

2018

## Operational Challenges in Ground Operations in Urban Areas: An IDF Perspective

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### Recommended Citation

Nitsan Alon, Major General, Operational Challenges in Ground Operations in Urban Areas: An IDF Perspective, 51 *Vanderbilt Law Review* 737 (2021)

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# Operational Challenges in Ground Operations in Urban Areas: An IDF Perspective

Major General Nitsan Alon\*

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## I. INTRODUCTION

The Israel Defense Forces (the IDF) is well versed in conducting ground operations. Since its inception along with the establishment of the State of Israel in 1948, the IDF has conducted a number of ground operations, as part of conflicts both long and short, against various actors, and in different circumstances. The Independence War of 1948, the Six Day War of 1967, and the Yom Kippur War of 1973 provided experience with ground operations against organized

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state militaries. The large-scale maneuver in the First Lebanon War of 1982 and the more limited maneuver in the Second Lebanon War of 2006 are examples of ground operations against non-state armed groups (NSAGs) operating in the territory of other states. And the limited maneuvers in the Gaza Conflicts of 2008–09 and 2014 are examples of ground operations against NSAGs operating in territory under their full control.

In the more recent of these conflicts the IDF's operations have been increasingly drawn into the urban terrain. This, together with the manner in which our adversaries exploit such surroundings to their advantage, has presented a number of challenges and complexities that do not generally arise in ground operations divorced from the civilian context. On the basis of the IDF's experience with such operations, this Article intends to explain the necessity of ground operations as part of warfare occurring in the urban terrain (Part II), to consider some of the operational complexities involved in such operations (Part III), and to briefly and partially present the IDF's response to such challenges (Part IV).

## II. THE NECESSITY FOR GROUND OPERATIONS IN URBAN AREAS

Ground operations in urban areas generate unique tactical, humanitarian, and political challenges.

Ask any experienced and educated military commander, and he or she will tell you that the urban battlefield presents the most complex *tactical* challenges of any of the possible battle arenas. This is not true only of present day conflicts. A brief study of the Battle of Stalingrad in World War II, the Battles of the Suez Canal in 1956 or the First Battle of Grozny in 1994, for example, will demonstrate clearly how the urban theater makes warfare exceedingly difficult and decisive victory elusive. Physical structures limit movement, reduce the range of means available, conceal enemy positions, prior-emplaced explosives, military assets, and movement, and increase the spaces from which attacks may emanate. Every single structure has the potential to be a military asset and pose a threat to the advancing forces. The very deployment of forces into combat exposes them to harm—both direct harm from fire as well as through other means (such as abduction)—and all the more so in the confined spaces of the urban theater.<sup>1</sup> Essentially, urban surroundings encumber the ability of forces to achieve their mission.

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1. This is particularly so in Israel's case, as in recent years the abduction of soldiers has become a strategic goal of our adversaries. Indeed, more recently our adversaries' military operations have been aimed less at directly harming our forces and more at capturing them.

Ground operations in urban areas also create *humanitarian* challenges, as the presence of hostilities necessarily creates risks for the populace, and forces are required to factor in such risks to their actions as well as to adapt when such risk translates into actual instances of civilian harm. This is particularly so for militaries such as the IDF, whose ethics include mitigating the risk of harm to civilians as much as possible. Civilian risk of harm is not an element that we wish to—or can—ignore when conducting operations. This includes mitigating the risk of damage to civilian *infrastructure* as well, such as sewerage and water services—both because the continued functioning of infrastructure reduces the risk that civilians will expose themselves to harm by searching for access to such services, and also because it means our forces will need to divert less resources to providing or facilitating such services. Yet the need to exercise substantial force to achieve the mission and to preserve one's forces is oftentimes at odds with the desire to minimize the risk of civilian harm and damage to the surroundings, creating significant challenges.

Finally, ground operations also incur *political* costs—in the very decision to send one's soldiers into harm's way, in the risk that the withdrawal of ground forces from the battlefield will be perceived as surrender or retreat, and in the risk of criticism (both internally and internationally) regarding civilian harm. In today's world, conflicts are also fought in the realm of public opinion and international fora—adding additional elements to achieving “mission completion” such as retaining international legitimacy and avoiding harm to the state's stature.<sup>2</sup>

Thus, it is perhaps not for nothing that many democratic states are reluctant to put “boots on the ground” and have generally limited themselves to aerial and stand-off operations alone, even when it comes at a price.<sup>3</sup> Indeed, why do states send their militaries to conduct ground operations in urban areas at all?

*First*, there are tactical aims that can only be achieved by introducing forces on the ground. Some military objectives and

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2. The political element has found expression in foundational IDF documents, such as the “IDF Strategy Document” published under the direction of the current IDF Chief of Staff, Lieutenant General Gadi Eisenkot, in 2015. LIEUTENANT GENERAL GADI EISENKOT, *Israel Defense Forces Strategy Document*, <https://www.belfercenter.org/israel-defense-forces-strategy-document> [<https://perma.cc/DR5Z-X7UC>] (archived Mar. 29, 2018) (emphasis added) (unofficial translation of the uncensored version). Under the heading “Principles of the National Security Doctrine,” it is stated “the use of force will be carried out with resolve in order to achieve the political goals while operating in accordance with the rules of international law . . . and safeguarding Israel's legitimacy.” *Id.*

3. Consider, for example, the discourse between Western states in the international community regarding the military operations in Libya in 2011, as well as the more recent operations against the Islamic State in Iraq, during which the ground operations were primarily conducted by local Iraqi forces.

capabilities cannot be neutralized from the air—an aerial attack on a specific point on a tunnel, for example, will not prevent the continued use of other branches of the tunnel or diverting its route around the damaged part (see Figure 1). Rather, engineering forces are required to map out and lay explosives across the full length of the tunnel. Even where specific military objectives *can* be attacked from the air, military interests and tactics may require alternative action. Consider a conflict in which the adversary operates arrays of dispersed rocket launchers.<sup>4</sup> In such a situation, aerial operations may be able to target individual launches upon their identification, but ground forces can disrupt their entire operation by uncovering the central command room, engaging militants and forcing their retreat, or simply disrupting their freedom of movement by virtue of their presence in the adversary's area of operations.

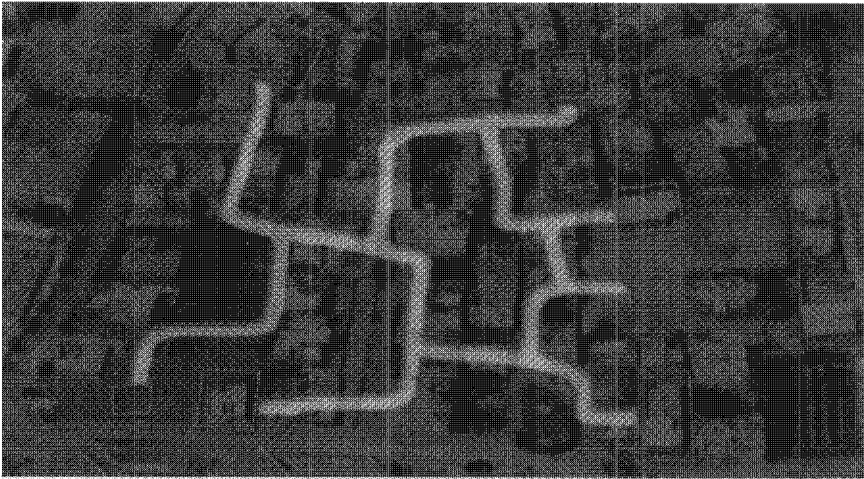


Figure 1: Aerial strikes on a specific point on a tunnel are generally insufficient if the aim is to put the tunnel out of commission.<sup>5</sup>

*Second*, ground operations also allow for conducting activities beyond kinetic targeting, such as capture or detaining missions and intelligence gathering missions (be it reconnaissance or the capture of physical objects or documents).

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4. This is a common characteristic of Israel's current conflicts. As noted in the IDF Strategy Document, the characteristics of the enemy's use of force include an "increased threat of fire on the home front and an attempt to create a strategic threat against national weak spots . . . in addition to an ongoing endeavor to assure the survival of its firepower through decentralization, camouflage, protection and the use of the civilian environment to provide it with a bargaining chip and victory images". EISENKOT, *supra* note 2, at 8.

5. All images in this Article were sourced through the IDF unless otherwise noted.

*Third*, unlike aerial operations, ground operations facilitate action where intelligence is unavailable. From the air, attacks are generally conducted based on specific intelligence indicating a target. Where such intelligence does not exist, aerial assets become less effective, and they can only locate what they can see from the air. Ground forces, however, facilitate uncovering and locating the adversary's assets without specific intelligence and allow for uncovering assets located within buildings or underground. Aerial assets see the battlefield in two dimensions, ground forces operate within three.

*Fourth*, ground operations also provide operational flexibility for commanders in that they increase the range of tactical decisions available—such as conducting targeted raids into different areas of enemy activity, attacking the enemy at places where attacks are not expected, cutting off supply lines, and the like. The enemy constantly seeks to learn the opposing side's methods and capabilities, and to circumvent them. For example, Hamas learned to place rocket and mortar launchers under tents and underground in order to avoid detection from the air (see Figure 2), as well as to create distance between the launchers and those operating them to avoid attack on the operators. Against such actions, aerial operations are rendered less effective, requiring ground forces to reach and uncover such assets.

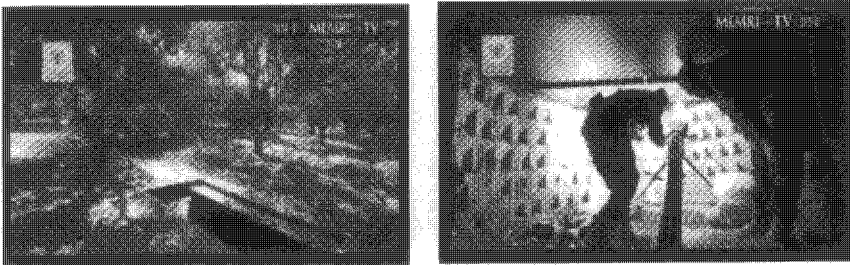


Figure 2: Above Left: An open tunnel shaft that served as site for rocket launches towards Israel. Above Right: Palestinian Islamic Jihad militants launching rockets from within a tunnel.<sup>6</sup>

*Fifth*, ground operations may serve a strategic purpose that cannot be obtained through aerial operations. For example, if the state orders the military to decisively and completely defeat the adversary, then it is almost certain that presence on the ground will be required in order to wrest control from the adversary and ensure

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6. MEMRI-TV, *Palestinian Islamic Jihad Video Showcases Subterranean Rocket Launching Capabilities*, YOUTUBE (July 30, 2014), <https://www.youtube.com/watch?v=hZpP6CaMPRQ> [<https://perma.cc/99LT-MKA3>] (archived Mar. 29, 2018) (note that the video has been taken off of YouTube).

their ouster. Aerial attacks may weaken the adversary's assets and disturb their operations, but they will likely not be the deciding factor in a full victory over the adversary.<sup>7</sup> Strategic interests may require cutting off a key transport route or controlling a port, the sorts of acts that require physical presence. Ground operations in or near the adversary's power centers may also serve wider strategic interests, such as pressuring them to cease attacks or bringing them to the negotiating table.<sup>8</sup>

*Sixth*, humanitarian considerations may, in some cases, weigh in favor of ground operations. In certain circumstances ground operations may result in reduced risk of civilian harm and damage, as ground forces have the capacity to exercise more pointed force such as rifle fire,<sup>9</sup> and may be able to better determine civilian presence in the battlefield than solely through aerial assets and other sensors.

The nature of Israel's armed conflicts demonstrate the necessity for deploying ground forces. All of Israel's conflicts—old and new—have taken place on or within Israel's borders. A small country with a narrow waist (see Figure 3), Israel has limited strategic depth, meaning that these conflicts have had a direct and significant impact on the civilian population and have in some cases posed threats to the state.

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7. For example, but for the ground component of the recent operations against the Islamic State in Iraq, it is unlikely that decisive defeat could have been achieved.

8. As noted in the IDF Strategy Document, an operation may be conducted in order "to strive for a victory by creating a situation in which a cease-fire or political arrangement can be forced on the enemy from a position of strength, based on its military defeat or on its inability or lack of desire to continue fighting". EIZENKOT, *supra* note 2, at 15. This idea has also been expressed by IDF officers in academic writings, where it has been stated that "Conquering territory that is critical to the enemy and destroying the enemy forces on that territory has high strategic value if doing so will highly affect the enemy's strategic or operational-level functioning. When fighting non-state organizations, critical territories could be their base of operations: villages or urban neighborhoods where their leadership resides, where they have hidden their logistic facilities or have their base of popular support." See Yacov Bengo & Giora Segal, *The Post-Operational Level Age: The Operational Focus Approach, Part 2*, 4 INFINITY J. 1, 4–11 (Summer 2015).

9. This does not necessarily mean that ground forces allow for a more limited use of force. For example, if a particular target consists of military infrastructure located in the basement of an apartment building, precision guided missiles with delayed fuses may allow for a more limited use of force in order to neutralize the target. This is opposed to sending in ground forces, which will likely need to employ a wide range of uses of force in order to arrive at the target (supporting fire, attacking fire, suppression fire, maneuvering machinery), and then explosive force to neutralize the infrastructure—and may need to do so without taking efforts to provide effective advance warning to possible civilians in the area due to the need for surprise in order to ensure force preservation.

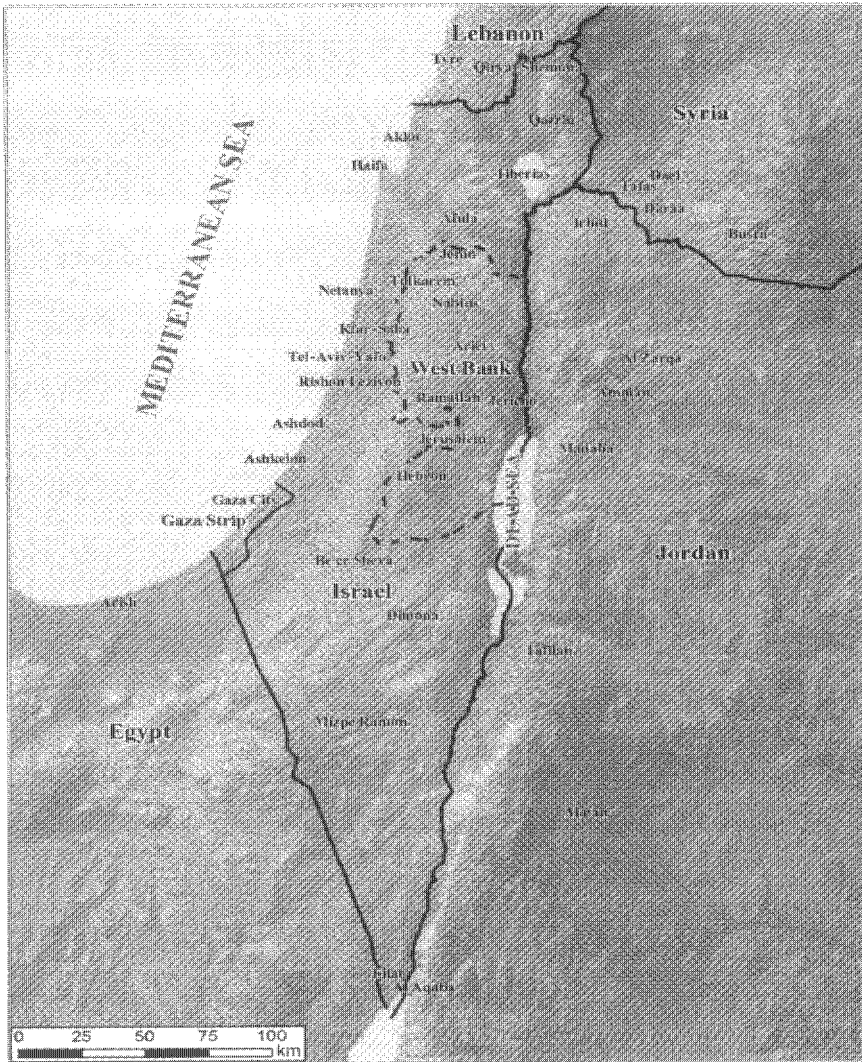


Figure 3: Map of Israel demonstrating the narrow strategic depth.

This means that when the IDF identifies an attack being planned or carried out, it must act swiftly and decisively in order to remove the threat that such an attack inevitably presents to Israel's homefront. In doing so, the IDF must employ whatever means will remove the threat as quickly as possible—often ground forces. Thus, massive and continuous rocket and missile fire from populated areas of Lebanon into Israel's homefront may be most effectively and efficiently neutralized by deploying ground forces to control the area and to prevent ongoing military activity of the adversary, rather than operating from the air against individual targets as they present



themselves.<sup>10</sup> Likewise, cross-border assault tunnels that reach from the Gaza Strip into Israel's communities must be quickly located and neutralized by infantry and mechanized and engineering forces in order to remove the immediate threat of an attack or attempt to kidnap civilians—partially damaging specific points on a tunnel's route through aerial attacks is insufficient.

### III. OPERATIONAL COMPLEXITIES IN GROUND OPERATIONS IN URBAN AREAS

Commanders charged with conducting ground operations in urban areas face numerous challenges. Logistics, communications, and treatment and evacuation of the wounded are just some aspects that pose challenges in ground operations, and all the more so in an urban context. A full discussion of these issues is beyond the scope of this Article; rather, the following shall focus on four particular operational complexities: (1) maneuvering; (2) the subterranean factor; (3) civilian presence; and (4) target identification.

#### *A. Maneuvering*

Our adversaries are well aware of the tactical advantages afforded by drawing the fighting into the urban terrain. A training aid captured by IDF forces operating in the Gaza Strip during the 2014 Gaza Conflict captures succinctly the impediments on a military conducting operations in urban areas, and serves as evidence that the techniques and procedures of Hamas are to deliberately use the urban surroundings so as to exploit these impediments (see Figure 4).

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10. Despite the considerable contribution of aerial interception systems such as Iron Dome, they cannot provide a hermetic defense, especially in wider-scale conflicts, and require significant resources to operate. For more information, see STATE OF ISRAEL, THE 2014 GAZA CONFLICT: FACTUAL AND LEGAL ASPECTS 182 (May 2015), [http://mfa.gov.il/ProtectiveEdge/Documents/2014GazaConflictFull\\_Report.pdf](http://mfa.gov.il/ProtectiveEdge/Documents/2014GazaConflictFull_Report.pdf) [<https://perma.cc/2EUH-2T7A>] (archived Feb. 27, 2018) [hereinafter 2014 Gaza Conflict Report].

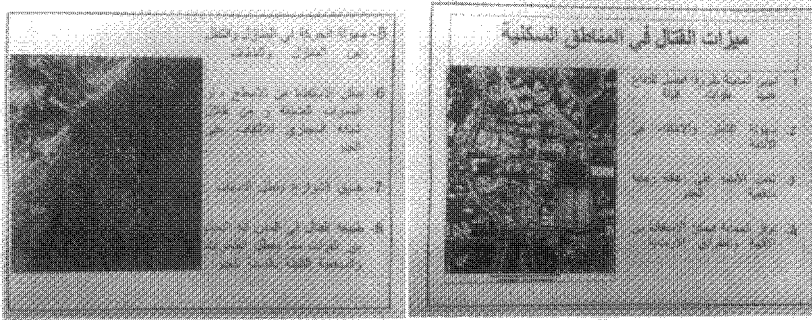
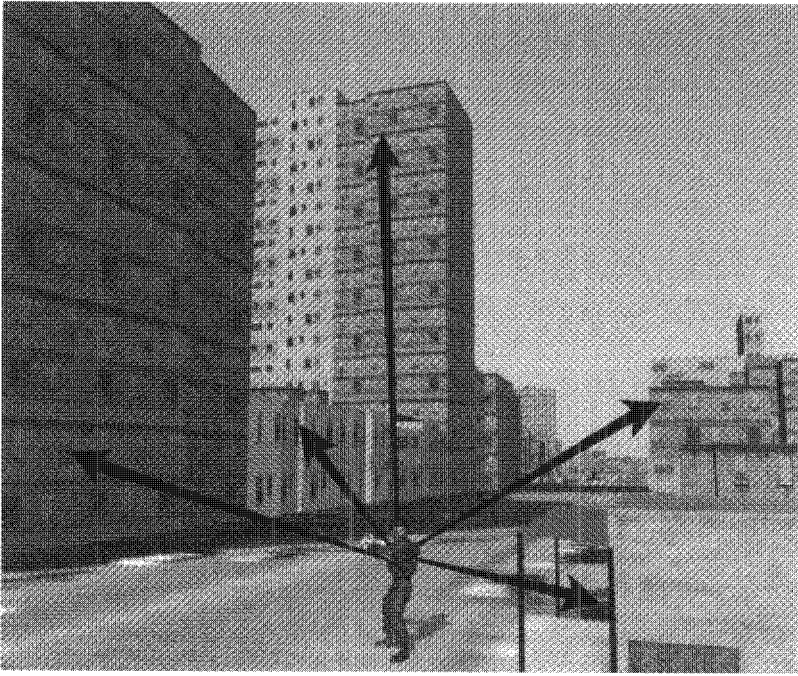


Figure 4: Excerpts from a document, recovered by IDF forces operating within the Gaza Strip during the 2014 Gaza Conflict, containing training materials that promote the advantages of conducting military operations within built-up areas. A translation of the selected parts can be found in the 2014 Gaza Conflict Report.<sup>11</sup>

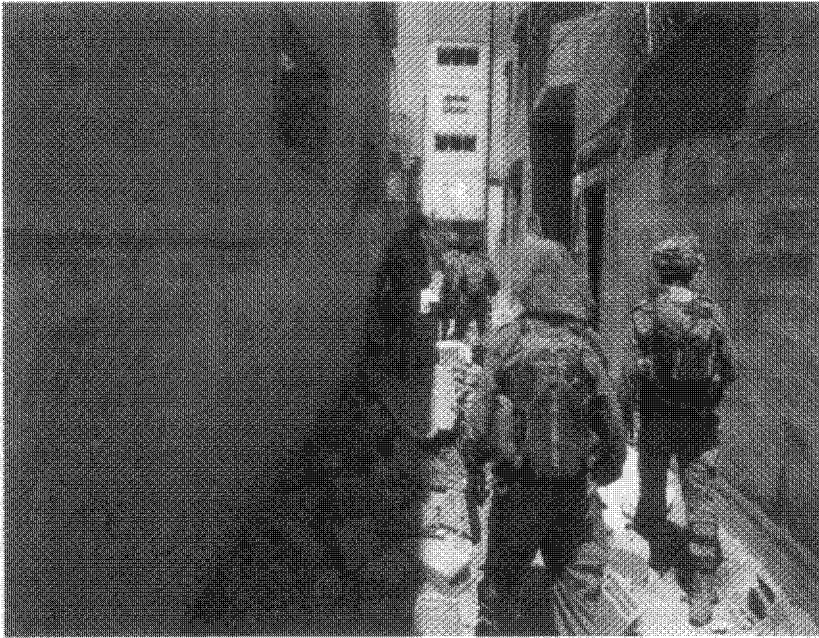
As noted in the training aid, physical infrastructure conceals the movement and presence of the adversary, making it difficult to identify and locate military assets and activities. It also protects military assets and activities, necessitating harm to structures in order to disrupt, harm, or neutralize them. Physical infrastructure means that fighting often occurs house-by-house—each structure provides multiple surface areas from which attacks may emanate, requiring more time to clear less space. As opposed to open battlefields where the adversary is primarily directly in front, in an urban environment the enemy may also be above (including all floors of a building and the roof) and below (including basements and tunnels) (see Figure 5).

11. *Id.* at 153.



*Figure 5: A soldier in the urban terrain is exposed to risk from many more spaces than in open battlefields.*

Physical infrastructure may limit the ability to utilize mechanized forces. Large (and not so large) vehicles are generally unable to maneuver easily in built-up areas, and may be limited to maneuvering along existing roads in order to reduce damage to structures (see Figure 6).



*Figure 6: Built-up areas reduce the ability for mechanized vehicles to maneuver without causing damage to the surroundings.*

This, in turn, provides the adversary with the ability to better predict the advancing forces' likely routes of travel, assisting the adversary in effectively planting explosives or laying ambushes.

Physical infrastructure may also limit the range of means of warfare at the forces' disposal. The trajectory of tank fire is limited by the angle at which it can aim; tank fire cannot always reach an adversary that is positioned in the higher floors of buildings (see Figure 7). The arc of artillery fire and other ground-launched munitions may mean they cannot reach an adversary's position located behind tall structures.



*Figure 7: The trajectory of tank fire is limited in urban areas.*

The urban setting may also limit the capability to rely upon aerial support. Close quarter combat increases the tempo of fighting and the presence of physical infrastructure magnifies the risk to the forces due to the magnified points from which an attack may emanate, meaning that aerial support may become irrelevant due to the time required to request, coordinate, and receive such support. In addition, the close proximity between forces engaged in urban combat makes it difficult to utilize aerial support effectively.

Physical infrastructure may also be used to conceal additional threats, such as explosives and booby traps. As such, forces are required to clear each structure before advancing. Controlled explosions may also be required to neutralize booby traps, which necessitate creating a secure perimeter, activating the relevant engineering forces, and protecting them while they work. Booby traps invariably result in damage to the structures in which they are planted and to their immediate surroundings—either by their activation (automatic or remote-controlled) or by their destruction using controlled explosions.<sup>12</sup>

All these elements reduce the capacity of the forces to achieve their mission quickly and swiftly progress through and beyond an area of threat. It is an axiom of ground warfare that slow advances are antithetical to successful ground operations, as they result in prolonged exposure of your forces and permit the adversary to correct and intensify its fire. Slow advances also generally result in greater

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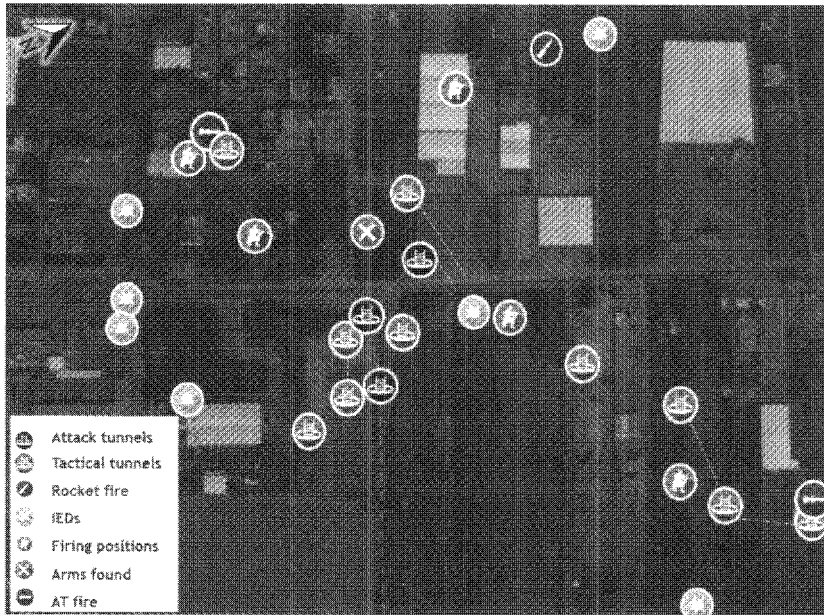
12. Booby traps pose an acute danger to the returning population after the conclusion of hostilities, particularly when they have not been detonated in the course of hostilities.

damage to the surroundings, as the longer the fighting is concentrated in one area, the longer all that is in that area receives fire from both sides. The concealment of the adversary within structures further results in increased fire, as covering and suppressing fire is required while attempting to locate the origin of the adversary's attacks. The use of booby traps further slows advances and exposes structures to increased chances of damage.

These complexities are depicted in this figure of an area of operation from the 2014 Gaza Conflict (see Figure 8). On the basis of prior intelligence, an IDF force was tasked with locating openings to cross-border assault tunnels in this specific area. The figure demonstrates the importance of the cross-border assault tunnels to Hamas, which utilized the urban terrain to establish a defensive web around it. Tactical tunnels leading nearby are used for executing fire, moving underground, and re-emerging elsewhere. Explosive devices are laid on pre-existing routes of travel, with the knowledge that the IDF attempts to avoid razing structures when advancing. Sensitive sites, such as the hospital compound in the top left of the figure, are exploited for various military purposes, including for executing anti-tank and light arms fire and, due to their height, carrying out military surveillance.<sup>13</sup> Thus, in this relatively small area, a combat unit encounters numerous complexities designed to slow and hamper its maneuvering capabilities and, ultimately, its achievement of the mission.

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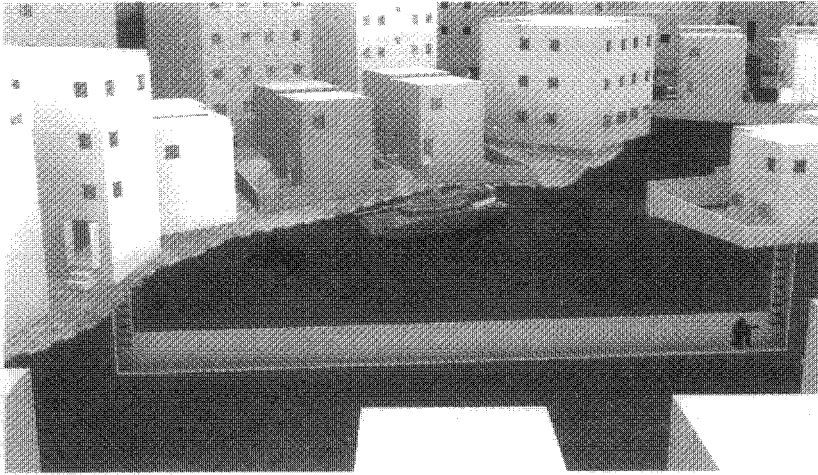
13. In addition to the challenges described above posed by the use of the urban environment by the adversary, the specific exploitation of sensitive sites such as these pose additional challenges. For example, the United Nations Relief Works Agency (UNRWA), the U.N. agency operating in the Gaza Strip, publicly acknowledged on three occasions during the 2014 Gaza Conflict that projectiles were found in their buildings, which included buildings being used as shelters for hundreds of civilians. Hamas fired at IDF troops from within a hospital, and used ambulances to transport weaponry and militants. These actions require commanders – and even soldiers – in the field of battle to make quick decisions that may have a strategic impact on the hostilities (a phenomenon which has come to be known as the "strategic corporal"). For example, the decision of a low-level commander under fire to return fire at militant positions located in a U.N. facility may result in a news headline which reads "IDF fires on the U.N."; this could have a strategic impact on the conflict. For more details on the examples above and more, see 2014 Gaza Conflict Report, *supra* note 10, at 58–105.



*Figure 8: A selected area of operation during the 2014 Gaza Conflict, which demonstrates the challenges in maneuvering in urban areas.*

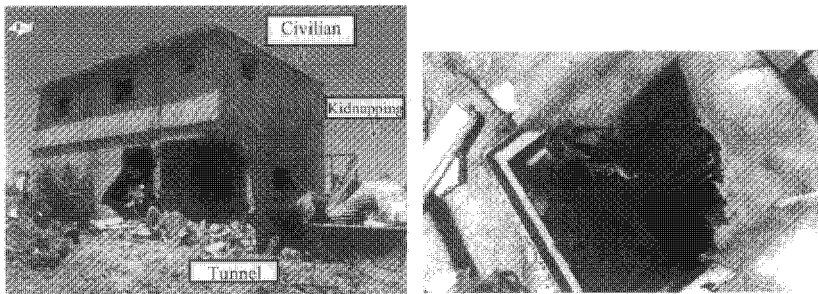
### B. The Subterranean Factor

A fundamental tenet of ground operations is ensuring that areas of operation are clear of enemy presence. Ground forces are trained to engage, clear, and secure areas and to advance onwards in furtherance of the mission. Tunnels negate the ability to ensure that areas covered by the advancing forces are clear of enemy presence. Combat forces, and supporting forces behind them—logistics, communications, engineering, and others—are continuously susceptible to attack by the adversary emerging from tunnels dug underneath structures and areas already cleared (see Figure 9).



*Figure 9: Tunnels negate a fundamental tenet of warfare—the ability to know that areas already cleared remain secure and devoid of enemy presence.*

As a result, advancing forces must locate tunnel openings in addition to engaging in combat; indeed, locating tunnel openings can become one of the primary missions of advancing forces. Looking for small holes leading underground in a dense urban neighborhood is like looking for a needle in a haystack—except in this case the needle is purposefully concealed and disguised to avoid detection. In the 2014 Gaza Conflict forces searched door-by-door for the openings to cross-border assault tunnels, often hidden under rugs, cupboards, and tables inside residential and religious buildings (see Figure 10).



*Figure 10: Above Left: A structure designed to appear civilian in nature that was built above the combat tunnel used by Hamas militants to kidnap the body of First Sergeant Oron Shaul in Shuja'iyyeh during the 2014 Gaza Conflict, on July 20, 2014. Above Right: Image of a combat tunnel shaft hidden under a carpet inside a civilian house in Deir al Balah, found by IDF forces on July 22, 2014.*

Once located, the tunnel route must be mapped and subsequently neutralized, oftentimes through laying explosives along its length. This entails several risks. *First*, the adversary may



conduct an attack through the tunnel while it is being primed for destruction, or there may be explosives laid in the tunnel intended to detonate on the forces. During the 2014 Gaza Conflict, three soldiers were killed and fourteen injured when they entered a medical clinic belonging to the Palestinian Authority to search for a tunnel opening—and 300- to 400-kg of explosives hidden underneath the building were manually detonated by a surveillance squad observing the IDF activities (see Figure 11). *Second*, it requires multiple forces and tools, such as engineering forces to demolish structures in which the openings are concealed in order to reach the tunnel, and mechanized forces such as bulldozers and drills to reach the tunnels. The more forces concentrated in one area, the easier it is for the adversary to target the military. *Third*, such activities can take time, and the longer these forces remain in a static position, the greater the exposure to harm. To protect engineering and mechanized forces, substantial force—such as continuous suppression and disruption fires—may be necessary in order to allow for completing the mission and preserving the forces.



*Figure 11: The Palestinian Authority health clinic under which an explosive device was hidden. Damage from the detonation is visible on the clinic's exterior.*

Finally, the subterranean factor means that the forces need to consider *another* layer where the adversary may be operating. Command and control centers, weapons storage, and communication centers can all be easily duplicated or moved underground. This not only increases the physical space from which the adversary may be

operating, but also serves to further negate aerial superiority by better protecting military assets.

### C. Civilian Presence and Infrastructure

Ground operations in urban areas do not take place in a void, but rather are intertwined with the populace. In such circumstances, the obvious interest of the military—and especially that of a state with the value of preserving civilian life to the greatest extent possible—is to divorce the hostilities as much as possible from the civilian population and surroundings.

To do so, the advancing forces may employ resources and time into encouraging and supporting evacuation of the population prior to, and during, the ground operation. Such actions not only require diverting resources from other military activities, such as aerial surveillance in order to monitor evacuation, but also can detract from the element of surprise in attack. For example, prior to entering the densely populated neighborhood of Shuja'iyeh in the Gaza Strip in order to neutralize cross-border assault tunnels leading into Israel and to stop the incessant rocket and mortar fire emanating from within, the IDF repeatedly warned residents to evacuate, notifying them of the impending ground operation.<sup>14</sup> Following three days of such warnings, the IDF further delayed its operations for an additional twenty-four hours in order to allow for additional evacuations before entering.<sup>15</sup> These warnings allowed Hamas to prepare its response to the operation.<sup>16</sup>

Despite evacuation efforts, it is possible that some civilians may remain. They may stay in the area of hostilities generally, moving between places or congregating with other civilians in specific structures (see Figure 12). They may also stay in specific sites that constitute military targets—in some cases, they may be fully aware of the adversary's military use of that structure, or an adjacent structure, and may even cooperate with the adversary to hide military infrastructure and activity. Indeed, it has not been uncommon during Israel's conflicts in Gaza and Lebanon for civilians

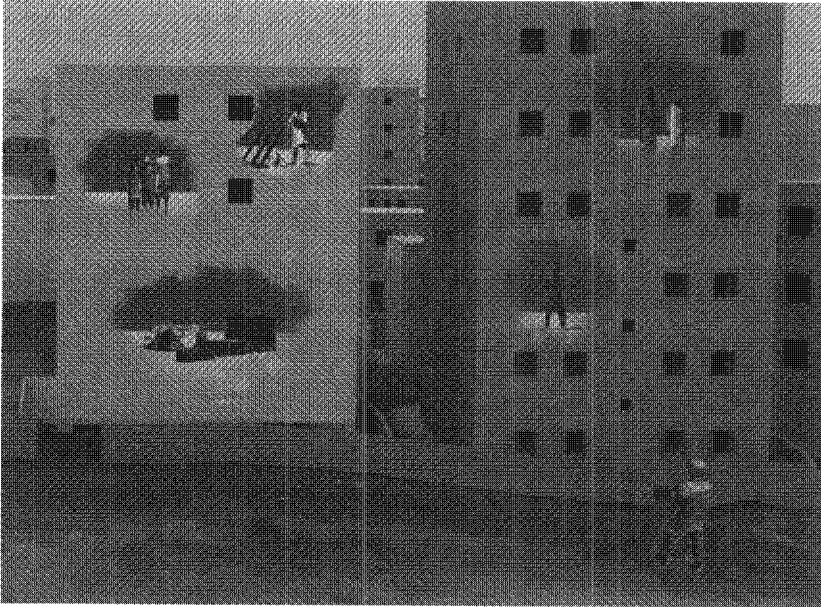
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14. Some of the warnings provided may be found on pages 173–75 of the 2014 Gaza Conflict Report, *supra* note 10.

15. Such actions will not always be possible, and are usually taken due to policy considerations rather than a belief of a legal obligation. In future conflict in Israel's northern arena, for example, it is unlikely that IDF will be able to undertake such extensive actions, due to the increased scope, threat, and intensity of expected hostilities—meaning less resources and less time to be able to undertake such actions.

16. The response not only included manning posts, transferring weaponry and ammunition, and priming explosives, but also coercing civilians to ignore warnings and stay. For more detail, see page 97 onwards of the 2014 Gaza Conflict Report, *supra* note 10. During the ensuing battle, the IDF unilaterally suspended fire to allow for the evacuations of civilians who had nonetheless stayed in the area. This was met with continued fire by Hamas. See *id.* at 47.

to act as human shields, sometimes voluntarily using their presence to shield a target from attack. In other cases, civilians have been coerced or forced to remain in the area of operations or at specific sites.<sup>17</sup>



*Figure 12: In the urban battlefield, military operations are intertwined with civilian presence.*

Civilian presence may have the result of frustrating operations or individual attacks, such as where the expected civilian harm or damage is considered excessive, and even where it is not considered excessive, for a number of other reasons, such as policy restrictions placed on the forces. Such situations are not rarities for the IDF. In the 2014 Gaza Conflict, many commanders in Hamas, the Palestinian Islamic Jihad, and other NSAGs used their homes for military purposes—weapons storage, command and control, communications, and the like. This meant that their military activity was intertwined with their family life. Militants did not leave their homes and families and go out to the battlefield, but rather “worked from home”—reducing the ability to clearly demarcate between military operations and civilian presence. Even if their homes are not being specifically used for military operations, when militants fight from within their neighborhoods it means there is no distinction between the front line and the homefront—and thus militants regularly move

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17. See, for example, records of statements by Hamas officials to this effect on pages 97–101 of the 2014 Gaza Conflict Report, *supra* note 10. There are also numerous reports of similar instances in the conflict against ISIS in Syria and in Iraq.

between the fight and their homes, in order to obtain first aid, food, and even change their clothes. Such mingling clearly makes it more difficult to fully sever our efforts in targeting their military activities from the undesired impact on their surrounding civilians.

Our adversaries are aware of the IDF's values, which dictate minimizing the effect of the hostilities on the populace. They understand that the urban theatre provides physical challenges for our forces, but also ethical dilemmas in that the IDF will restrain its forces where civilians are present and is not impervious to civilian suffering. Indeed, our adversaries have integrated this understanding into their military doctrine. For example, according to a Hamas doctrine manual recovered by IDF forces operating in Shuja'yeh, "The presence of civilians . . . poses difficulties [to the enemy] such as . . . difficulties in controlling the civilians . . . [and the enemy's] need to provide medical and food assistance to [our] civilians" (see Figure 13). They are aware that in addition to restraining the extent of our use of force, civilian presence may also divert our forces' attention and resources from solely dealing with combat to additional activities, including medical evacuations and treatment of wounded persons.



Figure 13: Excerpts from Hamas's "A Chapter in Urban Combat" military doctrine manual, recovered by IDF forces operating within the Gaza Strip during the 2014 Gaza Conflict. A translation of select parts of the manual can be found in the 2014 Gaza Conflict Report, at page 154.<sup>18</sup>

The nature of combat upends the typical day-to-day civilian environment, with its destructive results and presence of combat forces, leading to erratic movement by civilians and to difficulty in predicting their actions. This is exacerbated when operations are undertaken using the element of surprise and are not preceded by evacuation efforts. As a consequence, it becomes all the more difficult for commanders to ascertain civilian presence and assess expected

collateral harm. In some cases, civilians have been known to seek shelter in groups, meaning that forces may encounter numerous structures empty of civilian presence, and then one structure with large numbers of civilians. In Israel's experience, these challenges are compounded by the adversary's efforts to deliberately blend in with the civilian population.

Thus, ground forces operating in urban areas, such as the village of Muhaybib in southern Lebanon (see Figure 14), meet a number of challenges relating to civilian presence that they must manage in the face of myriad uncertainties and partial information. As they advance through the streets, how are they to know if civilians are located in the building adjacent to their position? How does a commander know that the building from which they are being fired upon does not also contain civilians?

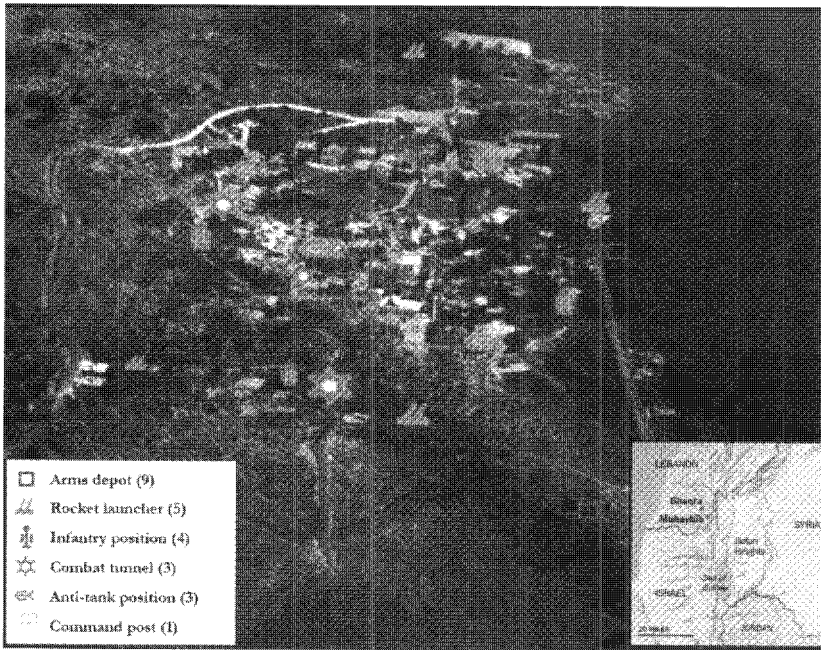


Figure 14: The village of Muhaybib, with a population of approximately one thousand persons, is a prime example of Hezbollah's efforts to embed military operations within the civilian population.

#### D. Target Identification

The primary task for those involved in conducting hostilities is locating and attacking the adversary. Even when the mission goal is not necessarily targeting particular adversary assets or militants—for example, when the order is to secure control over an area—achieving the goal will usually involve conducting attacks. Even when

an area is secure and forces take up defensive positions, they will still need to identify enemy attacks and engage them.

Target identification is difficult under any conditions of warfare. Inevitable uncertainties exist in combat, a fact which has been captured neatly in the term “fog of war.” Despite best efforts and planning, it is rare to possess a full picture in the zone of combat. Intelligence is never perfect, and the dynamics of warfare—explosive force, danger to life and limb, and general commotion—do not ease efforts to obtain information in the midst of it all.

Yet target identification is especially difficult in ground operations, where risk to the forces and their equipment on the ground often means that action is required even in the fog of war. If a ground force maneuvering towards a certain point receives incoming fire and is under threat of harm, then even without being able to locate the exact source of the fire, they will likely need to act in order to disrupt, suppress, or stop that fire so that they may complete their mission and preserve their forces.

This is particularly so in urban areas, where the fog of war is typically particularly dense. Here, ground forces receiving incoming fire while searching house-to-house for rocket launchers may find it particularly difficult to identify the source of incoming fire for the reasons detailed above—physical structures conceal the adversary’s positions and assets, tunnels allow for executing fire and immediately moving in a concealed fashion to another position, and infrastructure interrupts the lines of sight required to identify far-off attacks. Forces are required, quickly and while under fire, to decide how to react.<sup>19</sup> In other cases, the particular target may be difficult to locate—a mission to capture a specific person, for example, is particularly difficult in a densely populated area comprising countless places where such a person could be.<sup>20</sup>

In the urban context, forces must work with the knowledge that anything could contain a threat—a wine cellar may be a coordination point for different attacks; a passing truck may contain explosives; a young man looking through a window may be passing intelligence to an anti-tank squad behind him; even animals may be primed to

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19. For an example of an instance where ground forces under fire were required to make a decision whether to carry out return fire with only partial information see pages 184–85 of the 2014 Gaza Conflict Report, *supra* note 10. In this instance, “IDF forces dismantling tunnel infrastructure in Bir el-Balah were fired upon with what appeared to be a long-range anti-tank missile. The forces refrained from returning fire, as they could not determine whether the four-story building from which the enemy fire originated was populated and because they were aware that it was prayer time at a nearby mosque.” *Id.* at 184.

20. Consider, for example, the manhunt to locate former Iraqi President Saddam Hussein in 2003, which took many months and required house-by-house searches based on a substantial intelligence effort and a significant deployment of forces in order to locate a single, heavily disguised, person.

explode.<sup>21</sup> Forces do not enter a suburb and search only for the object with military markings or camouflage—rather, everything has the potential to cause harm and threats are not distinguishable by visual markings alone. Thus, forces tasked with destroying a command and control center in their area of operation do not walk through the neighborhood just looking for a site that appears military in nature—rather, the command and control center could be the local school's computer room, the administration office of the local religious community center, or even a work-study in a house. If there is intelligence of an impending ambush, forces do not look out just for armed men in uniforms—they know that an approaching donkey could be laden with explosives, or that the approaching ambulance could contain militants.

And target identification is even more difficult when facing an adversary that *deliberately* tries to negate any distinction between, on the one hand, its military activities and militants, and, on the other hand, the civilian surroundings and civilians themselves. Hamas' uniforms are reserved for military parades; in combat, its militants are disguised as civilians<sup>22</sup> and travel in civilian vehicles,<sup>23</sup> making it all the more difficult for IDF forces to determine whom is liable for attack. NSAGs also co-opt the civilian population for military activities, using women and children to conduct surveillance on the positions and activities of the ground forces, and to carry arms and other military equipment from post to post. The adversary is acutely aware of our values, and know that our forces will hesitate in opening fire on those who, by their appearance alone, seem to be uninvolved in the hostilities.

Hezbollah, for its part, has conducted military activities under the guise of an environmental non-governmental organization.<sup>24</sup> As Figure 14 above demonstrates, Hezbollah has systematically embedded its military assets and infrastructure in civilian villages throughout Lebanon. Not only does it make it difficult to ascertain civilian presence, but it also challenges the capacity to clearly identify military objectives. Without precise intelligence regarding their location, uncovering military objectives occurs either when forces physically find them—or when they are used to fire upon the

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21. *Hamas Attacks Israeli Soldiers With Explosive Donkey*, ISRAELI DEFENSE FORCES (July 19, 2014), <https://www.idf.il/en/minisites/hamas/hamas-attacks-israeli-soldiers-with-explosive-donkey/> [<https://perma.cc/8TSE-34YJ>] (archived Mar. 29, 2018).

22. See, for example, references to reports by journalists present in the Gaza Strip during the 2014 Gaza Conflict. 2014 Gaza Conflict Report, *supra* note 10, at 103.

23. See, for example, still images of video footage of Hamas militants using ambulance with Palestinian Red Crescent Society markings to escape a battlezone. *Id.* at 78.

24. See *Hezbollah Uses Environmental Organization as Front for Terror Activity*, ISRAELI DEFENSE FORCES (Jun. 22, 2017), <https://www.idf.il/en/minisites/hezbollah/hezbollah-uses-environmental-organization-as-front-for-terror-activity/> (last visited Mar. 15, 2018) [<https://perma.cc/UH86-5XL9>] (archived Mar. 15, 2018).

advancing forces. Some objectives cannot be clearly identified at all—how does a soldier determine whether a nearby truck doubles as a missile transporter, or even a launcher? Whether a loitering female is providing their exact location to waiting militants? And in the midst of it all, the surroundings continue to bear the potential to pose a threat—gas tanks outside a home may double as lethal explosives and electricity wires may double as their detonators.

#### IV. THE IDF RESPONSE

Not all these challenges can be resolved, and some will remain an inherent part of the reality of warfare. Nevertheless, the IDF continuously looks for ways to improve the commander's ability to achieve the mission, preserve his or her forces, and minimize the risk of harm to civilians and the civilian surroundings. These efforts find expression in: the IDF's training activities; institutional adaptation; orders and directives; regulations; doctrine; the development of suitable weapons and other tools; and context-specific preparations.

*Training.* Thoroughly preparing forces for ground operations in urban areas is indispensable for achieving these aims. The IDF operates world-renowned facilities for training forces in urban warfare and employs simulators and other interactive tools to simulate the conditions of such fighting. Military exercises incorporate the full range of elements expected to confront forces in urban areas, such as civilian presence and unexpected significant incidents of collateral harm, as well as occasionally integrating representatives of organizations such as the ICRC to train forces to operate in complex environments that contain the presence of different actors.

*Institutional Adaptation.* The IDF also seeks to implement institutional changes, developing the composition and structure of forces to suit the needs of urban warfare. For example, new roles and command structures have been introduced with the dedicated responsibility for dealing with the civilian element. Civilian Affairs Officers accompany commanders in the battlefield, and at higher levels manage situation rooms, in order to monitor the needs and locations of the civilian population, provide advice to commanders on civilian-related issues, and help facilitate the provision of goods and services.

*Regulations.* The IDF also enacts binding operational regulations, directives, and orders that govern the forces' conduct in the battlefield. Some of these are intended to address particular issues that arise in the context of urban operations, such as the measures required when destruction of property is deemed necessary



for military reasons, or courses of action in the event of attempted abduction of soldiers or civilians.<sup>25</sup> These directives are formulated together with relevant entities within the IDF, including legal advisors, in order to ensure their adherence with the law and their operational relevance. In some cases, these directives impose restrictions on forces that do not stem from legal requirements, but rather from additional considerations, humanitarian and otherwise. Soldiers and commanders also undergo educational courses to ensure continued familiarity with the relevant directives and their legal obligations. Courses are individually tailored for the particular roles and functions of different forces, and expose forces to different perspectives regarding the environments in which the forces operate, delivered by representatives of nongovernmental and international organizations.

*Doctrine.* IDF doctrine has developed in response to the IDF's experience with ground maneuvers, particularly in urban areas. For example, current IDF doctrine dictates that even in situations of full-scale hostilities, focused and dedicated use of force is to be preferred over mass deployment, for various reasons, including reduced impact on the civilian environment.<sup>26</sup> Likewise, the awareness of the political challenges created by urban warfare has also been addressed in IDF doctrine.<sup>27</sup>

*Weapons Development.* The IDF invests in ensuring its forces possess relevant means for operating in the urban environment. This includes developing new technologies, such as precision guided rockets, missiles and mortar shells, delayed fuses, or lower-yield munitions. It also includes ensuring that forces have a wide range of tools at their disposal relevant to the urban environment, which could include riot dispersal means, different tools for breaching doors, or explosives with varying types of fuses. Binding directives also govern the use of these means, ensuring that the employment of means takes into consideration the urban context. For example, artillery remains an indispensable element of the commander's toolbox, providing commanders in the field with continuous and responsive fire support. It provides advantages that cannot easily be found elsewhere—it can fire at ranges, at speeds, in quantities, and with persistence that

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25. See 2014 Gaza Conflict Report, *supra* note 10, at 186 (discussing the IDF General Staff Directive for Contending with Kidnapping Attempts, also known as the "Hannibal Directive."). This Directive has since been replaced.

26. The Strategy Document states that "[t]he IDF's principal approach to achieving victory is the maneuver approach, based on components of pin-pointed offensive actions against the enemy's weak spots . . . to harm the enemy's decision making process in order to disrupt the effectiveness of its operations . . . and while using minimum IDF resources." EIZENKOT, *supra* note 2, at 16.

27. The IDF Strategy Document, for example, states that "[t]he use of fire will be tested against the principles of proportionality and ethics, and considerations of legitimacy will be secondary." *Id.* at 21.

cannot be achieved by other means; can provide a large variety of fire effects, such as disruption, suppression, or neutralization of enemy forces; and can dominate an entire area simultaneously. In order to ensure use in accordance with the law and to address the humanitarian concerns that arise, the IDF maintains directives that specify the types of effects that artillery may be used for, regulates the amount of artillery that may be employed in specific situations, and sets restrictions on the use of artillery in populated areas.<sup>28</sup>

*Other Tools.* Likewise, the IDF tries to develop tools to assist in dealing with the populace. Warnings and evacuation orders may be provided through leaflet drops, pre-recorded phone calls, or radio and television broadcasts. Joint coordination centers have been established by IDF, with U.N. and ICRC representatives, to improve personnel movement, medication evacuations, and aid facilitation. Infrastructure for supporting the civilian population is integrated into operational activities—for example, where an external organization establishes a shelter in a zone of hostilities, the IDF can integrate its presence into its systems and ensure forces are aware of its location. Likewise, for organizations repairing damaged infrastructure in the battlefield such as fallen power lines, IDF forces can accompany them in order to provide security.

*Context-Specific Preparations.* Preparations for specific operations supplement the above. Orders for specific operations allow for taking into account the particular circumstances of each urban context. Continued intelligence gathering improves the forces' knowledge concerning their intended targets and surroundings. Operational maps marking "sensitive sites," compiled and maintained in conjunction with international organizations, provide forces with important information to consider in their operations. Regulated and multi-tiered processes for approving pre-planned attacks are designed to ensure that commanders have all reasonably available information and professional (including legal) advice before deciding whether to carry out an attack.

Not all these tools and methods are suitable for every conflict, nor are they feasible to employ in all situations. Each conflict possesses its own particular complexities; each adversary poses different challenges; each force maintains different means of warfare and holds different levels of training and experience; different combat scenarios entail varying levels of intensity and uncertainty; and political orders differ from conflict to conflict. Ultimately, we entrust our commanders with the responsibility to fulfill their duties in a manner that is suitable to the totality of circumstances they encounter at the time of their decision-making.

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28. See 2014 Gaza Conflict Report, *supra* note 10, at 190–94 (discussing the IDF directives setting restrictions on the use of HE artillery shells).

## V. CONCLUSION

Ground operations will likely continue to be an irreplaceable tool for militaries seeking to achieve the goals provided by the political echelon. Those states whose civilian homefronts are under direct threat do not have the privilege to avoid sending their forces into ground operations and encountering the complexities some of which are described above.

In contemporary armed conflicts, the steady shift of the battlefield into the urban arena is likely to continue. This is particularly so when engaging with non-state armed groups that deliberately draw the fighting into the urban surroundings and deliberately endanger their populace. In such a reality, states will continue to encounter practical challenges, as well as ethical dilemmas, stemming from the mere presence of urban characteristics as well as the efforts of our adversaries to exploit our commitment to the law and Western value systems.

In the face of such facts, militaries such as the IDF must continue developing tools and methods to contend with the operational challenges and complexities presented by ground operations in urban areas. Doing so will not entirely negate the risk of harm to one's forces or the civilian population, but that does not mean we should not try. For its part, the IDF will continue to ensure its forces are well-trained, educated, and equipped, in order to best ensure their ability to implement both military necessity and humanitarian considerations in the fulfillment of their duties.