

**INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)
SUPPORT TO URBAN OPERATIONS**

**A MONOGRAPH
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This monograph is for the military professionals that are seeking innovative ways for better ISR capabilities to support urban military operations—always looking for the possibilities on the modern battlefield. I give special thanks to Dr. Epstein (monograph director), Dr. Willbanks, and the CARL librarian staff for their assistance with this study. I am greatly indebted to my family for their support and encouragement throughout the research project.

ABSTRACT

This monograph addresses the research question: *are there unique ISR capabilities to support urban military operations?* The desire to explore this research question is based on the conditions: (1) shift in demographics and economics to urban areas into 2030; (2) increase of U.S. military operations on the urban landscape since the 1990s; (3) potential use of urban areas by determined foes as an asymmetric approach; and (4) availability of literature questioning if there are adequate ISR capabilities to support urban military operations.

The methodology for the research consists of a thorough literature review on the characteristics of an urban environment, especially the effects that it has on threat and friendly forces operations; ISR capabilities currently in the Army as well as part of ongoing research and development programs; and case studies of Grozny, Chechnya and Hue, Vietnam. Analysis of available literature was sufficient for making generalizations of the unique ISR capabilities required to support military operations on the urban terrain compared to the conventional, open battlefield.

There is a need for innovative ISR capabilities on the modern urban battlefield. The challenge of operating on urban terrain is multi-dimensional. In contrast to open terrain, the urban landscape has limited open maneuver and observation areas with line of sight concerns because of the density of man-made structures and population, subterranean areas, and possibly natural terrain features. ISR capabilities in urban areas should include both human and technical assets, representing all the intelligence disciplines.

As ISR systems are designed, there should be emphasis on as many collectors as possible to be unmanned; miniature, unobservable (stealthy); capable of transmitting what they see, hear, smell and/or sense through walls, windows, tunnels, and electrical conduits; and are part of a network centric architecture. The ongoing Army initiative to transform from a legacy force into an objective force offers an ideal window of opportunity to design and procure the ISR capabilities essential to support urban military operations.

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CHAPTER 1

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE SUPPORT TO URBAN OPERATIONS

The future of warfare lies in the streets, sewers, high-rise buildings, industrial parks, and sprawl of houses, shack, and shelters that form the broken cities of our world...We must begin judicious restructuring for urban combat in order to gain both efficiency and maximum effectiveness—as well as to preserve the lives of our soldiers. We must equip, train, and fight innovatively. We must seize the future before the future seizes us.

—Ralph Peters¹

The current intelligence, surveillance, and reconnaissance (ISR) structure was primarily designed to support a symmetric conventional battlefield of the Cold War rather than in asymmetric environments such as cities. During the cold war, the intelligence system was focused on sensor-to-shooter targeting with go-to-war, mobile tactical assets.² There was also more emphasis on an intelligence structure that could monitor tactical military capabilities. The Persian Gulf War was the ideal environment for conventional ISR systems. In the desert, ISR systems effectively collected against the Iraqi military capabilities. The information collected helped provide predictive intelligence on enemy maneuver, objectives, and courses of action.

¹ Ralph Peters, *Fighting for the Future: Will America Triumph?* (Mechanicsberg, PA: Stackpole Books, 1999), 70, 82-83.

² Larry Wentz, *Lessons From Bosnia: The IFOR Experience* (Washington, DC: DoD Command and Control Research Program), 55.

Can the U.S. military afford to rest its laurels on the Gulf War victory or should it commit serious thoughts to how the next battlefield may be different? Futurists, political strategists, and military strategists believe that urban operations are inevitable. If so, how will cities impact military operations, especially ISR operations?

ISR operations involve the procedures and information systems required to plan and execute intelligence, reconnaissance, and surveillance missions in a synchronized and holistic manner. It is the availability of all the sources of collection (human and technical assets) to support operations. In accordance with FM 101-5-1/MCRP 5-2A, *Operational Terms and Graphics*: (1) intelligence is the product resulting from the collection, processing, integration, analysis, evaluation, and interpretation of available information concerning foreign countries or areas as well as information and knowledge about an adversary obtained through observation, investigation, analysis, or understanding; (2) surveillance is the systematic observation of aerospace, surface or subsurface areas, places, persons or things, by visual, aural, electronic, photographic or other means; and (3) reconnaissance is a mission undertaken to obtain by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area.³

Throughout history, cities have always played a significant role in military operations. Cities were objectives in warfare because they often represented the wealth and power of a country or empire—the heart of political, economic, cultural, military, educational, and religious activities. Since the early 1990s, there has been an increase in

³ U.S. Department of the Army/United States Marine Corps, *FM 101-5-1/MCRP 5-2A* (Washington, D.C.: U.S. Government Printing Office, 1997), 1-83, 1-84, 1-130, 1-148.

U.S. military operations in or near urban areas. Some examples are Panama, Kuwait, Haiti, Somalia, Bosnia, and Kosovo. U.S. involvement in these areas ranged from open combat, to humanitarian, and to peacekeeping activities. The spectrum of urban combat in the future is likely to continue to vary in the degree of intensity and commitment. An example of this is GEN(Ret) Charles Krulak's scenario of "the three block war".⁴ It is conceivable that within the span of a few hours, and within the space of three contiguous city blocks, to have a combat, peace, and humanitarian operations.

Current world demographics and economics are also shifting to urban centers. As a consequence of an upward urbanization spiral, particularly in less developed areas, there may be an increase in hostility between or within ethnic groups. The causes of conflict include resource scarcity, ethnic strife, religious differences, or disenfranchised minorities. Additionally, it may not be uncommon to see a conflict among bordering states of a region if there is a major redistribution of the population from one country to the next and the effects of a third country competing for resources.

Urban areas are ideal battlefields for asymmetric threats to negate U.S. technological superiority. U.S. technological performance during the Gulf War demonstrated to the enemy that it would be futile to engage U.S. forces symmetrically. Attacking the U.S. asymmetrically such as in a city, would be advantageous to an enemy. Asymmetrical threats in a city may involve conventional regular forces, irregular guerilla or militia forces, terrorists, criminal organizations, cyber warfare, and gangs. Widespread endemic disease and epidemics in a city from the collapse of civic service may also decimate a force.

⁴ Charles C. Krulak, GEN (Ret), "The Strategic Corporal: Leadership in the Three Block War," *Marines Magazine*, January 1999, 30.

If a regional conflict occurs, it is likely that the United Nations (UN) or North Atlantic Treaty Organization (NATO) with the U.S. will become involved. A 1999 United Nations study assessed that the majority of the population growth during 2000-2030 will take place in urban areas.⁵ Today there are 2.9 billion people in urban areas and by 2030, there will be at least 4.9 billion inhabitants. Additionally, the concentration of the population will be in urban areas of less developed regions with 1.9 billion in 2000 and increasing to 3.9 billion in 2030.

The combination of the importance of cities throughout history, an increase in urban operations since the 1990s, and the current and forecasted exponential demographic and economic shifts to urban areas support the conclusion that future military operations on urban terrain are unavoidable. The purpose of this monograph is twofold. First, this study is a contribution to the ongoing initiatives on how the U.S. armed services can organize, train, and equip itself in an urban environment. Second, many publications contend that intelligence capabilities for urban operations are severely inadequate. According to a General Accounting Office (GAO) report, “U.S. forces currently do not have adequate information, that is, intelligence to plan and conduct urban operations, due to the lower priority the intelligence community has afforded urban warfare in its collection efforts.”⁶ Retired Lieutenant Colonel Ralph Peters, a former Military Intelligence Officer, expressed that “Military intelligence must be profoundly reordered to cope with the demands of urban combat...intelligence requirements are far tougher to

⁵ “World Urbanization Prospects: The 1999 Revision,” p. 1-7; available from <http://www.undp.org/popin/wdtrends/urbanization.pdf>; Internet; accessed 8/2/00.

⁶ “GAO: Pentagon Urban Intelligence Capabilities Severely Lacking,” p. 2; available from <http://call.army.mil/call/mout/gao.htm>; Internet; accessed 3/17/00.

meet in urban environments than on traditional battlefields...many of the abilities essential to combat in cities are given low, if any, priority in today's intelligence architecture."⁷

Military operations in urban areas have proven to be costly in manpower and material resources—collateral damage and casualties of non-combatants and friendly forces associated with them. Among the requirements for urban operations, there is the need for effective ISR systems to identify and track the threat's intent and capabilities. The Army has designed its collection assets and procedures to fight the modern Soviet army on a European battlefield.⁸ It based its collection on the presumption that the enemy has modems as well as sophisticated command and control and communications equipment that would be vulnerable to electronic interception, satellite imagery, and so on...many modern, sophisticated collection platforms and assets do not work on an urban battlefield.⁹ Authors Robert Hahn II and Bonnie Jezior concluded in their article "Urban Warfare and the Urban Warfighter of 2025: "today we cannot see into the urban battlespace, we cannot communicate in it, we cannot move in it...a key enabler in future urban combat operations require a significantly greater level of situation awareness than can be achieved with current C4ISR systems."¹⁰ Sensors designed to support urban operations also aid in the objective of reducing the historical high costs associated with damaging the city's physical structures and killing or wounding noncombatants and

⁷ Ralph Peters, *Fighting for the Future: Will America Triumph?* (Mechanicsburg, PA: Stackpole Books, 1999), 78.

⁸ T.R. Milton JR, "Urban Operations: Future War," *Military Review*, February 1994, 43.

⁹ *Ibid*, 43.

¹⁰ Robert F. Hahn II and Bonnie Jezior, "Urban Warfare and the Urban Warfighter of 2025," *Parameters*, Summer 1999, 85.

friendly forces. ISR capabilities provide actionable intelligence for precision destruction.

This is a measurement for minimal collateral damage and casualties. ISR systems can detect a threat sniper in a building and pass the information to a friendly sniper for action.

This situation may prevent unnecessary mass bombings on the building, ensuing high collateral damage and casualties.

CHAPTER 2

A CASE FOR ISR CAPABILITIES

MOUT requires information not available through normal sources. Existing efforts by the Defense Intelligence Agency, the National Imagery and Mapping Agency, and others must receive a higher priority, especially for funding. The Office of the Secretary of Defense should ensure adequate resources are available.

—J-8 Assessment on US Military Capabilities for Joint MOU¹¹

HISTORICAL OVERVIEW

Historically, wars started and ended with attacks or lengthy sieges against cities. Sun Tzu in 500 BC questioned if attacking a city would be advantageous or possible.¹² Cities were generally built on or near favorable terrain such as rivers, roads, and seaports to facilitate commerce and control throughout the country. Nations fortified and garrisoned cities for protection and preservation of their wealth, power, and administrative control. Cities also provided access to effect the psychological domain of national resistance.

¹¹ David P. Dilegge, "Urban Analysis—A Need at All Levels of Operation and Command and Particularly for Marine Expeditionary Forces," p. 6; available from <http://www.geocities.com/Pentagon/6453/uaca.html>; Internet; accessed 7/14/00.

¹² Samuel B. Griffith, *Sun Tzu The Art Of War* (New York, NY: Oxford University Press, 1971), 79, 113.

By the 18th century, tactics changed from seizing opposing cities to the destruction of an enemy army in order to force the opponent's army to end the war with a quick and decisive battle. Cities were still critical in warfare during this shift in tactics because oftentimes an enemy army was drawn into battle by a maneuver against his capital or economically vital city to threaten his political or economic security. The goal was, however, to fight outside the city in order to avoid the economic and social chaos normally associated with fighting in a city. Subsequently, the destruction of the opponent's army would allow access to his city.

During the Napoleonic Wars, victories of Ulm and Jena/Auerstadt enabled French forces to seize the Austrian and Prussian capitals, Vienna and Berlin, respectively. Napoleon hoped that the capture of Moscow in 1812 would force the Russians to the negotiating table and break their determined resistance. The aim of the battles of 1813 centered on cities such as Berlin, Dresden, and Leipzig in order to effect the psychological resistance and logistical importance. Finally, allied success in capturing Paris in 1814 forced Napoleons' abdication and exile to Elba.

The wars of the 19th century also involved fighting in the cities. During the American Civil War, the Union was preoccupied with seizing Richmond, the Confederate's capital. The capture of Vicksburg by Grant's forces enabled the Union naval forces control of the Mississippi River. Sherman's march to the sea in 1864 captured Atlanta and Savanna. Capturing these cities helped destroy the Confederates' will and economic resources to continue to support the war.

In the 20th century, many cities were targets of aerial bombing and ground combat to achieve strategic and political goals. Germany tried to capture Stalingrad because of its

strategic and geographic importance on the Volga by isolating the Soviet Union from its oil supplies in 1942. The British was interested in holding the Tobruk in 1941 because it would impose logistics difficulties on Rommel as well as his ability to conduct military operations into Egypt. Allied forces wanted to capture Caen during the first month of Operation OVERLORD because it would allow possession of the road network of eastern Normandy. This territory would have allowed armor forces to fight and be supported on the more open countryside east of Normandy.

Since World War II, Army doctrine prefers to avoid urban areas when possible in order to preserve manpower and material resources. Sometimes, circumstances would dictate otherwise. Post World War II conflicts and wars in urban areas such as Seoul, Hue, Saigon, Beirut, Panama City, Mogadishu, and Grozny continue to support the presumption that urban operations are unavoidable and costly in treasure and lives.

URBAN CHARACTERISTICS

An urban environment is among the most complex terrain in the world. It is multi-dimensional in nature. The complexity of a city centers on the urban triad (man-made and physical terrain, population, and infrastructure) with hostile elements to make each city a dynamic, living organism with a unique physical and cultural identity.¹³ Each city is different based on its location, type and size of the physical layout and infrastructure,

¹³ Joint Chiefs of Staff, *Draft Joint Pub 3-06 Joint Doctrine for Urban Operations* (Washington, D.C.: U.S. Government Printing Office, 2000), I-5, II-1.

natural terrain, size and culture(s) of the population, economic development, and/or climate.

There are four physical characteristics in a city, which may also serve as mobility corridors: (1) airspace—area above ground; (2) surface areas—exterior ground level or space [i.e. street, road, park, or field]; (3) supersurface areas such as the roof, upper floor of building, stadium, and tower; and (4) subsurface areas—below ground level [i.e. sewer and drainage system, subway tunnel, cellar or basement, or utility corridor].¹⁴ A city may have one or multiple industrial sections; high-rise areas; parklands or other open spaces; and residential areas within the city limit, suburbs, and shantytowns. Urban patterns may be linear, satellite (central hub with dependent, dispersed, smaller built-up areas), network (more complex and diverse than satellite), or is shaped by dominant terrain feature(s).¹⁵

Every building in an urban area can be a nest of fortified positions that would have to be taken one at a time as well as provide interconnected fighting positions. Urban areas hinder the performance of technical ISR systems. Density of manmade construction and the presence of restricted or severely restricted terrain minimize maneuver and observation space for mobile ISR operations. Shadows and other masking effects also restrict observation. Line of sight systems typically do not perform well without the wide use of repeater devices or relay platforms. Buildings and other structures create dead space as well as transmission and reception problems. Furthermore, access to subterranean and interior space is extremely difficult.

¹⁴ Ibid., I-7.

¹⁵ U.S. Department of the Army, *FM 90-10 Military Operations on Urbanized Terrain (MOUT)* (Washington, D.C.: United States Government Printing Office, 1979), 1-6 - 1-8.

Although cities are HUMINT intensive environments, it is risky to assume that the people in the operational area will support friendly operations and provide accurate and reliable information. In Somalia, there were tremendous challenges in gathering accurate HUMINT.¹⁶ Existed in Somalia was a complex clan society. Consequently, individuals who were not readily identifiable as members of the clan were give minimal access to the community. Furthermore, clan members were apprehensive and unwilling to provide information about other clan members to the United Nations forces.

The right technical ISR overmatch in an urban area can complement and augment the HUMINT efforts, especially when the urban environment poses difficult and dangerous challenges for HUMINT operations. Redundant and all-source ISR operations are essential for mission accomplishment and reduce the likelihood of being deceived or tricked by the adversaries.

CASE STUDY OF GROZNY, CHECHNYA

Chechnya is one of twenty-one Russian republics, approximately 15,000 square kilometers (about 5,800 square miles).¹⁷ It is comparable in size to the state of New Jersey. This republic is located in the Greater Caucasus range with Russia proper bordering on the north, Dagestan republic on the east and

¹⁶ National Security Program Office, *Task Force Ranger: A Case Study Examining the Application of Advanced Technologies in Modern Urban Warfare* (Oak Ridge, TN: Lockheed Martin Energy Systems, INC., 2000), 7.

¹⁷ Microsoft Encarta Encyclopedia 2000, 1999 ed., s.v. "Chechnya," by Ronald G. Suny.

southeast, Georgia on the southwest, and Ingushetia republic on the west. Figure 1 shows Grozny, Chechnya.

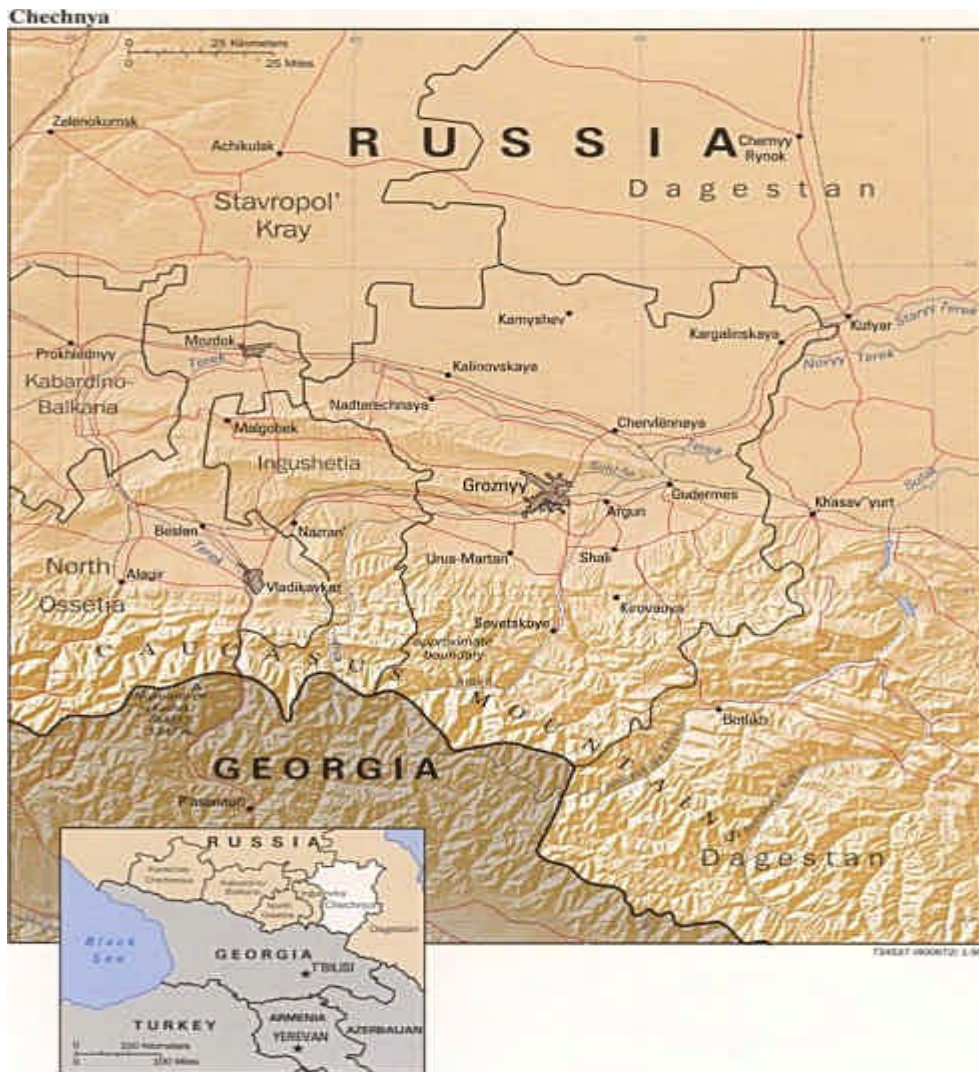


Figure 1. Chechnya

Source: Anatoliy S. Kulikov, GEN, "Trouble in the North Caucasus," p. 3; available from <http://call.army.mil/call/fms/fmsopubs/issues/trouble/trouble.htm>; Internet; accessed 9/22/00.

Chechens inhabited the region for several thousand years and have always been predominantly rural people working as farmers and herdsmen. The region assumed greater strategic and economic importance when large reserves of oil were discovered around one hundred years ago. The population is 1.3 million and consists principally of three ethnic groups: Chechen (50 percent), Russian (35 percent), and Ingush (10 percent).¹⁸ The Chechen and Ingush are both Sunnite Muslim and speak a Caucasian language. Most of the Chechens can also speak Russian. Chechens have been predominantly Muslims dating from the 17th to the 19th centuries with the influence of Sunni missionaries.¹⁹ Not only has Islam been a cornerstone of Chechen life but also as a form of passive resistance against Russian rule.

Chechens' resistance against Russia's political domination can be traced to 1732. Russia finally controlled Chechnya and forced annexation in 1859. The annexation did not dispirit the Chechens' desire for independence. During the Russian Civil War, from 1917-1920, the Chechens declared their sovereignty and were suppressed by the Red Army in 1920. During World War II, many Chechens were expelled by the Red Army for joining the Nazi's anti-Communist campaign and supporting the German's advance east. Russians retaliated against the Chechens' support of Nazism by deporting almost the entire population to Siberia and Kazakhstan. At least 30-50% of the population died within the year of forced exile. This single event is considered to be among the most devastating incidents of ethnic cleansing in the 20th century.

¹⁸ Compton's Encyclopedia 2000 Deluxe, 1999 ed., s.v. "Chechnya".

¹⁹ Suny.

In November 1991 shortly before the collapse of the Soviet Union, Chechnya under the leadership of a former Soviet Air Force General Dzhokar Dudayev declared independence from the Russian Federation. Dudayev's aggressive nationalistic and anti-Russian policies and successes in deposing Chechen opposition groups with Russian military backing led to Russian troops invading Chechnya on 11 December 1994. Russian forces' attempt to seize the capital city of Grozny in December 1994 was a catastrophe—heavy collateral damage and civilian and military casualties. Russian forces miscalculated the Chechens determined resistance and capabilities and therefore, did not manage to take Grozny until late January 1995. The Chechens retook the city in August 1996.

Russian troops eventually withdrew from Chechnya in 1997 following a peace treaty. On 27 May 1996, Yeltsin and Yanderbiyev signed an agreement to end the war in the separatist republic. The treaty resolved none of the issues that started the conflict, including independence for the region. The agreement called simply for an end to hostilities on May 31, a release of all hostages, and further negotiations to resolve other issues. The terms of the peace treaty were indecisive since both sides decided to postpone a decision on the formal status of Chechnya until 2001.

Russian combat actions were renewed again in Chechnya in October 1999. Russian authorities labeled these actions as “operations to suppress terrorism” while journalists called it the “second Chechen War.”²⁰ Russia invaded Chechnya in response to a detachment of 2,000 Chechen fighters trying to take Dagestan and after a series of

²⁰ Emil Pain, “The Second Chechen War: The Information Component,” *Military Review*, (July-August 2000): 59.

explosions at apartment complexes in Moscow and other Russian cities assessed to be conducted by Chechen terrorists.

The first Chechen War, from 1994-1996, resulted in the deaths of at least 30,000 Chechen civilians, 3,500 Chechen fighters, and 4,500 Russians.²¹ This war caused an estimated 5.5 billion in economic damage, which was largely due to Russia's national economic crisis in 1998.²² Information about combat losses in the second Chechen War is unreliable and inconclusive. The special services has lowered the number of civilian losses, inflated the losses on the Chechen side, and have not published the number of civilian casualties.²³ In both wars, Russia appears not to be overly concerned with either civilian casualties or collateral damage, and is comfortable leveling Grozny to rubble. Russia currently has an aggressive information operations campaign to portray its army as being better prepared, taking fewer losses, and has greater hopes for victory.

Russia's interests in Chechnya are in the areas of vital interests, national security, territorial integrity, social stability, and peace. Chechnya's secession may interrupt access to the Caspian Sea oil, promote terrorism and lawlessness, lessen Russia's international influence, and encourage other Russian republics to challenge Russia's authority. Uninterrupted access to the Caspian Sea is a major concern for Russia based on a myriad of interests that must be protected. The following are the most important interests:²⁴

²¹ Ibid, 67.

²² Ibid, 59.

²³ Ibid, 65.

²⁴ Timothy L. Thomas, "Russian National Interests and the Caspian Sea," *Perceptions*, December 1999 – February 2000, 75-76.

1. Geo-strategic interests: Russia wants to remain strong in the region.
Expansion of Chechen's authority in the area threatens Russia's influence and authority over the Commonwealth of Independent States (CIS).
2. Geo-political interests: The future of Russian statehood may be defined by how well it retains influence over space of the former Soviet Union.
3. Economic interests: Russia wants to ensure that Western cash flows will not be directed out of Russia from the Central Asian and Siberian oil fields and into the Caspian region. Another economic concern is for Russia to maintain investor confidence and this will be contingent on how it handles the Chechen crisis.
4. Ecological interests: Ensuring safe ecological norms for the exploitation of hydrocarbons and fishing resources are paramount concerns. Caspian sturgeon stock produces 80-90% of the world's caviar.

Russia was unprepared for the first Chechnya War. Russian forces went to war without being properly organized, trained, and equipped, especially within the timeframe that their leaders predicted. Russian defense minister, General Pavel Grachev boasted that he could seize Grozny in two hours with one parachute regiment.²⁵ Russia invaded Chechnya violating Sun Tzu's famous dictum: "know the enemy and know yourself; in a hundred battles you will never be in peril."²⁶

The Russians did a poor job in husbanding its ISR resources to support the tactical commanders. Pre-invasion intelligence assessments of Chechen military capabilities

²⁵ Lester W. Grau, "Russian Urban Tactics: Lessons from the Battle for Grozny," p. 2; available from <http://www.ndu.edu/inss/strforum/forum38.html>; Internet; accessed 9/22/00.

²⁶ Sun Tzu, 84.

were inaccurate. Consequently, commanders at all levels were shocked by the effectiveness of Chechen resistance in Grozny. Intelligence estimates assessed the Chechens to be armed bandits rather than forces that were well organized, trained, equipped, and determined to fight against the Russians.

A major contributing factor to the inaccurate intelligence estimates was the lack of a robust ISR plan. Imagery products from aerial and overhead assets were unavailable during the planning phase. Satellites were turned off to save money. Few aerial photography and reconnaissance missions were conducted because of poor weather conditions, smoke and haze from burning oil refineries, and the threat of being shot down by Chechen small arms. It was not until late in the operation that Russian commanders decided that the value of situation understanding outweighed the risks of losing ISR assets. Russian commanders decided by 5 January to increase Air Force reconnaissance capabilities and unfortunately this decision resulted in only “several planes and helicopters.”²⁷

Inadequate aerial and overhead imagery support coupled with the unavailability of maps in 1:25,000 or larger scale, which are deemed essential for urban missions, adversely affected detailed knowledge of the physical layout of Grozny. Consequently, this led to poor coordination measures on the battleground for fires, maneuver, locations, and objectives. One observer noted that “tactical maps were often made from plain blank paper by hand, with Russian soldiers filling in the sheet with the city vistas (streets,

²⁷ INTERFAX, “Task Force to Reinforce Federal Troops in Chechnya,” FBIS-SOV-95-003, 5 January 1995, 12.

buildings, etc.) in front of them.”²⁸ Lower-level troop commanders never received vital aerial photographs or large-scale maps.²⁹ In contrast, Chechens were more knowledgeable of the urban terrain and effectively demonstrated their advantages of being native defenders. Chechens knew the locations and effects of urban terrain on combat operations. They intimately knew the city’s sewer, metro, tram systems, back alleys, buildings, and streets to establish favorable ambush sites and firing positions as well as take advantage of Russians when they got lost.

Ground reconnaissance elements did not appear to be aggressive. The price of their unassertiveness was not providing accurate information to the assault teams prior to their operations. Rather than dismounting to search for the threat, scouts “did not dare step outside the protection of their armoured vehicle(s) for snipers lurked everywhere, but they saw at every turn of the street what would happen to me if caught by the Chechens.”³⁰ The special purpose Spetsnaz units were underutilized by conventional commanders. These units are ideal for reconnaissance and surveillance missions. Russian journalist Vladimir Kartashkov assessed after an interview with senior Defense Ministry officials about the need for special troops in Grozny: “there is no need whatsoever to carry out reconnaissance during combat operations against an irregular army.”³¹ Overall, the reconnaissance effort was passive observation. Authors Stasys

²⁸ Thomas, “The Battle for Grozny: Deadly Classroom for Urban Combat,” *Parameters*, Summer 1999, 91.

²⁹ Grau, p. 2.

³⁰ Carlotta Gall and Thomas de Wall, *Chechnya: Calamity in the Caucasus* (New York, New York: University Press, 1998), 210.

³¹ Vladimir Kartashkov, “There Are No Special Troops in Russia to Assault Grozny,” FBIS-SOV-95-003, 5 January 1995, 22.

Knezys and Romanas Sedlickas concluded in their book *The War in Chechnya*, “Reconnaissance was done only according to the rule ‘What I see, I report,’ through the purpose of intelligence is to gather and report sufficient information to ensure that the opponent’s actions will not come as a surprise.”³²

There were an insufficient number of human intelligence sources to support the Chechen invasion. The Russian Counterintelligence Service (FCS) sent a general officer with twenty counter-terrorist soldiers to Grozny for at least six weeks to collect against the Chechen capabilities and intentions. FCS director, Sergei Stepashin admitted, “understandably, 20 people were unable to do anything serious.”³³ Electronic warfare resources were not maximized to cut off critical communications, especially Chechen President Dudayev’s communications.

Lack of ISR capabilities for the battles of Grozny contributed to the Russians not even having situation awareness of the Chechen capabilities and intentions, including Chechens’ will for determined resistance. The roadblocks and civil disturbances in Grozny surprised Russian column enroute to Grozny.

Once in Grozny, Russians were unaware of the Chechens’ three ring concentric defense and defenseless defense tactics.³⁴ The first unit to penetrate Grozny was the 1st

³² Stasys Knezys and Romanas Sedlickas, *The War in Chechnya* (College Station: Texas A&M University Press, 1999), 80.

³³ Vladimir Georgiyev, “The Chechen People Are for a Peaceful Life,” FBIS-SOV-95-015, 24 January 1995, 23.

³⁴ Three ring concentric defense involved each ring having a series of strongpoints to astride along key or favorable areas. Outer ring was located 5 kilometers from the city and it focused on key approaches, especially on the southern and eastern sides. Middle ring consisted of defensive positions near highway entrances, residential areas, bridges, oil fields, and a chemical plant. Inner ring circled the presidential palace from 1 to 1.5 kilometers away. Defenseless defense was the employment of mobile hit and run forces to conduct ambushes against foes.

Battalion of the 131st “Maikop” Brigade. By 3 January 1995, the brigade lost nearly 800 of 1,000 men; 20 of 26 tanks; and 102 of 120 armored vehicles.³⁵ Russians were initially caught off guard by snipers located in trenches, basements, under concrete slabs that covered basements, upper floors of multi-storied buildings, and on rooftops. Russians discovered on the ground that Chechens mined and booby-trapped approaches into buildings and the sewer network. There were also reports that the Chechen forces rigged building complexes with explosives.

Chechen forces adhered to Sun Tzu’s famous maxim of knowing yourself and the enemy better than the Russians did. The Chechen armed force had served in the Russian armed forces, had Russian uniforms, and spoke Russian. They were very knowledgeable of Russian tactics and plans in which enabled them to successfully use deception techniques and exploit vulnerabilities against the Russians. Much of Chechen equipment was left by the Russian armed forces when they departed Chechnya in 1993. The Chechens were fighting on their homeland; therefore, knew the layout of the city better than the Russians. Chechens used a multitude of information-technology devices to enhance their C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance) capabilities.

Devices such as cellular phones, satellite frequencies, and commercial scanner systems helped the Chechens communicate and coordinate combat operations. Additionally, Chechens listened to Russian conversations and there were occasions where they spoke in Russian to deceive the Russian forces in order to bring them to harm’s way. Mobile television stations were also used by the Chechens to override Russian television transmissions and deliver messages from President Dudayev directly to the people.

³⁵ Thomas, “The Battle of Grozny: Deadly Classroom for Urban Combat,” 88.

Finally, Chechens relied on the Internet to promote their cause and raise funds and assistance abroad.

There were ISR lessons learned that the Russians applied to later in the operation of the first Chechen War and in the second Chechen War. The death of Chechen leader Dzhokhar Dudayev on 21 April 1996 was an intelligence success. Reportedly, Dudayev was killed by a Russian Army rocket that was made possible when Russian forces intercepted his satellite telephone conversation in an open field near the village of Gekhi-Chu and dispatched a warplane to bomb him.³⁶ Zelinkahn Yandarbiyev, vice-president in the rebel government, succeeded Dudayev as commander of the rebel forces.

During the second Chechen War, the Russian Command ensured that the Russian forces would not be surprised again by initiating aggressive ISR techniques. Advancing reconnaissance units before an assault operation for accurate information became the standard operating procedure rather than the exception. Special small units were also deployed for urban reconnaissance. Sniper teams positioned themselves in the city to provide intelligence on disposition of the Chechen forces in the city. These snipers also served as spotters for artillery fires. The government and military controlled access to combatants and censored reporting that could undermine support for the war. Russians were also more aggressive in gathering intelligence on the rebels and their positions from Chechen combatants and noncombatants friendly to the federal cause who were led by Bislan Gantamirov, a former Grozny Mayor. Chechen human intelligence often proved to be more valuable than Russian signal intelligence.³⁷

³⁶ Compton's Encyclopedia 2000 Deluxe.

³⁷ Thomas, "Grozny 2000: Urban Combat Lessons Learned," *Military Review*, July-August 2000, 7.

In sum, Russian forces were better prepared for the Chechen threat during the second Chechen War. A major reason for being more knowledgeable of the Chechen capabilities and intentions can be attributed to having an aggressive ISR plan to obtain situation understanding of the battlespace before combat operations.

CASE STUDY OF THE BATTLE OF HUE

On 31 January 1968, the North Vietnamese Army (NVA) and the Viet Cong (VC) attacked Hue, Vietnam as part of the Lunar New Year, or Tet, offensive. Figure 2 shows Vietnam.



Figure 2. Vietnam
Source: "Vietnam," p. 1; available from http://www.lonelyplanet.com/south_east_asia/vietnam/map.html; Internet; accessed 11/02/00.

Tet is the principal Vietnamese holiday. This holiday period is like the combination of all of the West's key holidays—Thanksgiving, Christmas, New Year's Eve, and birthday. During the Tet offensive, over one hundred cities, towns, villages, hamlets, and United States bases throughout South Vietnam were attacked. North Vietnam's aim was to achieve a popular uprising against the government of Vietnam (GVN), undermine U.S. and South Vietnam relations, and demonstrate how the security of South Vietnam was a futile mission.

The general order to the Communist forces for the Tet offensive was to “Move Forward to Achieve Final Victory...the greatest battle ever fought throughout the history of our country.”³⁸ Assaulters were directed to do everything possible in order to completely liberate the people of South Vietnam. At the end of Tet in March 1968, the U.S. and South Vietnam achieved tactical success while North Vietnam achieved strategic success. American and South Vietnamese forces suffered over 4,300 killed in action, some 16,000 wounded, and over 1,000 missing in action.³⁹ North Vietnam incurred much greater casualties compared to the American and ARVN forces. Over 80,000 NVA/VC troops, virtually the entire VC and the main combat divisions of the NVA, were involved in the attacks against the population centers.⁴⁰ Military assessments indicated that over half of the North Vietnamese committed force were thought to be lost and possibly a quarter of their whole regular force.⁴¹

³⁸ Marc Jason Gilbert and William Head, *The Tet Offensive* (Westport, CT: Praeger Publishers, 1996), 21.

³⁹ “The Tet Offensive,” p. 7; available from <http://www.vvam.com/vets/tet/tet.html>; Internet; accessed 10/6/00.

⁴⁰ *Ibid*, 46.

⁴¹ *Ibid*, 23.

The Tet offensive was a catastrophic and an awakening period for America. Battles during the Tet offensive were imported daily into America's living room. Scenes of fierce fighting to retake Hue and the U.S. embassy compound in Saigon from the Communists had adverse psychological and demoralizing effects on the American public. Communist forces were now seen as formidable foes in an endless war. Furthermore, American and South Vietnamese forces were perceived incapable of providing security for South Vietnam. The outcome of Tet caused President Johnson to announce that he would not run for re-election in 1968. President Johnson also indicated that he would negotiate with the Communists to end the war.

Capture of Hue, Vietnam by the NVA/VC units during the Tet offensive surprised many people. Not only had Hue been treated almost as an "open" city by North Vietnam, but there was currently a truce between North and South Vietnam, like previous years to celebrate the Tet holiday. Prior to Tet, North Vietnam's aggression toward Hue was limited to intermittent mortar and rocket attacks against the Military Assistance Command, Vietnam (MACV) compound. For the most part, Hue had appeared to be a peaceful and secure city. Even the *Washington Post* war correspondent Don Oberdorfer had reported that South Vietnamese army officers "paid large bribes to be assigned to duty there."⁴²

Hue is an ancient imperial capital city, located ten kilometers west from the coast of the South China Sea and one hundred kilometers from the seventeen parallel demilitarized zone (DMZ). At the time of the Battle of Hue, the city had a population of 140,000 and was part of the Thua Thien Province. Hue consisted of two parts that were

⁴² James M. Mueller, "Tet in Hue," p. 1; available from http://www.thehistorynet.com/Vietnam/articles/1997/0297_text.htm; Internet; accessed 10/6/00.

separated by the Huong Giang River, also known as the Perfume River. The first part of Hue was the interior known as the Citadel, modeled after Peking's Forbidden City. It was a walled fortress of the ancient empire, surrounded by a moat. The wall was sixteen feet high and varied in thickness from sixty to over two hundred feet. It covered roughly three miles, containing the former imperial palace from the early 19th century; towers; gardens; houses; markets; and pagodas. The second part of the city was modern as well as the outer part of Hue. Within this area was the university, stadium, hospital, prison, and government buildings.

Hue was not a military center, but rather a cultural center of Vietnam for learning and remembrance of the traditions and values of the past. Nonetheless, Hue had significant military and political implications. The city was a critical distribution point for Allied resupply efforts.⁴³ A railroad and a major highway passed through Hue and continued north to the DMZ. These lines of communications served as the main land supply routes for the Allied forces along the DMZ. Hue also served as a major unloading port for supplies arriving from Da Nang on the coast. According to an American diplomatic, J.R. Bullington, who was trapped in Hue disguised as a French priest under the NVA/VC occupation for more than a week, "Hue embodied the Vietnamese culture, history, traditions and sense of national identity. Its loss would signal the loss of the war."⁴⁴ There were no combat units stationed at Hue, only staff and garrison troops. 1st Infantry Division (ARVN) and the MACV had command posts within Hue.

⁴³ Andrew J. Lawler, 2LT, USMCR, "The Battle for Hue City," p. 1; available from <http://www.geocities.com/Pentagon/6453/hue3.html>; Internet; accessed 10/6/00.

⁴⁴ J.R. Bullington, "Trapped Behind Enemy Lines," p. 4; available from http://www.historynet.com/Vietnam/articles/1999/0299_text.htm. Internet; accessed 10/6/00.

Five months before the NVA/VC troops assaulted Hue, Communist planners and their intelligence agents inside the city prepared two lists of targets.⁴⁵ The first list detailed nearly two hundred targets, ranging from installations such as government bureaus and police posts to the home of the district chief's concubine.⁴⁶ A second list contained the names of individuals labeled as "Cruel tyrants and reactionary elements" that were to be separated, taken outside the city, and killed.⁴⁷ The categories of these individuals were mostly South Vietnamese officials, military officers, politicians, intellectuals, educators, business people, religious leaders, Americans, and foreigners except the French. The French nationals were supposed to be spared under the presumption that President de Gaulle had publicly criticized U.S. policy in Vietnam.⁴⁸ Unfortunately, not all NVA/VC forces spared French citizens.

The initial criteria for individuals on the second list was for anyone who could threaten the Communist cause when it appeared that North Vietnam could retain Hue. Criteria on this list evolved to anyone who could identify the local Communist infrastructure when North Vietnam realized that she could no longer retain Hue. NVA/VC forces infiltrated and seized Hue with superb speed and stealth and had the capability to support themselves within the city. Most of the 150 local Communist

⁴⁵ Stanley Karnow, *Vietnam: A History* (New York, NY: The Viking Press), 530.

⁴⁶ *Ibid*, 530.

⁴⁷ James R. Arnold, *Tet Offensive 1968* (London, England: Osprey), 68.

⁴⁸ Karnow, 530.

civilian cadres operating within the city were the ones who issued the death orders.⁴⁹

Communists also infiltrated the Tet traffic into Hue.

Once inside Hue, they became soldiers by changing their clothes and breaking out the stockpiles of weapons and supplies that had been smuggled into the city or stored by the local Communists. Some of the infiltrators waited in Hue's tea rooms and bars until midnight to change from their civilian clothes into uniforms.⁵⁰ The magnitude of successful Communist infiltration within Hue can be summed up by a Hue resident, who expressed how surprised he was when he had learned that his next door neighbor was the leader of a *phuong* (10th to 15th ranking Communist civilian in the city): "I'd known him for 18 years and never thought he was the least interested in politics."⁵¹

The battle of Hue lasted for 26 days, from 31 January to 2 March 1968. It was the longest sustained infantry combat as well as the fiercest battle on an urban landscape that the war had experienced. In fact, NVA/VC attack on Hue and other cities was a change in the Communist strategy and tactics. For the first time, North Vietnam took the war from the jungles and open rice paddies to urban centers. Allied forces had to figure out quickly how to fight in a city and win. Fighting forces in Hue eventually totaled to two NVA regiments backed by two VC sapper battalions against eight U.S. and thirteen ARVN infantry battalions.⁵²

⁴⁹ Douglas Pike, "Massacre at Hue," p. 1; available from http://www.nufronliv.org/english/document/1968_hue/hue4.htm; Internet; accessed 10/6/00.

⁵⁰ History and Museums Division, *The Marines in Vietnam 1954-1973* (Washington, D.C.: U.S. Government Printing Office, 1985), 108-109.

⁵¹ *Ibid.*, 7.

⁵² Arnold, 78.

By Vietnamese standards, the losses in Hue were extremely high. ARVN units lost 384 killed and more than 1,800 wounded, U.S. Army casualties were 74 dead and 507 wounded, and the casualties of three Marine battalions were 142 dead and 857 wounded.⁵³ Close to half of the Marine infantrymen committed to the battle were either killed or wounded. The Allies claimed to have killed 5,113 and captured 89 NVA/VC with no account of wounded or those who died of injuries.⁵⁴ Civilian losses to victims of Communist atrocity and as innocent bystanders totaled to 5,000 killed.⁵⁵ Almost every family in Hue had at least one relative killed or missing.⁵⁶ Ten thousand houses were either totally destroyed or damaged, accounting for 40% of the city.⁵⁷ There were at least 116,000 refugees out of a population of 140,000.⁵⁸

The Battle of Hue was known as a tough street-to-street- fight against a determined foe. The city had to be taken street by street, block by block, and brick by brick.⁵⁹ NVA/VC forces turned each block into a fortress. They set up machine guns and mortars in people's homes. Crew-served weapons were positioned at doorways and windows for desired effects on the streets. Back alleys and lanes were used for quick reinforcements in order to threaten sectors and launch counterattacks. Every street, single alley, street corner, window, garden wall, and intersection in Hue was a potential death trap for Allied

⁵³ Ibid, 84.

⁵⁴ Keith Nolan, *Battle For Hue* (Novato, CA: Presidio Press, 1983), 184.

⁵⁵ Arnold, 84.

⁵⁶ "The Silent Tears in Hue City," p. 1; available from <http://www.vietquoc.com/0002vq.htm>; Internet; accessed 10/6/00.

⁵⁷ Ibid, 183.

⁵⁸ Ibid, 183.

⁵⁹ Nolan, 43.

forces. Both sides also used CS tear rounds. This battle was one of the few in the war that forced the combatants to fight wearing gas masks. The Battle of Hue was close combat business under other than ideal conditions.

U.S./ARVN forces advanced to recapture Hue primarily by using fire team rushes. Advances were possible by blasting an entrance with bazooka or recoilless rifle fire. Fireteams and squads were then sent into the breach. The following was a typical combat scene: (1) tank/infantry teams operated in the main street in which were ideal targets for NVA machine-guns and RPGs (tanks were holed repeatedly and often required several replacement crews a day); (2) Marine scout-sniper teams in adjacent buildings tried to eliminate Communist snipers and simultaneously provided covering fire for tank/infantry teams in the streets; (3) Jeep-mounted recoilless rifles and Ontos anti-tank vehicles provided direct fire support with hit-and-run tactics by appearing suddenly to fire and then disappearing just as quickly for cover; and (4) Marine fireteams would maneuver through the back alleys to attack from the rear when their assault up the main street was an impossible task.⁶⁰ NVA/VC units were defensive during the day and offensive at night. It was not uncommon for the Communists to retake real estate at night from the Marines, who had won it during the previous day because there were not enough Marines to occupy all the ground.⁶¹

Allied forces were ill prepared for the Battle of Hue. A primary reason for this unpreparedness was the lack of ISR capabilities focused on the North Vietnamese threat at Hue. An inadequate ISR plan resulted in Marines not being knowledgeable of the fact

⁶⁰ Arnold, 78-79.

⁶¹ Nolan, 57.

that the next likely fight would be on an urban landscape with different enemy intentions. COL Hughes', 1st Marine Regiment Commander, conclusion of the Battle of Hue was that "the nature of the terrain and the stubborn 'hold at all cost' tactics of the enemy forces introduced a new concept of warfare to the Marines in Vietnam."⁶² Prior to NVA/VC seizure of Hue, it did not appear that many senior Allied officials had compelling reasons to envision the potential scope and magnitude of death and destruction that awaited Hue. Because of this assessment, Hue did not receive the ISR priority that was required to forewarn the sequential impending and devastating events.

Even after BG Ngo Quang Truong, commander of the 1st ARVN Division, received GEN Westmoreland's alert calling for cancellation of the cease-fire, he positioned his battalions to defend outside the city as opposed to inside the city. Additionally, half of the division's manpower was on leave for the Tet holiday. BG Truong did not think that the Communists would attack Hue since it had been a traditional "open" city.⁶³ Communist agents had successfully infiltrated Hue six months before the battle to allot them the time to organize political cells and draw maps of Allied defenses.⁶⁴

When American diplomat J.R. Bullington visited Hue on 30 January 1968, he was knowledgeable of intelligence reports warning of a large-scale attack around Tet. Mr. Bullington, along with many people did not take these reports seriously because intelligence of impending attacks was common. Additionally, it was not believed that such attacks would occur during the declared truce period of Tet, but rather before or

⁶² Commander 1st Marine Regiment, subject: Combat Operations After Action Report (Operation Hue City), 20 March 1968.

⁶³ Arnold, 68.

⁶⁴ George Smith, *The Siege at Hue* (Boulder, CO: Lynne Rienner Publishers, Inc.), 83.

after Tet. The attitude of disbelief of an impending attack against Hue leads to the conclusion that there were inadequate ISR assets focused to collect specific information on enemy capabilities and intentions.

ISR support to Hue may have also been non-existent due to the competing ISR support at Khe Sahn. This firebase, located along the northwestern border of the country, was believed to be North Vietnam's decisive effort in which turned out to be a shaping effort during the Tet offensive. Khe Sahn was assessed as a logical target for a major attack based on the criteria that it was currently part of an Allied plan to cut the Ho Chi Minh trail, U.S. forces posed the greatest threat to the Communists, and the Communists were looking for a Dien Bien Phu analogy (win-the-war offensive).⁶⁵

The effect of SIGINT capabilities within the ISR framework discounted the contribution of the other single sources of intelligence. There was an over reliance of SIGINT because it had a reputation for providing accurate and timely information. SIGINT revealed the massing of NVA units along the DMZ and near Khe Sahn. In contrast, there was a lack of SIGINT evidence from VC units surrounding and infiltrating cities such as Hue because they did not generate heavy radio traffic. This resulted in dismissing other available information such as captured documents and prisoner interrogation reports that provided indications of impending attacks against cities during the Tet holiday.⁶⁶

The action that would have served U.S. and South Vietnamese forces better would have been to equally weigh SIGINT and human collection assets to obtain the best

⁶⁵ James J. Wirtz, *The Tet Offensive: Intelligence Failure in War* (Ithaca, NY: Cornell University Press, 1991), 267.

⁶⁶ Wirtz, 274.

analysis on predictive intelligence of enemy courses of action and objectives. In retrospect, it would have also been helpful to increase human and aerial assets against Hue based on existing HUMINT and lack of SIGINT. Basically, the lack of one particular single source of intelligence does not mean that there are no indicators of threat activities.

Availability of maps of Hue was substandard for the combatants. One of the fighting Marine battalions retrieved three detailed maps of Hue from the Shell station, police headquarters, and the Army people at MACV.⁶⁷ To supplement the inadequate number of maps, areas of concern probably had to be drawn as units advanced unless there was someone on the battlefield who was familiar with the layout of the ground to draw the maps. The inavailability of maps for the combatants may have also been an ISR issue if no assets were tasked to collect the information required to produce the maps or obtain existing maps for distribution.

Inadequate focus of ISR support to Hue may have also stemmed from an inherent failure to predict Communist behavior and initiatives and where the next likely attack would occur. There was a tendency among Allied forces to rely heavily on current intelligence estimates (battlefield developments) for Communist intentions and capabilities rather than indications of potential activity for predictive intelligence.⁶⁸

During the Battle of Hue, there were competing demands throughout South Vietnam for resources due to the widespread effects of the Tet offensive. Consequently, reinforcements took longer than usual. Lack of ISR support at Hue attributed to high

⁶⁷ Nolan, 43.

⁶⁸ Wirtz, 272.

collateral damage and Allied casualties. It appeared that ISR support to the Battle of Hue was primarily by the ground units as they advanced to recapture Hue and by limited aerial observation missions. There was poor weather during the battle. This greatly hampered Allied reconnaissance and surveillance missions.

COL Hughes mentioned in his after action report that the refugees had little or no effect on the development of the tactical situation during the operation; however, the civilians were instrumental in providing information to the Government of Vietnam.⁶⁹ Ignoring refugees as viable sources of information leads to the conclusion that proper measures were not adopted to obtain information from them on NVA/VC forces operating within Hue. Shortage of intelligence gathered by the Marines in Hue did not allow COL Hughes to provide a detailed order to LTC Cheatham to clear the south side. He told LTC Cheatham “You do it any way you want.”⁷⁰ A marine private said to a couple of interested correspondents, “...But mostly we just shoot at buildings or windows. We never know if we get any kills...”⁷¹

In sum, Allied forces were unprepared for the Battle of Hue in which evolved from a contact made by a reaction company upon entering Hue on 31 January 1968. A robust ISR plan before and during the battle was non-existent. Not having situation understanding of NVA/VC intentions and capabilities attributed to a protracted battle that lasted for twenty-six days with exceedingly high casualties.

⁶⁹ Commander 1st Marine Regiment.

⁷⁰ Lawler, 2.

⁷¹ George, 157-158.

CHAPTER 3

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Janus, the ancient Roman god of doorways has two faces—one looking back and one looking forward. The paradox—human beings become so mesmerized with thinking about the past—what was—that when they think about the future—what could be—it is the past experience they consider, not the possibilities.

—Brigadier General (Ret) Wayne M. Hall⁷²

There have and will always be military operations on an urban landscape. Cities often represent the wealth, power, and administrative control of a country that are strategically located near major lines of communications and provide access to effect the psychological realm of national resistance. With the demographic and economic shifts to urban areas into 2030, there continues to be a high potential for strife between or within ethnic groups. Consequently, the likelihood is high for U.S. military involvement, operating within a coalition or allied framework to quell the internal unrest of a nation. Since the 1990s, there has been an increase in U.S. military operations in or near urban areas, ranging from open combat, to humanitarian, and to peacekeeping activities. This trend is expected to continue and vary in the degree of intensity and commitment.

⁷² Wayne M. Hall, BG (Ret), “The Janus Paradox: The Army’s Preparation for Conflicts of the 21st Century,” Paper for the Interim Brigade Combat Team (IBCT) O&O Concept. 14 August 2000, Photocopy, 1.

Determined foes of the U.S. will seek to fight Americans on an urban terrain as an asymmetrical approach to diminish the technological superiority that the U.S. successfully demonstrated during the Persian Gulf War. The multi-dimensional effects of the urban terrain, regardless of its size and shape, do provide asymmetrical advantages to adversaries and simultaneously negates the conventional, technological advantage of the U.S. Understanding the challenges that the urban landscape poses on the process of the collection business is critical to the intelligence cycle in which ultimately supports the warfighters.

Grozny, Chechnya and Hue, Vietnam are sufficient case studies for generalizations about the ISR capabilities required across the spectrum of urban military operations. The multi-dimensional characteristics of an urban battlefield pose the same challenges to all urban operations. In fact, there are unique sensor requirements to support military operations in an urban environment. Logical considerations of the effects on ISR systems include the density of physical structures and population as well as the multiple passageways and hideaways for the threat forces to build fortresses and create death traps for friendly forces and innocent civilians. The battles in Grozny are of particular interest because of their recency, length of mission, a battlefield for high and low technical ISR capabilities, and availability of lessons learned from the lack of a robust ISR plan. The Battle of Hue reveals how the lack of an ISR plan aided in the unpreparedness of allied forces, environment was primarily conducive for human collection assets, and the task of locating and tracking the enemy on an urban battlefield were difficult.

How can ISR capabilities mitigate threat asymmetrical advantages in an urban setting while simultaneously are a force multiplier for friendly operations? Certain considerations must be satisfied in order to have the appropriate ISR capabilities. Current ISR systems were designed to collect against targets operating on open conventional terrain. Here, mobility and observation areas for ISR operations were often unrestricted. Avenues of approach were the air and ground dimensions. There was heavy communications traffic generated by tactical military communications. More emphasis was placed on technical rather than human assets because they appeared to be more timely and responsive to the conditions of a kinetic battlefield. Finally, many battles were expected to be fought in less populated areas, away from the cities, to avoid the economic and social chaos; freedom of movement and firepower restrictions; high consumption rate of resources; and excessive collateral damage and casualties.

In cities, the battlespace is multi-dimensional. Avenues of approach include the levels of air, building, street, and subterranean. Building density, subterranean passageways, and obstacles on the streets restricts mobility and observation. Every building, street, and subterranean area is a potential death trap with fortresses, interlocking fighting positions, and booby traps that must be cleared one at a time. Line of sight for communications and observation will be impacted by structural density, height of buildings, electrical and trolley lines, and terrain features. Population density may also restrict freedom of movement, consume military resources for protection and fulfill basic needs, and make it harder for friendly forces to distinguish between combatants and noncombatants.

Document analysis of available literature, including the case studies revealed that both human and technical ISR assets are critical in obtaining information on the urban battlefield. The ISR architecture should also represent all of the intelligence disciplines. This intelligence design ensures that the systems complement and supplement each other and support the all-source intelligence efforts. An all-source ISR architecture allows the capability to monitor as much as possible the indicators of threat capabilities and intent, regardless of the medium he is emanating from, and to prevent being deceived.

Human assets such as reconnaissance, sniper, and CI/HUMINT teams are required because the urban landscape is naturally a human intensive environment. As units advance through a city, reconnaissance and sniper teams will be essential in obtaining information such as enemy strong points, defensive positions, snipers, avenues of approach, and potential death traps. CI/HUMINT teams will focus on satisfying the commander's force protection intelligence requirements primarily by liaisoning with the local officials and establishing source networks. Technical assets are critical to the urban ISR architecture because they augment and extend the capabilities of human assets in an operational area. There are just not enough of human assets to cover all the essential areas of the battlefield continuously for 24 hours, 7 days a week. Technical assets can also protect and minimize risk to human assets by substituting for them in dangerous areas.

The following ISR capabilities are offered for consideration and are assessed to be essential to successfully support military operations on an urban landscape, especially when there is little maneuver and observation space as well as limited line of sight connectivity:

- ♦ Adequate human and technical assets for all-source intelligence
- ♦ Miniature unmanned aerial vehicles that are fast, have a long loitering time, and provide near real imagery, location, and/or data
- ♦ Unmanned micro and macro ground vehicles that can maneuver throughout the urban landscape and can provide near real time imagery, location, and/or data
- ♦ Mini robots that can maneuver through subterranean areas as well as a furnished building with stairs and can provide near real time imagery, location, and/or data
- ♦ Video surveillance cameras that are hard to detect
- ♦ Listening and recording (bugging) devices that can easily be concealed
- ♦ Device to intercept and locate commercial communications, including wireless communications
- ♦ Device to intercept and locate computer communications
- ♦ Micro sensors that have built-in technical profiles to detect potential combatants by heat emission of weapon carrying and odor or other bodily emissions
- ♦ Hand-held devices that can communicate and see through walls and windows
- ♦ Hand-held devices that can see through clothing to detect everything an individual is carrying
- ♦ Device to determine the number of heartbeats in an area, regardless of whether it is in a building, basement, sewer, and cellar
- ♦ Holographic projections for deception purposes (confuse/disorient a target)
- ♦ All-Source Control Element (ACE) has reach back capability to intelligence databases of at theater and national levels

As ISR systems are designed, there should be emphasis on as many collectors as possible to be unmanned; miniature, unobservable (stealthy); capable of transmitting what they see, hear, smell and/or sense through walls, windows, tunnels, and electrical conduits; and are part of a network centric architecture. A network centric architecture links sensors, decision-makers, and shooters to obtain information superiority in which translates to generation of combat power. If friendly forces operate in urban areas similar to the conditions of Grozny and Hue with the capabilities mentioned above, there is no doubt that situation understanding will be in favor of friendly forces. At the tactical level, there are currently a limited number of human ISR assets organic to the units with no sophisticated technical assets as prescribed above. The ongoing Army initiative to transform from a legacy force into an objective force offers an ideal window of opportunity to design and procure the ISR capabilities essential to support urban military.

The implication of not investing in ISR capabilities to support military operations on the urban battlefield is inferior situation awareness and ultimately inferior situation understanding compared to that of the adversary. Consequently, the price will be in America's treasure and lives. Lack of situation understanding on the battlefield violates Joint and Army doctrine of obtaining information superiority. ISR systems contribute greatly to the process of obtaining information superiority because it is an enabler for commanders to win decisively. Another implication is that the basis of quality analytical efforts for current and predictive intelligence estimates stems from the availability of ISR systems. ISR assets are interdependently linked with the other functions of the intelligence cycle such as the analysis process.

Recommendation for follow-on research to build on this study is to address whether the interim brigade and the objective force as part of the Army transformation process have ISR capabilities to support urban military operations.

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