes Marawi Different

As noted earlier, General Ordiales described the 9 June fighting around Baloi Bridge as “very, very tough.”²³ In large measure, what made it tough was that young, well-armed militants had determined that dense urban terrain would be their environment of choice for leveling the odds between themselves and the AFP. Multistory buildings constructed of concrete offered excellent sniping positions, protection against airstrikes and artillery, and a high potential for moving about at will and outmaneuvering AFP units that were less familiar with the terrain. Major General Rolando Bautista, commander of the AFP’s 1st Infantry Division, observed that soldiers were rattled by the sniping skills of the militants. “One sniper can paralyze the movement of a whole company, even a battalion,” he noted.²⁴

Although Philippine soldiers are seasoned veterans with decades of experience in suppressing insurgencies and rebellions, they gained most of that experience while operating in rural environments. A fairly recent example is the Siege of Zamboanga City in September 2013, where the main adversary was the Moro National Liberation Front (MNLF). In Zamboanga, the militants attempted to raise the flag of a self-proclaimed Bangsamoro Republic at Zamboanga City Hall. It took the AFP and PNP just under three weeks to suppress this rebellion, which cost the lives of 19 government soldiers and 208 insurgents. That said, the destruction wrought in Zamboanga City pales in comparison with this year’s siege. By 18 June—about six weeks into the fight—62 government forces had already been killed in Marawi, with over 250 terrorists reported neutralized. Meanwhile, nearly all of the city’s 200,000 population had been reduced to IDP status, and the IDPs were the lucky ones. Worse still was to be a fugitive in the battle zone or a captive held by the terrorists.²⁵

Philippine NSF were learning the hard way the distinction between engaging militants in a rural environment and fighting them in dense urban terrain. The chief of Western Mindanao Command, Lieutenant General Carlito Galvez, noted the differences between the two types of environment: “In the Zamboanga siege,” said General Galvez, “we were clearing houses built with light materials. Here [in Marawi] we are clearing hardened buildings. There are even tunnels.”²⁶ Other differences were also apparent. In the Zamboanga siege, most militants were outsiders from several different locations throughout Mindanao, with little knowledge of the several coastal enclaves where they landed to establish beachheads. Although some outsiders (including foreign fighters) were present in Marawi, the majority of insurgents were locals in the community, thoroughly familiar with its urban landscape and the ground on which they were fighting. Marawi City also has a longstanding reputation as an environment rife with loose firearms and heavily armed clans. In part for that reason,

prior to 23 May the insurgents went essentially unnoticed as they laid on a hefty supply of small arms and ammunition. Escapees from the battle zone told stories of militants going door to door demanding residents to supply them with weapons and ammunition.²⁷

In the latter part of July, the Philippine Congress received a first-hand report on the Marawi fighting from a leader of a reconnaissance unit in the AFP's 1st Infantry Division. Lieutenant Kent Fagyan, speaking with his arm in a sling, told the assembled legislators he believed the enemy facing the Philippine military possessed upgraded weapons, logistical support infrastructure, and techniques, compared with those encountered in past insurgencies. The 29-year-old Zamboanga siege veteran further observed that enemy systems included .50 caliber machine guns, radio frequency scanners, and unmanned aerial vehicles (UAVsⁱⁱ).²⁸ According to Lieutenant Fagyan, the enemy apparently also possessed an unlimited supply of ammunition. The word picture he painted for the Philippine Congress portrayed an image of two evenly matched sides in Marawi, with terrorists enjoying an advantage in knowledge and possession of dense urban terrain.²⁹ Entrenched on this key terrain, they were exacting an extremely high price in blood for every inch of ground gained by government forces. Carmela Fonbuena judged Marawi to be "the worst possible terrain for waging conventional warfare. To clear the streets...soldiers ended up boring holes into walls with sledgehammers."³⁰

Firing ports fashioned by boring holes in walls was a recurring theme in reports coming from the battle zone, and this narrative was consistent up and down the chain of command. First Lieutenant Billy Codian, a 2014 graduate of the Philippine Military Academy, admitted his lack of experience in urban warfare and noted the necessity of adapting to Marawi's unique operational environment. When queried about the most difficult aspect urban warfare, he responded, "Sniping, ma'am. They bore sniper holes and hide behind walls. They wait for us to enter the buildings and then they fire

at us."³¹ Their battalion commander, Colonel Mon Almodovar, noted that during the initial phase of the fight the enemy put up a stiff resistance. Lieutenant Codian's unit was tasked to clear a multistory building near the entrance to the battle area. "There were enemies on the second and third floor when we entered the building," said Codian.³² "They just let us in. We couldn't withdraw. The [only option left to] our battalion and company commanders was to fire at the second and third floors while we got out. Two armored vehicles were brought in and we used them for cover as we slowly withdrew."³³

General Galvez, the previously mentioned chief of the AFP's Western Mindanao Command, empathized with his troops. "Gentlemen," he told reporters, "if you could only see the hardships of our soldiers. Once they clear the ground floor of a building they'll bore holes through walls made of hard concrete. We bore these holes because the snipers are everywhere. That's how hard it is. It takes us two days to work on two buildings. I'm losing a lot of men in this task."³⁴ General Galvez might have added that once a building had been cleared, resources had to be committed to prevent the structure's reoccupation by the enemy and also to disarm improvised explosive devices left in the militants' wake.

Carmela Fonbuena concurred that sniper versus sniper reflected the essential nature of the fight. She asked a marine what, exactly, he was looking for and what he needed to do while peering through an AFP sniper hole. He responded, "We should be aware of the positions of the [adversary's] countersnipers.



Figure 5. [Militant defender and sniper firing port](#)

ⁱⁱ UAV is the title given to platforms used by adversaries of the US—to include the opposing force (OPFOR). When these platforms are discussed in general, without regard to ownership, they are referred to as unmanned aircraft (UAs).

They run when their positions are compromised. Those are the opportunities we wait for. We look for their exit points. Sometimes on the windows we can see their movements or their shadows.”³⁵ Detected insurgent movement within structures or between buildings presented targets of opportunity that could be engaged by direct fire, indirect fire, or airstrikes.

The Blessing and Curse of Airpower

In confronting this kind of determined, well-entrenched opponent, the Philippine military soon adapted to the urban fight by leveraging its major advantage: airpower. Only two days after the Marawi fighting began on 23 May, military spokesman Jo-Ar Herrera announced that “the military is conducting precise, surgical operations” (i.e., airstrikes) to flush insurgents from their concealed positions.³⁶ To bring in close air support was a very logical move by the AFP, since air superiority in some combination with artillery might prove key to breaking the stalemate on the ground. With the sole exception of unmanned aircraft, air power was the exclusive domain of the national security forces.³⁷ The dangers inherent in wielding it turned out to be as much a curse as a blessing for the Philippine military.

The last day of May marked the first offensive deployment of fixed-wing aircraft in the battle for Marawi. On that Wednesday, one of two OV 10 light attack aircraft making a bombing run against militant positions in the heart of the city missed its target, killing 11 soldiers.³⁸ Defense Secretary Lorenzana expressed his regrets at a news conference and attributed the tragedy to the “fog of war.”³⁹ Although he withheld judgement pending the outcome of an investigation, Lorenzana indicated that airstrikes might be suspended based on his view that the militants were a small force unlikely to hold out much longer.⁴⁰ In actuality they held out for four more months, surprising government officials with their demonstrated tenacity and resiliency. Nor was the 31 May incident the last time Philippine soldiers would meet death at the hands of friendly airpower.



Figure 6. [OV 10 light attack aircraft \(31 May 2017 friendly fire incident\)](#)



Figure 7. [FA-50 fighter jet \(12 July 2017 friendly fire incident\)](#)

of carrying. In any event, the Philippine government temporarily grounded the FA-50 fighter jets pending the outcome of a board of inquiry.⁴¹ All of this predictably worked to the short-term advantage of the terrorists by directly affecting AFP rules of engagement.

Each of the friendly fire incidents described above amounted to a double victory for the militants. From an operational perspective, the temporary grounding of aircraft types involved in these incidents slowed the rate of the AFP advance. From an INFOWAR viewpoint, ISIS adapted its propaganda message to reinforce the impression that ordnance dropped by government aircraft could land anywhere to kill and maim civilians trapped in the battle zone.



Figure 8. [Terrorist propaganda message on Philippine air superiority](#)

Concerns over unaccounted-for noncombatants made government officials extremely sensitive to the possibility of alienating the local population by heavy-handed measures that would inflict unnecessary casualties and collateral damage. Militants operating in Marawi were well aware of this government sensitivity, and tailored their techniques accordingly.

The willingness of ISIS-linked groups to use civilian captives as human shields exacerbated the problem. On 14 June, AFP public affairs chief Colonel Edgard Arevalo announced three main objectives for military operations in Marawi: the neutralization of terrorists, the rescue of civilians, and laying the groundwork for the reconstruction and rehabilitation of the city. Arevalo's remarks stressed concern over the well-being of locals: "We are not going to take this lightly. We cannot be imprudent. We have to be careful with our actions since the Maute still have civilians with them...all taken as hostages."⁴² On the same day another AFP spokesman—General Padilla—declared that the AFP would forego airstrikes on places of worship: "We categorically state that we have not...and will not bomb mosques in Marawi...The AFP assures our Muslim brothers and Islamic faithful that it will not [stoop] to the level of these terrorists."⁴³ In effect, the AFP would accept restricted rules of engagement—and with them the risk of incurring additional casualties—rather than attack buildings held sacred by Muslim fellow countrymen.

Although respect for places of worship was the general rule followed by the Philippine military, President Rodrigo Duterte later granted some exceptions to save the lives of his soldiers and hasten the end of the siege. In late June, after the fight had dragged on for a month, President Duterte's patience temporarily wore thin, and carpet-bombing emerged as a potential technique of last resort. He indicated a willingness to take full responsibility for ending the siege by any means necessary if left with no viable alternative. "I will not put the soldiers at high risk. If I have to bomb...If I have to flatten the place, I will do it...I will order the bombing...carpet already, carpet. I will really destroy everything."⁴⁴ Duterte explained that because ISIS was all about death and destruction, he was fully prepared to repay it in its own currency: "I will destroy also and kill, period. Let's finish what you [ISIS] started, you sons of bitches. Let's finish this."⁴⁵ Finish it he would, albeit after four more long months of bloodshed.



Figure 9. [Coerced conversions to Islam](#)

Barbarism as a Calling Card: Why It Backfired

For their part, the militants suffered little, if any, angst over their own rules of engagement. On the first day of the siege, militants entered Marawi's St. Mary's Cathedral and captured the Reverend Teresito "Chito" Suganob, Catholic vicar-general of the prelature of Marawi, along with 14 other parishioners.⁴⁶ In a separate incident, the first eight Christians slain had been making their way from Marawi northward to Iligan when they were stopped by hundreds of armed militants. According to Morning Star News, when the Christians refused to recite the Muslim conversion creed, the

militants tied their hands behind their backs and shot them. Authorities later discovered their bodies in a ravine. Spent shell casings and bloodstains told the story of how they had been executed on the road and then dragged to the ravine below.⁴⁷ In still another incident, five more civilians were killed in Marawi on 12 June when they made a break for the Argus River after terrorists flushed them out of their hiding places. Presidential spokesman Ernesto Abella told reporters, “they were going to the river but the militants ran after them and indiscriminately fired at them, killing five and taking the remaining eight as hostages.”⁴⁸

The terrorists who kidnapped Father Suganob and his parishioners threatened to kill the hostages unless government forces called off their ground offensive and airstrikes in Marawi. The captive priest appeared in an ISIS-produced video on 30 May, relaying militant demands as well as assertions that the group was holding more than 200 captives. In the obviously scripted video, Suganob pleads, “We want to live longer. Please do something.”⁴⁹ The AFP intelligence community dismissed the video as propaganda, based on a consensus that Suganob’s remarks were made under duress, at gunpoint. Shortly thereafter, the militants released a second video showing a Catholic church being vandalized and set ablaze in Marawi City. Suganob would eventually escape his captors on 17 September, much to the relief of well-wishers and government authorities.⁵⁰

By 7 July—six weeks into the siege—the Philippine military estimated that about 400 human corpses were strewn throughout various parts of Marawi. Distinguishing remains of militants from those of civilians proved a daunting challenge, as did confirming the identities of recovered bodies. The Philippine Daily Inquirer reported that of 38 bodies recovered by 7 July, nine had been positively identified by relatives, 11 unidentified corpses had been buried, and 18 remained in the care of a mortuary in Iligan City. To alleviate the situation, personnel from the PNP’s Scene of Crimes Office began collecting DNA samples from IDPs concerned about unaccounted-for relatives, some of whom were believed to be trapped inside the battle area. Militants forced a slowdown in AFP operational tempo by compelling the Philippine military to conduct firefights while simultaneously trying to rescue trapped noncombatants. Civilian volunteers braving enemy fire to assist PNP casualty recovery operations had no choice but to put noncombatant rescue efforts on hold until they received a go signal from the military confirming that a particular neighborhood had been cleared of snipers, improvised explosive devices, and unexploded ordnance.⁵¹

As if all this were not depressing enough for the hapless citizens of Marawi, word also got around that the Maute group had stooped to using child soldiers as snipers. Photos taken by AFP intelligence elements confirmed as much, showing children at a Maute training camp in Butig, Lanao Del Sur, holding sniper rifles and other high-powered weaponry. One formerly trapped resident, Asnaira Asis, told Reuters that militants knocked on her door and offered money or food in exchange for her 11-year-old son. “They wanted him to be a fighter,” she said.⁵² After she declined their offer the militants moved on, and shortly thereafter Asis joined a group of residents who decided to risk sniper fire and government airstrikes to escape the battle zone. In early September, AFP forces reported taking fire from women and children believed to be family members of militants. The child soldiers were said to range in age from 6–16.⁵³

If the militants hoped either to win the hearts and minds or to cower the citizens of Marawi into submission by methods discussed in the preceding paragraphs, their propaganda message appeared to fall on deaf ears. The 22 million people—mostly Muslims—on the island of Mindanao were having none of it. Instead, in the early days of the siege examples of Muslim-Christian solidarity began surfacing. A Muslim provincial information officer on Lanao del Sur, Salma Jayne Tamano, along with some of her relatives, arranged the escape of 39 Christians that for some 36 hours had gone without



Figure 10. [Militants destroying and desecrating a cathedral](#)

food while lying flat on the floor of some houses, waiting for surrounding firefights to subside. During a lull, Tamano and her relatives led the evacuees out of the dangerous Marawi neighborhood to a safe area where they were greeted by Lanao Del Sur Vice Governor Mamintal Adiong, who fed them, plied them with relief provisions, and processed them for transport to an evacuation center. Expressing his appreciation for Muslim villagers who took it upon themselves to shelter the 39 Christians during the midst of intense gunfights, Adiong pronounced the whole episode “a good story of Muslim-Christian unity worth sharing [with] the whole world.”⁵⁴



Figure 11. [Militants' use of child soldiers](#)

The example provided above is hardly an isolated case. A communications staffer of the Humanitarian Emergency Assistance and Response Team of the Autonomous Region of Muslim Mindanao indicated that between 20–26 May, Marawi residents had enabled the escape of over 100 Christians to safer areas. Dawn on Saturday, 3 June, witnessed what perhaps was the most audacious exodus of the siege, as more than 160 civilians walked out of the battle zone under the watchful care of Alonto Lucman and his niece. Lucman, after being tipped off of an imminent AFP airstrike, decided that an immediate escape offered the best chance of survival for all concerned. Starting out with about 70 people, including 50 Christians that had been sheltering in Lucman's home since 23 May, the group's number increased as its members bluffed their way through a militant gauntlet of checkpoints and snipers. When asked if the group contained any Christians, the Muslims among the sojourners shouted “Allahu Akbar” to ward off the terrorist threat, and the ploy worked.⁵⁵

At a press conference held shortly after the successful escape, Lucman said, “I told my Christian friends who [were] with me that ‘I will die first before they kill you.’ Make no mistake about it...the Muslim people in this country are outraged by these actions of some people who want to drive a wedge between Muslims and Christians; and to destroy our city and destroy the relationship between Muslims and Christians in this country.”⁵⁶ In early July, Manila Archbishop Luis Antonio Cardinal Tagle echoed the sentiments expressed by Lucman. Presiding over the Fourth Philippine Conference on New Evangelization, Tagle mentioned the failure of extremists who sought to frame the Marawi crisis as a struggle between Christians and Muslims. According to Cardinal Tagle, “Whoever planned to divide Christians and Muslims, it seems they're really

frustrated by now because they always don't succeed.”⁵⁷ Cardinal Tagle made this observation on 4 July, but when the siege was less than a week old, one 28-year-old mother of six, languishing in an emergency shelter with her children and grandmother, told an Agence France-Presse reporter, “we are angry at them. This would not have happened to us if the gunmen had not come to our village.”⁵⁸ All this goes to suggest that, from the first day of the siege on 23 May 2017 until it ended on 23 October, the ISIS extremist message failed to resonate with the residents of Mindanao.

Closing the Ring

Given the AFP's numerical advantage and air superiority, over time the collapse of the militants' perimeter was almost inevitable, despite their stubborn resistance. The progress of government forces was slow but inexorable. About two weeks after the bloody battle of 9 June, Colonel Herrera, spokesman for Task Force Marawi, declared that terrorist command and control was crumbling. He based his observation on intercepted enemy transmissions indicating that militants pondering desertion or surrender were being executed by their colleagues. By 16 June, the AFP Public Affairs Office chief, Colonel Arevalo, announced that “victory is irreversible. It is just a matter of time before we complete our mission.”⁵⁹

The Baloi Bridge fell to government forces on 29 July. On 22 August, Mindanao State University reopened, albeit after a two-hour firefight, and the next day the military also retook Marawi's Grand Mosque. Shortly after that victory, won by

the infantry without benefit of close air support, President Duterte approved the Philippine military's request to use airstrikes against mosques. On 1 September, the military announced that a "final push" had commenced, and the same day gained control of the second of Marawi's three strategic bridges: the Bayabao Bridge, which led into the city's main market area.⁶⁰ The third and final strategic bridge—the Masiu Bridge, nearest to Lake Lanao—was retaken on 23 September.

The final chapter in the siege of Marawi began unfolding in mid October when government forces announced the death of Abu Sayyaf leader Isnilon Hapilon, and that of Maute group leader Omarkhayam Maute. On 17 October, on his 7th visit to the battle zone, President Duterte formally announced the liberation of Marawi.⁶¹ Almost immediately after the deaths of these two native-born Philippine terrorists had been confirmed, speculation mounted that a Malaysian foreign fighter, Mahmud Ahmad, might replace Isnilon Hapilon as ISIS' new regional emir for Southeast Asia. He held a doctorate in religious studies and played a key role as recruiter, logistical planner, and financier during the Marawi siege. Present in the battle area throughout most of the siege, he was the essential go-to man for prospective foreign fighters seeking martyrdom there. An analyst at the S. Rajaratnam School of International Studies in Singapore considered Mahmud "the most important IS [ISIS] leader in Southeast Asia."⁶² Philippine authorities temporarily lost track of him in the closing days of the conflict, and could not rest easy until they were certain of his whereabouts.

Concerns abated when the Philippine Army's Chief of Staff, General Eduardo Año, announced that "the AFP is increasingly becoming confident that [Dr. Mahmud Ahmad] was among those...killed" during a final assault that had taken place on 18 October.⁶³ Further confirmation of Ahmad's death came the following day when General Padilla revealed that "hostages rescued know who he is and reported him dead last night."⁶⁴ The three most significant ISIS-affiliated leaders of the Marawi siege were Isnilon Hapilon, Omar Maute, and Dr. Mahmud Ahmad. The first two were already known dead, and confirmation of Ahmad's demise brought long-sought closure to the entire siege episode. As President Duterte phrased it, "that completes the story."⁶⁵ It was over.

Applicability of Marawi to Opposing Force (OPFOR) Training

The 153-day siege of Marawi that began on 23 May 2017 and officially ended on 23 October can be viewed as a real-world training laboratory that embodies principles set forth in [Training Circular \(TC\) 7-100.2, *Opposing Force Tactics*](#). Chapter 6 contains an important and relevant section on urban combat. Paragraph 6-38 states, "The OPFOR sees urban combat as a vital subcomponent of its tactical actions. Complex urban terrain provides significant advantages to the side that makes use of them."⁶⁶ Clearly, possession of Marawi's complex urban terrain by ISIS-linked militant groups gave them a significant advantage over government forces in the early stages of the fight.

Paragraph 6-39 of the publication effectively captures what befell the AFP when it first encountered the militants in Marawi: "Fighting in towns and cities slows the rate of [enemy] advance, requiring a high consumption of manpower and materiel."⁶⁷ Without question, militant groups' possession of complex urban terrain slowed the AFP advance and led directly to a series of missed government deadlines for suppressing the rebellion.

As paragraph 6-42 of the training circular explains, "the OPFOR prefers to attack multidimensionally—from basements or sewers to upper stories or on tops of buildings. The targets are engaged simultaneously to maximize effectiveness and confusion."⁶⁸ As noted in the foregoing paragraphs, the battle for Marawi took place on rooftops, from room to room inside buildings, and against subterranean enemy defensive positions. Few would argue that Marawi was not a multidimensional battlefield. The graphical conceptualization shown in Figure 12 on the next page, extracted from TC 7-100.2, approximates tactical challenges confronted by the AFP in Marawi.⁶⁹ Chapter 16 of TC 7-100.2, "Marksmen and Snipers," also offers insights that can afford OPFOR planners opportunities to compare training principles with real-world sniping incidents that occurred in Marawi.⁷⁰

OPFOR trainers, planners, and scenario writers may choose to synthesize portions of TC 7-100.2 that are best suited to their needs with real-world aspects of the Marawi siege. Readers should be mindful that in the near future an Army Techniques Publication (ATP) will be forthcoming that will address the dynamics of subterranean warfare, a subject directly related to the Marawi siege. Although the publication date of this new ATP is still to be determined, ACE Threats Integration will advise prospective readers of the specific timeline for publication in a future issue of the OEE *Red Diamond*.

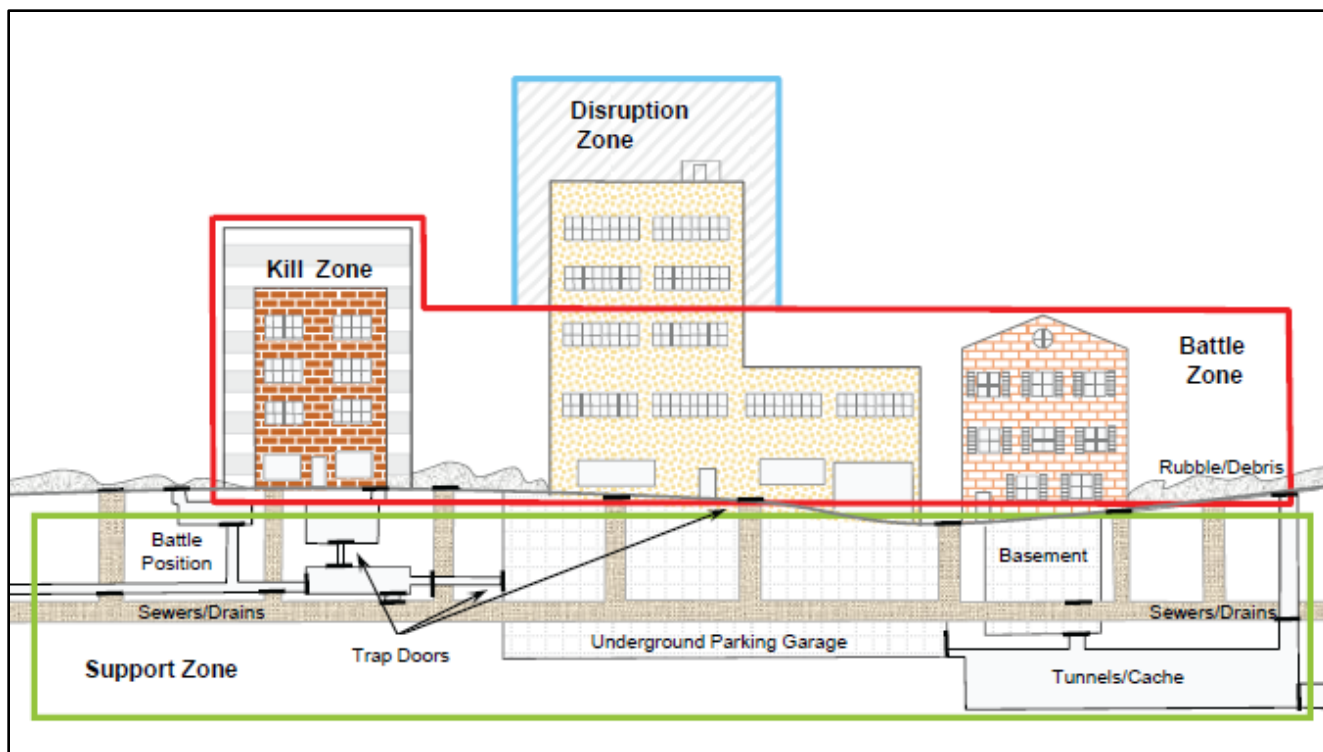


Figure 12. [Multidimensional battlefield \(TC 7-100.2, pg 6-8\)](#)

A New Day Dawns in Marawi

The sheer length and violence of the siege inspired think tanks to dwell on worst-case scenarios. Sidney Jones, director of the Institute of Policy Analysis and Conflict, declared, “The risks won’t end when the military declares victory...Indonesia and Malaysia will face new threats in the form of returning fighters from Mindanao, and the Philippines will have a host of smaller dispersed cells with the capacity for both violence and indoctrination.”⁷¹ While that view of potential future crises probably contains an element of truth, the fact remains that the end of hostilities signaled the beginning of reconstruction in Marawi and an opportunity for returning citizens to restart their lives.

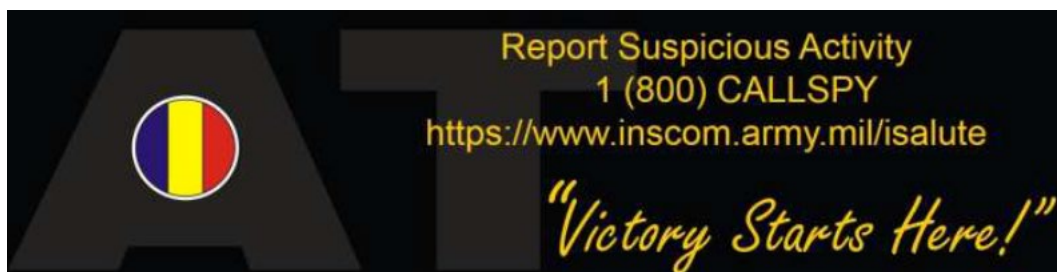
In the darkest days of the siege, speaking at a dinner marking the Islamic feast of Eid al Fitr, President Duterte insisted that he realized from the beginning that Marawi would be a long fight, but nevertheless promised to rebuild the stricken city: “One thing I will promise you, my brother Moro, I will see to it that Marawi will rise as a prosperous city again.”⁷² He also renewed a former promise to enact a Bangsamoro basic law intended as “a framework of a federal government to give more authority and a wide discretion [in determining] what you...want your island to be.”⁷³ On 6 July, Presidential Spokesman Abella reiterated Duterte’s intent, saying that the latter was “serious about redressing the social injustice committed against Muslim Mindanao...He is committed to having the Bangsamoro basic law passed. The President intends this to be a vision of a federal form of government in the Philippines.”⁷⁴

The Philippine Senate swung into line in support of Duterte’s pledge. Pointing to poverty as the root cause of Islamic extremism, Senator Sherwin Gatchalian stressed the need to commit considerable resources to infrastructure restoration and development. He also quoted government statistics confirming that 60% of Marawi’s population are poor, making it the most poverty-stricken city in the country. “The only way to prevent extremism,” declared Gatchalian, “is to make sure people have the basic necessities for their family.”⁷⁵

As of 17 October 2017, as President Duterte declared Marawi liberated, the final death count for the siege stood at 165 government troops, 47 civilians, and 847 militants.⁷⁶ If any good came from the Marawi crisis, it shined a spotlight on some long-neglected issues that warrant the government’s urgent attention, because their persistence tends to alienate Mindanao from the rest of the country. By annihilating the short-term terrorist threat, the Philippine armed forces did their job at a high cost in national blood and treasure. It now remains to identify and exploit whatever opportunities can be found in the aftermath, and spare the long-suffering Philippine people any future need to endure a recurrence of their recent tragedy.

- ¹Divina Suson, Allan Nawal, and Frances G. Mangosing. "[Lorenzana Says Marawi City Siege is Over](#)." Philippine Daily Inquirer. 23 October 2017; CNN Philippines Staff. "[Timeline: The Marawi Crisis](#)." CNN. 23 October 2017.
- ²Michael Punongbayan. "[Combat Terminated](#)." Philippine Star. 24 October 2017; CNN Philippines Staff. "[Timeline: The Marawi Crisis](#)." 23 October 2017; Tom Allard. "[One Week to Cross a Street: How IS Pinned Down Filipino Soldiers in Marawi](#)." Yahoo! News. 24 September 2017.
- ³Tom Allard. "[One Week to Cross a Street: How IS Pinned Down Filipino Soldiers in Marawi](#)." Yahoo! News. 24 September 2017.
- ⁴Divina Suson, Jeoffrey Maitem, and Rachel Umel. "[Task Force Chief Declares 'Total Victory' in Marawi](#)." Philippine Daily Inquirer. 21 October 2017; Cecil Morella. "[89 Gunmen Killed in Philippine Urban Battle: Military](#)." Yahoo! News. 31 May 2017.
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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.

ACE Threats Integration POCs

DIR, ACE Threats Integration	Jon Cleaves	jon.s.cleaves.civ@mail.mil	913-684-7975
Dep DIR & DATE	DAC Angela Williams	angela.m.williams298.civ@mail.mil	-7929
Intel OPS Coordinator	DAC Nicole Bier	nicole.n.bier.civ@mail.mil	DSN:552 -7907
UK LO to ACE-TI	WO2 Danny Evans	daniel.j.evans92.fm@mail.mil	-7994
Threats Officer	LTC Bryce Frederickson	bryce.e.frederickson.mil@mail.mil	-7930
Threats Officer	MAJ James Andersen	james.r.andersen20.mil@mail.mil	-7952
Threats Officer	MAJ EJ Kesselring	emil.j.kesselring.mil@mail.mil	-7898
Threat Models	DAC Jerry England	jerry.j.england.civ@mail.mil	-7934
Threat Tactics Course	DAC Kris Lechowicz	kristin.d.lechowicz.civ@mail.mil	-7922
Threat Doctrine	DAC Dr. Jon H. Moilanen	jon.h.moilanen.civ@mail.mil	-7928
Training-Edu-Ldr Dev	DAC Walt Williams	walter.l.williams112.civ@mail.mil	-7923
Threat Analysis	CGI Brian Allen	brian.d.allen44.ctr@mail.mil	-7948
Threat Analysis	IDSi Dr. Jim Bird	james.r.bird.ctr@mail.mil	-7919
Threat Analysis	BMA Rick Burns	richard.b.burns4.ctr@mail.mil	-7987
Worldwide Eqmt Guide	BMA John Cantin	john.m.cantin.ctr@mail.mil	-7899
Thr Analysis & Editing	CGI Laura Deatrick	laura.m.deatrick.ctr@mail.mil	-7925
Threat Analysis	CGI Jay Hunt	james.d.hunt50.ctr@mail.mil	-7960
ACE-TI LO to MCTP	BMA Pat Madden	patrick.m.madden16.ctr@mail.mil	-7997
Threat Analysis	CGI Mike Marsh	michael.q.marsh3.ctr@mail.mil	-7897
Threat Analysis	CGI Brad Marvel	bradley.a.marvel.ctr@mail.mil	-5963
Threat Analysis	CGI Dave Pendleton	henry.d.pendleton.ctr@mail.mil	-7946
ACE-TI LO to JRTC/JMRC	CGI Mike Spight	michael.q.spight.ctr@mail.mil	-7974
Threat Analysis	CGI Jamie Stevenson	james.e.stevenson3.ctr@mail.mil	-7995
Threat Analysis	CGI Wayne Sylvester	vernon.w.sylvester.ctr@mail.mil	-7939
ACE-TI LO to NTC	ThreatTec Marc Williams	james.m.williams257.ctr@mail.mil	-7943