



The “Tunnel Strategy” Among Palestinian Armed Factions in the Gaza Strip

Author: Dr. Michael Barak

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The Tunnel Strategy Among Palestinian Armed Factions in the Gaza Strip

Dr. Michael Barak

Following Operation “Protective Edge” (2014), the political and military echelons in Israel needed to find immediate solutions to the Hamas tunnel threat, which it defined as a strategic threat.¹ The discovery of Hezbollah’s tunnels in Israeli territory in the beginning of December demonstrated that terrorist organizations view the tunnels as a strategic and conscious weapon in the battle against Israel. In January 2016, Ismail Haniyeh, the leader of Hamas, explained that “the tunnels were strategic weapons in the war [2014]. The mujahideen captured [Israeli soldier] Oron Shaul from these tunnels. They also helped with the release of prisoners in the [Gilad] Shalit deal”, According to him, the tunnels played both defensive and offensive roles: “They are designed to defend Gaza, fortify it, and serve as an exit point to the rest of the lands of Palestine”.²

The strategic importance of the tunnels in general, and to Hamas in particular, is discussed in a dissertation titled, **"The Tunnel Strategy among the Palestinian Resistance in Conducting the Gaza War in 2014"** (191 pp.), which was published at Al-Aqsa University in the Gaza Strip in 2015.³ The dissertation was written by Rami Ahmad ‘Abd al-‘Aziz Abu Zbeid, a prominent writer for the official Hamas weekly, *Al-Risala*, and a blogger on the Qatari Al-Jazeera network, who defines himself as an expert on military issues with emphasis on the Palestinian context. Indeed, approximately three years have passed since the publication of the dissertation and the IDF has succeeded in finding several creative solutions to the tunnel challenge, but the importance of the research lies in Hamas' perception of the battlefield with Israel, with emphasis on its use of tunnels. Another value of his research lies with the series of interviews that he conducted with senior field officials from Hamas and other armed Palestinian factions. Moreover, some of the jihadist organizations in various arenas of battle, such as in Syria, were inspired by the Hamas use of the tunnel weapon, including the jihad factions in Syria affiliated with Hayat Tahrir al-Sham, which called for using the tunnel weapon in the war against the Syrian regime.



Rami Abu Zbeid

¹ In 2017, the State Comptroller published a comprehensive report on the subject, while addressing deficiencies in the system dealing with the tunnel threat.

[http://www.mevaker.gov.il/\(X\(1\)S\(r5ucusc2ugxfuxkdc3rqgsts\)\)/he/Reports/Pages/568.aspx](http://www.mevaker.gov.il/(X(1)S(r5ucusc2ugxfuxkdc3rqgsts))/he/Reports/Pages/568.aspx)

² January 29, 2016. <http://www.aljazeera.net/news/arabic/2016/1/29/هنية-مستعدون-لأى-مواجهة-قادمة-مع-الاحتلال>

In the Hamas movement’s weekly, *Al-Risala*, the tunnels were described as “a strategic weapon that was not taken into account by the enemy” and that took it by surprise. February 2, 2016.

<http://alresalah.ps/ar/post/134218/الأنفاق..السلح-الاستر-التي-الذي-اجتاز-محاولات-التدمير>

³ Rami Ahmad ‘Abd al-‘Aziz Abu Zbeid, ***Istrijaiyyat al-Anfaq lada al-Muqawama al-Filastiniyya fi Idarat Harb Ghaza 2014***, Gaza: Al-Aqsa University, 2015, pp. 2-3.

This document seeks to shed light on the tunnel network as perceived by the Palestinian terrorist organizations in Gaza, especially Hamas. This is not an attempt to paint a specific picture of Operation “Protective Edge”, such as the factors that led to it or the military moves that were made, but rather to examine this issue conceptually and systematically, based primarily on Abu Zbeid’s dissertation.

“The Tunnel Strategy” Among the Palestinian Resistance – Abu Zbeid

In his research, Abu Zbeid examined the integration of the tunnels in the Hamas war against Israel and the extent of their strategic impact on Israel, as well as insights about the nature of the next war with Israel. The structure of the research is based on five main chapters:

- A. The general framework of the dissertation; research questions; the importance of the research and the reasons behind it; the purposes of the research; methodology; research tools and limitations.
- B. The development of the Palestinian resistance; referring to the prominent armed factions that participated in Operation “Protective Edge”; the military geography of the Gaza Strip; the technology of the tunnels; the types of tunnels; how the war was conducted; practical principles in the tunnels.
- C. The strategic importance of the tunnels; the growth and development of the tunnels; the tunnels as part of the strategy of the Palestinian resistance; conducting the war and the principles expressed in the tunnel strategy.
- D. The tunnel strategy in conducting the war in Gaza (Operation “Protective Edge” – 2014).
- E. The strategic impact of the tunnels on Israel in the Gaza War (2014); the future use of tunnels in the next wars; the means available to Israel to counter the tunnel strategy and the ways in which Hamas copes with them.
- F. Conclusions and recommendations for preparations ahead of the next war against Israel.

A. The General Framework of the Research

In the introduction to the research, Abu Zbeid wrote that an examination of military confrontations throughout history indicates a development characterized by the transition from traditional confrontations between states to asymmetric conflicts between states and organizations. The weaker side in the conflict prefers to avoid direct confrontation with a regular army, and instead

adopts a strategy of attrition and attacking weak points. The same applies to the Palestinian resistance, with emphasis on the Hamas movement.

The Hamas movement has gone through many stages in its struggle against Israel. After 1987, with the outbreak of the first Intifada, the struggle took the form of guerilla warfare and suicide attacks against Israeli military targets. With the departure of the IDF from the Gaza Strip in 2005, Hamas began to lay out a new strategy in the form of arming, training and preparing the ground, and later in the form of developing the tunnel weapon as well.

According to Abu Zbeid, **“The tunnel weapon is a general name for the war that is being conducted in underground tunnels and in other spaces. It mostly includes the construction of underground structures for attack or defense, and the use of natural caves located there for military purposes”**.

According to him, it is not surprising that in asymmetrical conflicts, the weaker side will prefer to use the tunnels strategy intensively, "as happened in Vietnam against the American occupation, in Afghanistan and Chechnya against the Russian occupation, and in Lebanon and the Gaza Strip against the Israeli occupation."⁴

According to Abu Zbeid, the use of the tunnel weapon gives Hamas several advantages: to carry out secret activity; to find refuge after carrying out an attack by evading the opponent's defense; to strike the enemy from a low place in the depths of the earth; to limit the superiority of the enemy's fire; and to maneuver. According to him, the proper management of the tunnel weapon is a guarantee for success in a confrontation against Israel. Herein lies the importance of the dissertation, according to Abu Zbeid, namely to draw lessons and insights about the use of tunnels in conducting the next war against Israel.

Research questions:

1. How did the tunnel strategy develop among the Palestinian resistance?
2. What factors motivated the Palestinian resistance to use the tunnel strategy?
3. To what extent did the use of the tunnel strategy in the Gaza war of 2014 have an impact on Israel's functioning?
4. What are the challenges facing the Palestinian resistance in the tunnel strategy?
5. To what extent can tunnels be used in future clashes?

Reasons for the importance of the research paper:

⁴ Abu Zbeid pp. 2-3

1. To increase the academic literature on the conduct of war and the strategic role of the tunnels, especially in light of the absence of Arab research on this subject. Moreover, this is the first Arab and Palestinian study to deal with this subject.
2. To highlight the role of the tunnel strategy in conducting war and its impact on the results.
3. To generate recommendations for the Islamic resistance on conducting war and to help decision makers among the Hamas leadership, as well as researchers in the field of war, expose the strengths and weaknesses of the tunnel strategy in conducting war.

According to Abu Zbeid, the study is not based solely on research literature and primary material, but also on interviews with Palestinian experts on the topic as well Hamas field commanders.

B. The Development of the Islamic Resistance and the Military Geography of the Gaza Strip

In the second chapter of the dissertation, Abu Zbeid briefly reviewed the history of the armed Palestinian factions that took part in the war against Israel during Operation “Protective Edge”, and provided data on the extent of their participation in the war (see table). In addition, he pointed out the development of the Palestinian struggle against Israel over the years since the outbreak of the first Intifada in 1987: fighting with simple weapons - stabbing attacks with a knife; guerilla warfare - raids on military posts that included shooting attacks, the planting of roadside bombs, and more; suicide bombings - the use of explosive belts, with focus on public places and buses (beginning in the 1990’s); the launching of rockets and mortars at Jewish communities and military bases (the first launch was carried out on October 26, 2001); psychological warfare; and the tunnel strategy.

Faction Name	Rockets and Mortars	Military Activities (ambushes, snipers, roadside bombs, etc.)
Izz ad-Din al-Qassam Brigades	3621	114
Al-Quds Brigades	3249	13
Al-Nasser Salah al-Deen Brigades	836	11
Abu Ali Mustapha Brigades	559	9
National Resistance Brigades	748	20
Al-Aqsa Martyrs’ Brigade	220	

Date regarding the extent of Palestinian factions’ participation in the war during Operation “Protective Edge” (2014)

Later in the chapter, Abu Zbeid examined the military geography of the Gaza Strip, that is, the topographic structure of Gaza as a factor influencing the leaders' decisions, the creation of the military force, and its operation during routine times and wartime. He noted that the topographic structure of the area had a significant influence on the manner in which military forces deployed in the field, the system of logistics, and more. According to the research, Gaza's topography, high population density and residential buildings make it difficult to fight inside its territory. In light of this, the Islamic resistance saw fit to change its military strategy and tactics vis-à-vis Israel and to find ways to defend the Gaza Strip from Israeli military action because the geography in Gaza forced the resistance to employ a difficult military tactical mode.⁵

In order to overcome the geographic problem of the Gaza Strip, the resistance drew inspiration from the IDF's military experience in moving the battle beyond its borders, to the enemy's territory, as took place in the wars of 1956, 1967, 1982, and more. To this end, the Palestinian resistance turned to digging tunnels in various locations in the Gaza Strip, despite the fear that they would collapse because of the structure of the land if they are not well supported. **In constructing the tunnels, the Palestinian resistance was looking to achieve two goals:** A) **Defensive**, the construction of an obstacle that would make an Israeli incursion into the Gaza Strip difficult. B) **Offensive**, the exploitation of the tunnels to launch missiles at Jewish communities or to damage military vehicles intending to enter the Gaza Strip.

C. The Strategic Importance of the Tunnels

Historical Introduction

In the third chapter, Abu Zbeid reviewed the growth and development of the tunnels as well as their strategic importance. According to him, the tunnels are part of a guerilla war against the enemy and allow for the crossing of distances that are difficult to accomplish above ground. The tunnel strategy is based on the principle of secure, concealed movement in order to take the enemy by surprise at an unexpected place and time. This is made possible by preparing combat bases that are hidden and far from populated areas.

Later, Abu Zbeid analyzed the use of tunnels from military aspects during various wars throughout the 20th century, especially in the Vietnam War. For example, he noted that the Viet Cong used tunnels to sabotage the advance of American forces by, among other things, setting ambushes

⁵ Ibid. p. 32

outside and inside the tunnels while using hand grenades, snakes and scorpions, which were hanged from tunnel ceilings to kill US forces, and more.

In his dissertation, Abu Zbeid also discussed **Hezbollah's tunnels**.⁶ According to him, **Hezbollah began building a network of tunnels in 2000 when the IDF withdrew from southern Lebanon**. After the Second Lebanon War (2006), it restored and fortified them. During this period, the tunnels served as a stockpile for short and medium-range missiles, and anti-tank missiles. According to the paper, during that period Hezbollah reached approximately 600 tunnels that were intended to store ammunition and weapons, and were set up at strategic locations, such as south of the Litani River. "For security reasons, no commander knew the location of each hiding place. Each combat unit was allotted only three tunnels, a main weapons depot, and two reserve tunnels in case the central warehouse was damaged".⁷ It further stated that members of the combat cells did not know the members of the other combat units and were not familiar with the structure of the tunnels in general. This helped the Hezbollah leadership to surprise the enemy and to continue maintaining contact with the fighters during Israel's attacks.

According to Abu Zbeid, several strategic and tactical conclusions can be drawn from this historical review that also apply to the Palestinian resistance with regard to the tunnel strategy:

1. The tunnels are used for concealment and camouflage; surprise; attack; maneuvering; containment and prevention.
2. The tunnels are a combat tool used to preserve movement, surprise, and defense even in areas that are not conducive to guerilla warfare.
3. The tunnels are constructed in secret, from far from the fighters' communities and homes. The deployment of the tunnels enables movement out of the enemy's sight.
4. The tunnels give an advantage to the weaker side, helping it to overcome its strong opponent, to strike its opponent with painful blows, and to reduce the existing gap in the balance of power between the two sides.
5. The tunnels are safe areas for carrying out terrorist attacks. Thanks to them, it is possible to concentrate combat forces at an important point in the battle, to dilute the size of the forces elsewhere and to maintain the unity of the leadership.
6. The concept of the tunnels maintains that terrain and nature should be exploited in light of military weakness.

⁶ Abu Zbeid based this on an article that was published in the Lebanese daily, Al-Akhbar, which is affiliated with Hezbollah. Sayf Da'na, "Hezbollah's Resistance in July: An Engineering Wonder", **Al-Akhbar**, July 22, 2013. <https://al-akhbar.com/Opinion/54553>

⁷ Abu Zbeid, p. 48.

7. The tunnels do not allow for a proper assessment of the number of combat forces. They make it possible to surprise the enemy and to hide from it at any time, and they enable movement and assistance.
8. The fear of mines and explosives in the vicinity of the tunnels causes fear and demoralization among the enemy's soldiers.

The Growth Process of the Tunnels Within Israel's Borders

Later in the third chapter, Abu Zbeid reviewed **the growth process of the tunnels within Israel's borders**. He pointed to the years 1949-1967 as a period in which the tunnel phenomenon began to grow along the border between Egypt and Israel. In 1983, less than a year after the implementation of the Camp David Accords, IDF forces uncovered the first tunnel in the Egyptian-Israeli border area, and since 1994, with the establishment of the Palestinian Authority, there has been an increase in the use of the tunnel phenomenon to smuggle drugs, gold and other products that have produced handsome profits for both Palestinian and Bedouin merchants in Sinai. As for arms smuggling, the phenomenon was rare. After the Al-Aqsa Intifada, that is, in the last quarter of 2000, the tunnel phenomenon reached a turning point when they began to be used to smuggle weapons to armed Palestinian factions. This phenomenon gained momentum and drew a response from IDF forces, which destroyed hundreds of homes in the city of Rafah. With the Hamas takeover of the Gaza Strip in 2007, the tunnels were also used to smuggle food, medicine, fuel and other products. In an interview held by Abu Zbeid with a senior Hamas official, the latter noted that "the Palestinian resistance began to rely on these tunnels in a heavily increasing manner. Every offensive action, missile launch, or transfer of jihad operatives requires tunnels on a basic level. For this reason, [the tunnels] became a strategy that served all these things, and helped reach vital and strategic areas within our occupied land".⁸ In an interview with another senior Hamas official, Abu Zbeid noted that the idea of digging underground tunnels was intended to reach military bases from below, plant explosive devices and destroy them.⁹

Abu Zbeid concluded that the tunnel phenomenon gained momentum during the Al-Aqsa Intifada and were used not only for the purpose of arms smuggling, but also to carry out quality terrorist attacks and to instill fear among the Jewish population. Thus, he noted five tunnel attacks that occurred until 2005 that helped to destroy and damage IDF army outposts. He referred to an attack

⁸ Abu Zbeid, p. 54.

⁹ Ibid.

carried out by operatives from the military wing of Hamas, the Izz ad-Din al-Qassam Brigades, on September 26, 2001, against the " Tirmit" military outpost near Rafah. In the attack, the terrorists managed to dig a tunnel that reached the outpost and to place explosives there, wounding and injuring soldiers. Abu Zbeid analyzed the attack and pointed out the following:

1. **The attack marked the beginning of tunnel attacks** and posed a military challenge to the IDF, not only because of the damage caused to a military post but because of the ability of Izz ad-Din al-Qassam Brigades operatives to reach deep inside the post and blow it up.
2. The above attack proved that the separation fence idea failed and that the it does not constitute an obstacle to resistance activity taking place underneath the fence via the tunnels.
3. The attack proved that the Izz ad-Din al-Qassam Brigades were able to develop a military plan and capabilities, which were manifested in surveillance and intelligence operations, delineation of a plan, and execution of the operation.

Type of tunnel attack	Number of tunnel attacks	Number of enemy deaths	Number of enemy injuries	Captive soldiers	Martyrs of the resistance
Explosion of the military post by planting explosives underneath it	4	18	53	0	1
Use of tunnels to enable operatives to reach the military outpost	2	3	10	1	4
Total	6	21	63	1	5

Data regarding the use of explosive tunnels between 2001-2005

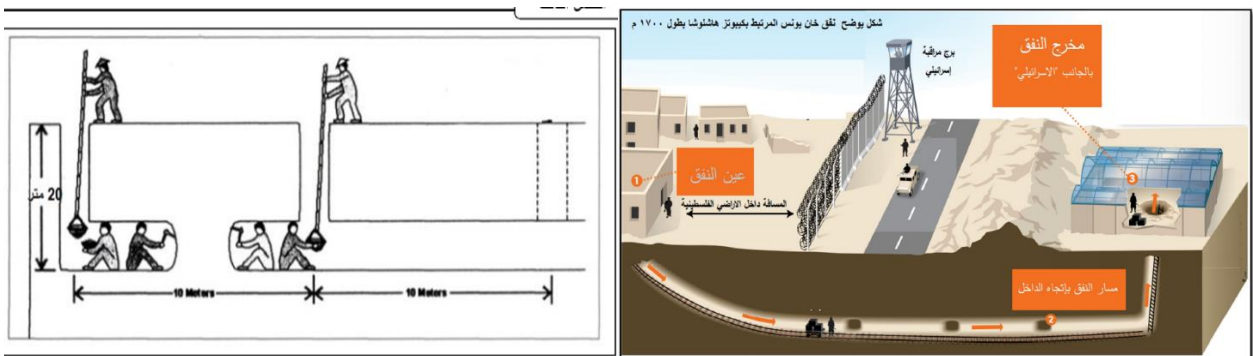
Abu Zbeid further concluded that during the period between 2001 and 2005, the tunnel strategy was a huge success because it proved that the mujahideen were able to reach deep into enemy territory and instill fear among IDF forces. In his opinion, these military operations demonstrated several things:

1. The high capability of the resistance in planning and executing the construction of a tunnel and in keeping the information secret, especially in light of the fact it takes about four months to dig a tunnel, the excavation takes place several hundred meters from an Israeli military post and involves more than 40 people.
2. The success of the tunnels in damaging part of the IDF's security and military strategy.

3. The element of surprise prompted IDF forces to take measures to protect all of its military outposts.
4. The tunnels became a channel for transporting medical and food supplies for the civilian population of the Gaza Strip.

The Engineering Preparations Necessary for Tunnel Excavation

In his research, Abu Zbeid also discussed the **engineering preparations necessary for tunnel excavation**. For example, he noted that the excavation is mainly carried out in places close to the border, such as in residential homes or in places that are not visible. There must be a place at the entrance to the tunnels to dump the sand extracted from the excavations, and a place to create the concrete slabs that will support the tunnel walls and ceilings. Three things are essential in the excavations of tunnels: digging in the ground requires appropriate technology according to the type of soil and rocks; fortification must be built for the tunnels to help support unstable ceilings and walls; utilities must be added to the tunnels, such as lighting, flooring and more. The depth of the digging can reach 18-25 meters and there are some tunnels with a depth of 35 meters, which is comparable to a ten-story building. A tunnel was discovered that reached from Khan Yunis in the Palestinian territory to Kibbutz Hashlosha in Israeli territory, at a length of 1,700 meters and containing 500 tons of asphalt.



From left to right: a graph illustrating a tunnel that was dug by Hamas operatives from Khan Yunis to the community of Ein Hashlosha; how a tunnel was dug by Viet Cong fighters in Vietnam

Thought was also given to the dangers involved in excavating tunnels, such as the concentration of sudden rainfall in the tunnel; a power outage and lighting in the tunnels; sand leaking into the tunnel that could lead to their collapse; and more. Abu Zbeid provided data on the number of diggers killed as a result of work accidents in the tunnels between 2006-2013, according to the following table.

Year	2006	2007	2008	2009	2010	2011	2012	2013
No. Killed	197	17	59	65	33	30	8	13

Data on the number of Palestinian tunnel diggers who were killed as a result of work accidents in tunnels between 2006-2013

The Types of Tunnels in Military Use

According to the dissertation, **military use was made of several types of tunnels in the Gaza Strip:**

- 1. Strategic Tunnels.** Tunnels designed to be used for attack and defense purposes; a network of tunnels with many entrances and exits. This includes command and control rooms, resting places for fighters, a continuous supply of food and drink that will allow them to stay in the tunnels for a long time, and more. Some of them have iron doors to protect the other tunnels and fighters in case one of the tunnels is blown up. “The strategic tunnels are a kind of small underground city. It is possible to train in them for a long period of time and they are used in important missions to contain and prevent the enemy from entering deep into the Strip, and to carry out offensive actions against military outposts and settlements outside the borders of the Strip”.¹⁰

- A. Attack Tunnels.** These tunnels have several exits that are used for setting ambushes and attacking IDF forces.



An illustration of an attack tunnel reaching an Israeli base area

¹⁰ Abu Zbeid, p. 66.

- B. Defense and Combat Tunnels.** These tunnels are found inside the borders of the Gaza Strip next to residential areas. These tunnels have dozens of openings and are meant to block land invasions, set ambushes, flank the IDF's penetrating forces and fight against them.
 - C. Rocket and Mortar Tunnels.** These tunnels are used to launch mortars or rockets, which are concealed by an opening steel door. Due to the difficulty of the fighters to move freely above ground and launch rockets at Israel, they use the tunnels for this purpose.
 - D. Aid and Contact Tunnels.** Tunnels that are used for logistical purposes, including the supply of food and water, the transfer of military equipment, launching pads, rockets, fighters and more for the benefit of the combat units. These tunnels are also used to smuggle weapons from the Sinai Peninsula to the Gaza Strip, such as anti-aircraft and anti-tank missiles, rifles, pistols, cars and more. According to Abu Zbeid, the tunnel network is a central and important element in the ongoing supply of logistical equipment, which is critical to the success of the resistance. The IDF's efforts to prevent aid from reaching the resistance, such as through the siege on Gaza, led the fighting Palestinian factions to rely on the tunnels as a repository of logistical supplies.
 - E. Command and Control Tunnels.** These tunnels function as a kind of situation room for the Hamas leadership. In other words, due to the Hamas leadership's fear of liquidation, they take refuge in the tunnels where they receive help in order to continue to command the campaign, conduct military operations and assign tasks to the fighters.
- 2. Internal Connection Tunnels.** Short tunnels that connect nearby areas, such as roads and streets. Their purpose is to assist resistance forces in their movement and positioning in areas far removed from wartime surveillance.

Combat Principles in the Tunnel Strategy

Later in the study, Abu Zbeid presented conclusions related to the conduct of war and the principles of warfare that are reflected in the tunnel strategy:¹¹

¹¹ Abu Zbeid, p. 80.

1. The conduct of every war in the Gaza Strip requires coordination between the political leadership and the military leadership. All available options must be exploited to achieve the goals formulated by the resistance.
2. "Making the right decisions is the first step in successfully waging war. The decision is the starting point of the actions and means to achieve the desired results."
3. "War is a continuation of policy. War is intended to achieve political goals, and therefore the resistance must renew its goals and agree on them."
4. "The resistance must plan well for the war, predict future scenarios and prepare for them. In other words, when a war breaks out, it must examine the situation of the enemy and concentrate its forces in one place of activity, so it will not be forced to disperse its forces and withdraw its troops according to the enemy's deployment."
5. "In a time of war, the resistance [forces] must use force in a centralized manner to inflict heavy casualties on the enemy, as much as possible".
6. Since the nature of war differs from one to another according to the existing circumstances, the most important combat principles must be defined when using the "tunnel strategy", including: camouflage and concealment; attack; maneuvering; surprise; containment and prevention.

D. The Tunnel Strategy in the Gaza War (2014)

In the fourth chapter, the author discussed the reasons for the war in Gaza in 2014 (Operation "Protective Edge"), its goals, the battle plans of both Israel and Hamas, the combat methods, and more. He listed the military goals of the Palestinian resistance in the war:

1. Thwarting the achievement of the enemy's goals.
2. Thwarting the Israeli offensive.
3. Leveraging the war into a constant struggle and escalation until the liberation of all of Palestine.
4. Thwarting Israel's intention to destroy Palestinian society's social, political, economic and educational resilience. Ending the war in Gaza by achieving a cease-fire that will allow breathing space for the Palestinian nation according to the conditions set by Hamas.

Along with the above, Abu Zbeid described the political objectives of the resistance in the war, including:

1. Strengthen the legitimization of the resistance.

2. Renew the Palestinian right to its land.
3. Link the resistance and the Palestinian people to the Arab nation and the Islamic nation.
4. Isolate the occupation, cause it to lose international legitimacy or at least regional legitimacy.

This is not the place to present a detailed picture of the war, since the focus is on how Hamas perceived the integration of the tunnels into the war. However, it is worth addressing the insights and conclusions that the author formulated regarding the tunnels. According to Abu Zbeid, the Hamas leadership began to restore its power immediately following the end of Operation "Pillar of Defense" (2012) and prepared for the next war with Israel. This was done, inter alia, through building and strengthening its fighting capabilities, which were based on three fundamental pillars:

1. Rocket power. This power was well-prepared for war thanks to the underground rocket launching and storage system.
2. Selected units. The Hamas leadership invested tremendous effort in strengthening its land forces. It trained them for offensive and defensive battle. In addition, it mined the combat area with roadside bombs, turned residential areas into defensive zones and deployed armored units, rockets and snipers.
3. Strategic tunnels. The tunnels were a central component of the Hamas leadership's preparations for war. They were used as a hiding place for the leadership, a storage place for weapons and ammunition, transit, communications, and defensive and offensive activity.

According to Abu Zbeid, the Palestinian resistance used a very advanced and developed strategy of guerilla warfare during the war in Gaza in 2014, which included modern combat techniques. In addition, the author listed weapons that were independently produced by Hamas, such as anti-tank missiles.

Attack Tunnels

According to Abu Zbeid, the integration of the tunnels in Hamas's combat strategy became necessary due to the massive IDF fire, which threatened the fighters' activities above ground, and because they were an effective tool in striking heavy blows to the enemy. Moreover, they had achieved important successes in the wars in Vietnam, Iraq, Afghanistan, and Hezbollah. In an interview with a senior Hamas figure, the latter noted that "the tunnels of the resistance in Gaza are an exceptional tool of the resistance because the Israeli side, with all of its military, intelligence

and technological systems, cannot reach the network of resistance tunnels and destroy them”.¹² According to Abu Zbeid, Hamas learned lessons from the two previous wars in the Gaza Strip and formulated a new strategy in the war in 2014, in which the tunnels played an important role in the battle against IDF forces. As mentioned, these tunnels were used for the purposes of attack, defense, mobility, storage of ammunition and rockets, and more.

Abu Zbeid noted five attacks that were carried out by Hamas forces using the attack tunnels during the war. For example, he referred to an incident in which several terrorists from the Izz ad-Din al-Qassam Brigades attacked a military post in the community of Nahal Oz on July 28, 2014. According to him, Hamas forces attacked the military post, killing several soldiers who were there, and even attempted to kidnap a soldier, but they failed because of the terrain. Finally, they returned safely to the Gaza Strip with a Tavor rifle as loot.

Based on these attacks using the tunnels, Abu Zbeid drew several conclusions, including:

1. These attacks demonstrated development in the military planning and implementation of the resistance, which were expressed in observations, intelligence gathering, planning, preparations for the attack, and utilization of the period of calm for preparation and equipping.
2. These attacks challenged the IDF militarily and in the field.
3. These attacks served as a message to the enemy that the Palestinian resistance forces can reach any point they want despite physical barriers and obstacles, such as the separation fence.
4. These attacks emphasized that the IDF's intelligence apparatuses had failed to predict and gather intelligence about the capabilities and planning of the resistance.
5. The filming of attacks against military outposts, as took place in the attack at the Nahal Oz outpost, are part of the psychological warfare aimed at demoralizing IDF soldiers and damaging the image of the Israeli soldier in the eyes of Israeli civil society, which views the IDF as defending its security. An image of victory must be transmitted from the field to the media.
6. These attacks were characterized by initiative and took the Israeli army by surprise.
7. In terms of planning: On the strategic level, these attacks included combat principles such as surprise and initiative, and were based on several tactics, such as deception.
8. Such attacks contribute to raising morale and harming the morale of the enemy.

¹² Abu Zbeid, p. 107.

9. The execution of attacks in enemy territory constitutes a hard blow to Israel's security and enables the resistance to take control of the battle arena on the ground and to create a precedent within the framework of a "war of the minds".
10. The conduct of the war, the command and the control over military units proved to be effective.



Attacks carried out by Hamas forces against Israeli military posts in the Gaza war (2014) via the attack tunnels

Defense Tunnels

Abu Zbeid noted six military operations that were carried out using defense tunnels to block the advance of IDF forces into Gaza. He referred to the battle of Al-Shujai'iya, which took place on July 20, 2014, in which Hamas operatives ambushed the IDF force that entered the area. According to him, Hamas operatives detonated a minefield on which an IDF force was walking, killing 14 soldiers and resulting in the capture of Israeli soldier, Oron Shaul. It should be noted that in this and other incidents, Abu Zbeid exaggerated the number of IDF casualties. In the battle of Al-Shujai'iya, seven soldiers were killed, and not 14 as the author claimed. According to Abu Zbeid, the study found that "these tunnels were the main reason for the success of the battle of Al-Shujai'iya. [...] They played a significant role in preventing the occupying forces from settling in the areas they had invaded and in preventing the Israeli plan to divide the Gaza Strip into three parts in order to prevent contact between resistance operatives".¹³

According to Abu Zbeid, several military insights can be formulated from an analysis of the military activities that were carried out through the defense tunnels, including:

¹³ Abu Zbeid, p. 113.

1. The defense tunnels helped prevent the advancement of IDF forces into the residential areas of the Gaza Strip and strengthened the ability of the resistance to fire, monitor and become familiar with the arena of the resistance.
2. The defense tunnels enabled resistance fighters to move and concentrate forces in many centers of activity and in times of emergency.
3. The defense tunnels and the maximum use of force made it possible to trick and deceive the enemy.
4. The defense tunnels helped the resistance fighters set ambushes and attract IDF forces to them, as happened in the battle of Al-Shujai'iya.
5. The defense tunnels allowed armored forces to operate effectively against enemy forces in a manner that posed a serious threat to the latter in the war.

According to Abu Zbeid, the tunnels also served as a launching base to fire rockets and missiles towards Israeli communities. Thanks to them, the resistance was able to continue launching missiles and rockets on a constant basis, and to conceal their location from exposure and attack by IDF forces. According to him, a total of 3,334 rockets and missiles were fired at Israel during the war and the Iron Dome only managed to intercept 700 of them.

In the chapter summary, Abu Zbeid noted that the Palestinian resistance succeeded in developing its military production capabilities, such as missile launching systems, personal weapons, electronic equipment designed to deceive the Israeli Air Force, psychological and moral preparedness among the fighters and the Palestinian people, coordination capabilities, and communication capabilities between the resistance fighters and the Palestinian people. He claimed that the Palestinian factions managed to surprise Israel at an early stage of the war, as demonstrated in the launching of missiles at major cities in the Gush Dan area, including Tel Aviv, the infiltration of fighters from Gaza into Israel, and the infiltration of Hamas naval forces into Israeli territory. Moreover, according to him, Hamas succeeded in influencing Israeli public opinion and conducting an effective psychological war.

E. The Strategic Impact of the Tunnels on Israel During the Gaza War (2014)

In the fifth chapter, the author discussed two central topics: the impact of the tunnels on Israel and whether they will continue to play a role in the next war against Israel, and the methods of response by the Palestinian resistance to Israel's reaction to the "tunnel strategy".

The Strategic Impact of the Tunnels on Israel

According to Abu Zbeid, the "tunnel strategy" had an impact on Israel in several areas:

The military aspect:

1. The IDF was not aware of the extent of the tunnel threat.
2. The IDF did not have the combat tools necessary to deal with the tunnel threat.
3. The IDF refrained from sending in forces and from underground combat.
4. The tunnels proved their effectiveness in creating an atmosphere of continued fighting on the one hand, and of protecting the lives of the Palestinian fighters on the other hand.
5. The tunnels, as a concealed underground combat tool constituted a conceptual obstacle for the IDF, which fights according to the Western way of fighting.

The political aspect:

1. The tunnels highlighted the dispute between the political echelon and the military echelon to the point of mutual derision in public regarding the tunnel strategy during the war in Gaza (2014).
2. The size, scope and presence of the tunnel system in Israeli territory shocked the Israeli political echelon.
3. The Israeli leadership had no clear plan nor previous plans regarding the tunnels, resulting in chaos and arbitrary decisions during the war.

The moral aspect:

In the author's opinion, the tunnel strategy succeeded in damaging the personal and collective sense of security of the Jewish residents in the Gaza envelope. Indeed, at first, they stayed in their communities despite the mortar fire, but as the scope of the tunnels and the danger they pose became clear, they left their homes. In other words, the author maintained that the tunnel strategy has an influence both in the physical dimension and in the moral, conscious dimension.

Use of the Tunnel Strategy in Future Clashes with Israel

In the series of interviews that Abu Zbeid held with academics in the field of strategy and security, and with the field commanders of several armed Palestinian factions in the Gaza Strip, they all stressed that **the tunnel strategy will be an integral part of the battle against Israel in future wars as well**. One Palestinian academic described the tunnels as the lifeline of the resistance, imbuing it

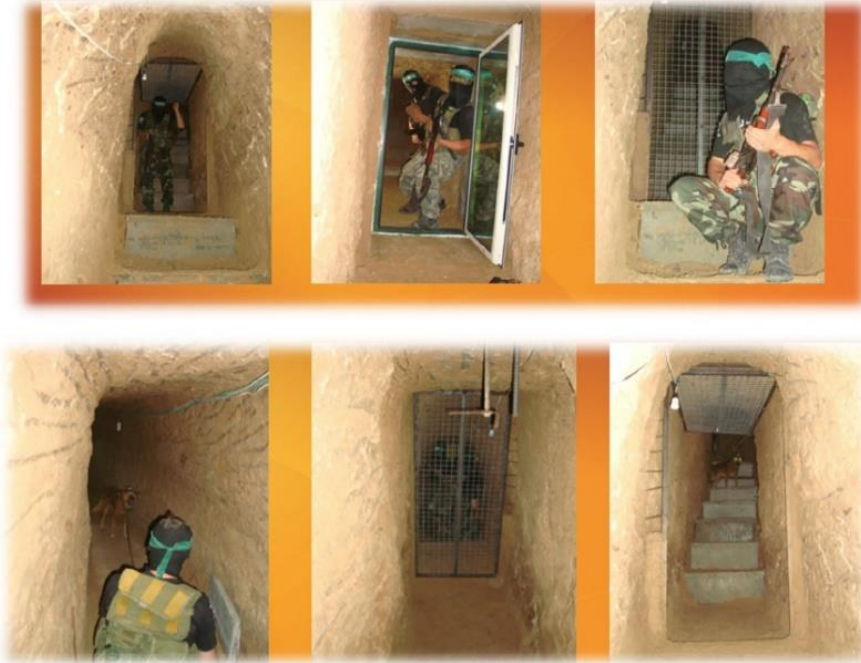
with vitality and strength. Another academic noted that the use of tunnels has greater value in Gaza than in any other area because of the inability to move freely on the ground before the watchful eyes of the IDF. In his opinion, the tunnels also have a deterrent and psychological dimension to the Israelis, and he claimed that as a result of the war in Gaza (2014), the number of communities in the Gaza envelope began to decrease. A Palestinian field commander emphasized that the tunnel system must be an inseparable part of coming wars with Israel, and that they should be prepared for future escalation. Abu Zbdeid himself agreed with these assessments and stressed that **“the tunnels are considered a lifeline, and a strategic, operational and logistical necessity if the resistance wants to remain vital and influential. In all likelihood, in the next war, its most prominent symbol will be the tunnel strategy”**.¹⁴

Methods of Response by the Palestinian Resistance to Israel’s Reaction to the Tunnel Strategy

Later in the chapter, Abu Zbeid referred to the toolbox developed by the IDF to deal with the challenge of the tunnel strategy. This is not the place to elaborate on this issue, but it is important to note that in this context the author addressed the way that Palestinian factions responded to Israel’s reaction to the issue. For example, he noted that it was clear that the resistance had formulated a plan to deal with the threat of gas, which is inserted into the tunnel in order to harm its occupants. According to him, there are several solutions to this threat: escape from the tunnel using vehicles located inside the tunnels; use sealed doors to prevent the penetration of gas; enter secure rooms inside the tunnels. Later, he provided additional insights on the matter:

1. The resistance succeeded in developing engineering tunnels that do not allow IDF forces to operate within them.
2. The resistance develops tunnels with various forms and physical features that are different than those discovered by IDF forces.
3. The number of obstacles inside the tunnels has increased, such as iron gates and gas-resistant doors, in order to protect the fighters from the persecution of IDF forces and their dogs.
4. A large number of small fans must be operated for oxygen to flow inside the tunnels.
5. Field security must be provided at the location or the main entrance of the tunnels.

¹⁴ Abu Zbeid, p. 131.



Examples of the use of obstacles and doors within the tunnels in order to protect the lives of the terrorists

According to Abu Zbeid, several combat tactics within the tunnels are used to combat Israel's response to the tunnel challenge:

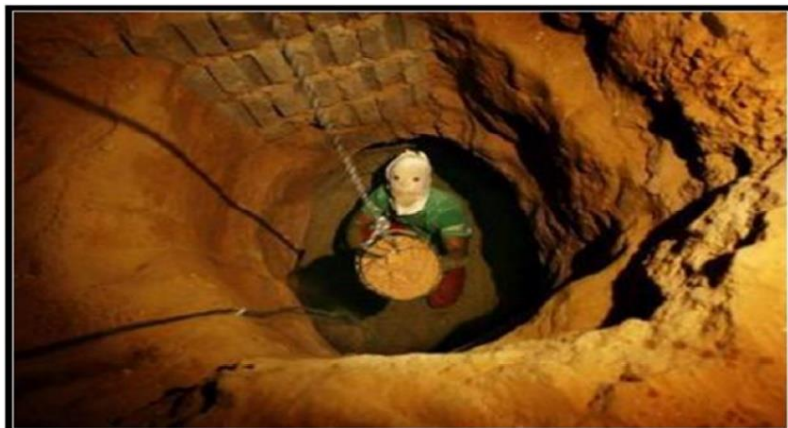
1. Obtain accurate information about the enemy before carrying out military missions.
2. Formulate a precise plan and assign roles to the fighting force before the attack begins.
3. Select close targets and avoid a hasty exit. The fighter should remain in a concealed ambush and wait until the target is in front of him.
4. Do not leave the opening of the tunnel unguarded during an attack. Rather, station a fighter to guard it while the others advance towards the target, execute the mission and withdraw after the attack.
5. In the event of advancement toward the target of attack, a fighter carrying an explosive charge must be stationed at the head of the combat force. Even if the force is exposed, it is necessary to continue the mission since that fighter will be able to carry it out alone without the assistance of his fellow soldiers.

According to the author, Israel had difficulty finding ways to expose the tunnels and used traditional methods. Thus, the Israeli Shin Bet tried to make phone contact with Palestinians who were building the tunnels, or with their relatives working in factories in Israel, in order to recruit them as agents to provide information on the subject. Another method was to track the mobile phones of those diggers as they went underground and to formulate an assessment of

the tunnel's location. However, according to the author, the tunnel diggers do not carry mobile phones with them when they descend into the depths of the earth, but rather they use internal communication along the tunnels.

According to the author, the Palestinian resistance uses several security measures to maintain the secrecy of the tunnels:

1. The excavation or opening of the tunnel is done on land that is out of sight, in residential buildings or in agricultural fields such that movement in such places is conducted in a routine and safe manner.
2. All of the workers who take part in digging the tunnels do not know the way to reach them and they are taken to the tunnels in private cars. The number of diggers is limited so that sensitive information is not leaked.
3. The sand removed during the digging must be placed at remote locations or used to support the excavation so as not to draw attention.



A Palestinian worker removing sand from a tunnel

According to Abu Zbeid, Israel invested millions of dollars and is still investing a great deal of money in finding technology that will be able to locate the tunnels. For example, he referred to the establishment of a special radar that is planted underground to send sound waves to locate the tunnels; an MTGR robot equipped with cameras to help IDF soldiers locate the tunnels; and more. He claimed that all Israeli efforts to find a suitable technology to locate the tunnels have failed, and that Israel is relying on a partial technological solution. However, he stressed that the Palestinian resistance "cannot give up the tunnels in the future and will continue to improve its capabilities since the need for the tunnel strategy in the Gaza Strip is greater than anywhere else because Gaza is enclosed and exposed, and is subject to blockade". According to him, the

combination of the tunnels and missile launches at Israel will be used in the next war against Israel as well. ¹⁵

F. Research Conclusions

Research Conclusions for the Palestinian Resistance:

1. The tunnel strategy proved that the resistance had begun to develop planning and military capabilities, and to effectively prepare the arena of activity during the periods of ceasefire.
2. The use of the tunnel strategy in military operations during the war in Gaza (2014) proved several things:
 - A. Thanks to the offensive operations carried out through the tunnels, the Palestinian resistance implemented the principle of surprise, initiative, camouflage, maneuvering and warning. In addition, thanks to them, the resistance succeeded in taking control of the arena of activity.
 - B. Thanks to the defensive operations carried out through the tunnels, the Palestinian resistance prevented the IDF from any consolidating on the ground and from gaining any advantage. The defense tunnels helped in the setting of ambushes, succeeded in attracting IDF forces to traps as happened in Al-Shaja'iyah, and allowed resistance forces to move in times of emergency.
 - C. Missile and rocket fire from the tunnels enabled Palestinian resistance forces to carry out the firing within a few seconds, and provided security to the teams launching the missiles.
3. The Palestinian resistance in the Gaza Strip drew lessons from the previous wars (2008 and 2012) and became convinced that clashes with IDF forces above ground is difficult given the latter's advantage in the air and because of the topography in Gaza.
4. The tunnel strategy enabled the Palestinian resistance to overcome the IDF's superiority and prevent it from using the tools that give it an advantage. "The tunnel strategy played an important role in evacuating the settlements in the Gaza envelope and in pushing the military outposts several kilometers back due to fear of infiltration through the tunnels."¹⁶
5. The way in which the Gaza war (2014) was conducted indicated that the resistance relied on the tunnel strategy to overcome the small geographical area of the Gaza Strip and the absence of a suitable terrain, which could have helped resistance forces hide from the IDF

¹⁵ Abu Zbeid, p. 145.

¹⁶ Abu Zbeid, p. 147.

and surprise it. Israeli intelligence was helpless when it came to the tunnels because the fighters were hiding underground, and the tunnels protected the leadership from harm.

6. Thanks to the tunnel strategy, the Israeli political echelon was forced to redesign its method of combat. The Palestinian resistance succeeded in transferring the campaign to enemy territory, since its fighters infiltrated Israeli territory through the tunnels. Due to this threat, the IDF was forced to protect cities and vital places inside Israel and to intensify its activity on the Gaza border.
7. The tunnel strategy played a central role in Gaza's steadfastness vis-a-vis Israel. "It enabled the resistance to preserve its capabilities, as well as its military and political leadership," while leaving growing concern among the ranks of IDF units and settlers.¹⁷

Research Conclusions for Israel:

1. The tunnels constitute a very serious strategic danger for Israel.
2. The IDF used all means at its disposal to expose the tunnels. It sought help from intelligence information, agents, aerial photographs, surveillance towers, tapping of mobile phones and wireless networks, and patrols tracking changes in the topography of the land, using technological means - but without a positive result. The resistance succeeded in thwarting these plans.
3. There have been substantial efforts by Israel to resolve the tunnel issue, but most have failed. At the same time, efforts to find a solution continue.

General Conclusions:

The war in Gaza (2014) challenged the perception that Israel, despite its high military and technological capabilities, cannot defeat the power of the Palestinian resistance, which managed to endure more than 50 days and maintain its achievements until the end of the war. This was due to the proper conduct of the war, the planning capabilities and morale of the Palestinian resistance and the Palestinian people.

Recommendations

1. The Islamic resistance must decide on a unified military strategy that will allow the next war to be conducted in accordance with the following strategy: guerilla warfare, containment and prevention, the tunnels, and self-production.

¹⁷ Ibid.

2. Significant changes in tunnel configuration must be made; do not rely on one specific route since “the Israeli army is conducting intensive training in the tunnels that have been exposed, and attempting to create new combat styles to be used in any future war.”¹⁸
3. Some of the ideas and means used in the Vietnam War can be applied to the uniqueness of the Gaza tunnels, such as the construction of a diverse tunnel system characterized by various entrances, exits and areas. The purpose of this is to make it difficult for the enemy to benefit from a tunnel that falls into its hands, as well as to sabotage the advance of enemy forces by placing traps and mines inside and outside the tunnels, and by stationing special snipers in tunnels who are familiar with the tunnel routes.
4. Additional signs should be placed inside the tunnels to indicate the distance crossed by the jihad fighter, and a map of the tunnels should be placed in operations rooms if anything happens in one of the tunnels to facilitate rescue and tracking operations.
5. New and alternative methods should be devised for attack tunnels should their role fade, and in order to surprise the enemy.
6. The tunnel strategy should be expanded to include the civilian population through the construction of shelters to protect the lives of civilians from Israeli attacks. The local authorities should manage this in their respective areas.
7. Benefit should be derived from the tunnels in the future, in the form of "preserving the distinguished history of the resistance, perpetuating this style, giving it a place in history, and in conducting visits to them and observing them."
8. Involve Palestinian and Arab researchers and research centers in military and strategic research, in research and analysis of the Arab-Israeli wars, and in deriving insights and lessons on how to conduct a war with Israel.

Summary

Abu Zbeid’s research shows that “the tunnel strategy” is perceived as a central tool in the combat doctrine of Palestinian terrorist organizations in Gaza, especially Hamas. Operation “Protective Edge” (2014) reinforced the perception that the tunnels will play a special and central role in the next war against Israel, not only due to the recognition that Gaza’s topography is not ideal for fighting against Israel but also due to the various uses made of the tunnels. They can be used to infiltrate deep into Israel; to cause casualties and even abduct a soldier to use as a bargaining chip;

¹⁸ Abu Zbeid, p. 150.

to block the advance of IDF forces into the Gaza Strip and to sabotage Israel's war plans; to defend the lives of jihad fighters and the Palestinian leadership; to launch missiles from concealed tunnels; to stockpile weapons; to demoralize the IDF and Israeli civilians to the point that they evacuate Gaza envelope communities; and more.

It is clear that this perception, and the understanding that Israel has not yet succeeded in finding a complete solution to the tunnel threat, strengthen the resolve of Hamas and other armed Palestinian factions to invest tremendous efforts in constructing additional tunnels and improving them. For example, the author recommended constructing tunnels that would differ from one another in structure and shape to make it harder for them to be exposed by Israel. According to the terrorist organizations, the logical integration of tunnels and the launching of missiles at Israel could give them breathing room and allow them to overcome the military and technological advantage of the IDF, and no less importantly, to sow demoralization and fear among the Israeli civilian population.

In April 2018, Abu Zbeid reiterated that the Palestinian resistance factions, headed by Hamas, were not afraid of statements made by Israeli politicians that they had succeeded in developing new technological tools capable of eliminating all the tunnels in Gaza. On the contrary, he said they were determined to develop the tunnel system, "to continue the plan of the resistance with all tools and to rely on the strategic tunnel weapons to defend Gaza." ¹⁹

¹⁹ April 16, 2018. <https://blogs.aljazeera.net/blogs/2018/4/16/دلالات-كشف-الاحتلال-لأنفاق-المقاومة-ميدانيا/>

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