



Photo: Complex in Rafah, Gaza, destroyed in an Israeli airstrike, January 12, 2009. Credit: ISM Palestine (CC BY-SA 2.0)

The Practice of “Roof Knocking” from the Perspective of International Law

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Israel first employed the practice of “roof knocking,” whereby warning shots are fired at the roof of a building defined as a military target, during Operation Cast Lead, and has used it in subsequent operational strikes in the Gaza Strip. UN Human Rights Council commissions of inquiry have determined that the practice is an ineffective means of warning and amounts to an attack in itself, and thus does not uphold international law. Examining the legality of roof knocking from the perspective of international law, this article argues that the practice is an effective and necessary cautionary measure, given the unique circumstances that characterize warfare in the Gaza Strip, and that it goes above and beyond the requirements of international law. In addition, roof knocking as a means to prevent harm to civilians during an attack on military targets in a densely populated urban area is a strategic tool that can maintain and even expand Israel’s freedom of operation, within its national security doctrine.

Keywords: international law, asymmetric warfare, Gaza Strip, “roof knocking”

Introduction

The IDF has employed “roof knocking” in recent years, mainly in operational strikes in the Gaza Strip during military conflicts with the terrorist organizations. As part of the practice, used when there is concern that civilians are present in a building defined as a military target, a small missile carrying a low-yield explosive is launched at the roof of a building or nearby. The small missile creates considerable noise, but does not contain an amount of explosive material that can endanger those in the building or cause significant damage. The noise from the small missile aims to warn civilians of the upcoming strike, and thus enables them to find a safe place several minutes before it occurs. The IDF began using the practice in Operation Cast Lead, the military conflict in the Gaza Strip between Israel and Hamas in 2008-9 (“The Operation in Gaza,” 2009).

The military conflicts in the Gaza Strip are asymmetric conflicts that highlight the challenges inherent in operational activity in densely populated urban areas. The urban war zone is a complex combat arena fraught with obstacles for Western armies, which makes it difficult for them to achieve their military objectives through traditional doctrines of warfare. Consequently, success in asymmetric conflicts depends to a great extent on the ability to learn, quick adaptation to changing conditions, and creativity (Dekel, 2014). Unlike classic warfare, the campaign is generally waged against non-state organizations that do not have an organized army. In Israel’s case, the unorganized forces at the disposal of the terrorist organizations in the Gaza Strip use mainly tactics of guerrilla warfare and terrorism. In many cases the terrorist organizations position themselves intentionally in areas populated with civilians to blur the difference between groups of individuals and make it harder to distinguish fighters from civilians (Cohen & Cohen, 2014, pp. 176-177). These conditions are exacerbated in the Gaza Strip, one of the most densely populated regions in the world,

which further illustrates the challenges inherent in fighting on the modern battlefield, that is, in densely populated urban areas.

In this context, there is a longstanding debate on the most appropriate format of warfare in asymmetric conflicts. One approach holds that maneuver warfare is essential for victory in asymmetric conflicts, reflecting the principle stated by Ben Gurion regarding taking the war into the enemy’s territory (Segal, 2008). In addition, those who support the maneuver warfare approach believe that airpower is less effective when the enemy is embedded in a civilian population and not sensitive to state-governing logic and the cost of attacks on national infrastructure (Eiland, 2007; Shelah, 2021). On the other hand, the supporters of aerial warfare believe that even though airpower alone is insufficient for victory in classic wars, it is certainly capable of achieving strategic victory in asymmetric conflicts, by temporarily creating deterrence, eliminating capabilities, and restoring quiet, in accordance with the strategy of “mowing the lawn” (Major A., 2017; see also Ivri, 2005). Furthermore, aerial warfare significantly reduces harm to IDF forces, especially among combat units, and simplifies the stage of planning the exit strategy.¹

In practice, Operation Guardian of the Walls once again illustrated the clear preference that Israel’s national and military leadership have for deterrent operations based mainly on airpower (Brun, 2021). Indeed, it is clear that airpower—whether used as a central tool or alongside full or partial maneuver warfare—will continue to play a cardinal role in future conflicts in the Gaza Strip. At the same time, there is no dispute that airpower in asymmetric conflicts must be used moderately and with particular precision, in order to avoid disproportionate harm to the civilian population. To this end, Israel has been compelled to develop creative solutions that enable it to reduce the harm to Gaza’s civilian population, but at the same time maintain, and perhaps even expand, the military’s freedom of operation.

Israel must balance between the immediate military need—namely, striking Hamas’s military infrastructure and that of the other terrorist organizations—and the obligation to avoid disproportionate harm to civilians. Due to the uncertainty and confusion that exist among the civilian population in times of war, the standard means of precaution and warning, such as phone calls, printed flyers, and radio broadcasts, have not always produced satisfactory results when it comes to reducing harm to civilians, and as a result, have limited Israel’s freedom of operation. Consequently, a real need arises for an innovative means of warning, which enables Israel to strike the military infrastructure of the terrorist organizations but at the same time reduce as much as possible the harm to civilians who live in the combat theater. The knock on the roof method aims to address this need, by implementing a unique technique.

Roof knocking is only used when there is concern that civilians are located in a building that constitutes a legitimate military target and have remained there despite prior warnings to evacuate. Consequently, the launching of the small missile is accompanied by real-time visual surveillance in order to ensure that the civilians heed the warning, and that the military target is indeed emptied of those inside it. After launching the missile, and based on visual surveillance, the operational forces must assess whether the expected collateral damage, that is the amount of harm to civilians—including those who have chosen to remain in the building—is not excessive in proportion to the anticipated military advantage from striking the target, and accordingly, confirm or cancel the strike. Israel contends that the process occurs only in cases in which civilians have not heeded the traditional warnings already provided. As such, roof knocking is in fact the final stage in a series of warnings and precautions taken before striking a military target, and is actually a cautionary addition to the customary methods.

The Legal Framework

The judicial context for the issue of roof knocking is Article 57 of Protocol I of the Geneva Convention. The State of Israel joined the Geneva Convention in 1951, but it is not a party to the two additional protocols, because similar to the United States, Israel expressed general opposition to the protocols when they were drafted (Lapidot, Shany, & Rosenzweig, 2011, p. 58).

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However, even though it is not a party to Protocol I, and although its content has not been adopted in internal state legislation, Israel recognizes the customary validity of some of the Protocol’s provisions. The legal system in Israel has adopted the customary law of international rulings without ratifying the specific conventions that the provisions stem from, as long as there is no contradiction between them and state law (*Affo v. Commander of IDF Forces in the West Bank*). And indeed, in cases in which the Supreme Court has discussed the question of the protocols’ standing in Israeli law, it has ruled that some of the provisions of Protocol I constitute customary law, and as a result, apply to IDF actions (Lapidot, Shany, & Rosenzweig, 2011, pp. 55-59).

The obligation to take precautions before a strike and derivative measures, enshrined in Article 57 of Protocol I, are included in this definition, as they reflect customary international law (Henckaerts & Doswald-Beck, 2005, Rules 15-20), and thus are seen as having obligatory legal applicability for Israel. Article 57 includes several sub-articles, as follows:

1. Article 57(1) lays out the basic standard for conduct in war, imposing a positive

obligation to take “constant care” to prevent harm to uninvolved civilians.

2. Article 57(2) breaks down the obligation of caution into particular obligations, the main ones being:
 - a. Article 57(2)(a)(ii) sets an obligation to take all feasible precautions in the choice of means and methods of attack, in order to prevent or minimize harm to civilians.
 - b. Articles 57(2)(b) and 57(2)(a)(iii) impose an obligation to avoid, cancel, or suspend an attack whose anticipated damage to the civilian population is excessive in relation to the military advantage anticipated.
 - c. Article 57(2)(c) imposes an obligation to provide effective advance warning of attacks that may affect the civilian population, unless circumstances do not permit.

On the face of it, it seems that the article relevant to roof knocking is Article 57(2)(c), because it obligates the attacking side to provide effective warning of attacks that could harm civilians. This goes hand in hand with the principle of proportionality, which requires that the harm to uninvolved civilians be proportional to the military advantage anticipated from the attack. Consequently, the fewer civilians there are in a structure that constitutes a military target, the easier it is for the attacking side to abide by the standard of proportionality. Thus, the connection between warning and meeting the standard of proportionality illustrates that from the perspective of the attacking side, this is not a zero sum game—effective warning is an important and strong means of minimizing harm to civilians, and is also a tool in the hands of the attacking side to expand its freedom of operation. Consequently, aside from being a legal and moral obligation (Kasher, 2014), providing effective warning to civilians is a clear interest of the attacking side (Sharvit Baruch & Neuman, 2011, p. 373).²

However, departing from the common conception, roof knocking can be seen as a

precaution measure, pursuant to Article 57(2)(a)(ii) of the Protocol, and not as a warning measure pursuant to Article 57(2)(c). As noted, Article 57(2)(a)(ii) requires taking all feasible precautions in choosing the means and methods of attack, in order to minimize harm to civilians. The precautions include, *inter alia*, the requirement that the attack take place at a time that reduces the potential harm to civilians, and the requirement to choose the most precise ammunition that will minimize the potential for casualties and injuries among the civilian population (Limon, 2016, p. 249). Accordingly, roof knocking can be seen as part of choosing the means and methods of attack, as the practice includes elements connected to the timing of the attack and the choice of suitable means, requirements that naturally stem from the obligation to take precautions. In addition, the practice is consistent with the rationale of precautions—preventing or reducing harm to uninvolved civilians. At the same time, the European Court of Human Rights has determined that the requirement to take precautions is not absolute, but is examined according to the standard of reasonableness given the circumstances, in a way that does not impose an unrealistic burden on the attacking side (Limon, 2016, p. 249).

There are also signs that suggest this change in perception in Israel’s official position, as reflected in its reports on the military conflicts in the Gaza Strip. Thus, in a report on Operation Cast Lead, the explanation of roof knocking was made under the title of Advance Notice to Civilians, alongside a discussion of other means of warning, such as radio broadcasts, phone calls, and distributing leaflets. In contrast, in an Israeli government report on Operation Protective Edge, the explanation of the practice was made under the title of “Means and Methods of Attack,” alongside a discussion of other precautions, such as the timing of the attack and the choice of means.

Comparison with “Advance Warning”

One of the cases in which the Supreme Court related to the provisions of the additional protocols was on the issue of the Advance Warning practice (Adalah—The Legal Center for Arab Minority Rights in Israel v. GOC Central Command, IDF). On this issue, the Supreme Court mentioned Article 57(2) in order to strengthen the validity of the obligation of warning in international law, and thus it is worth discussing its interpretation of the said obligation.

In Operation Defensive Shield the IDF developed a method of searching buildings in areas in which there was concern as to the presence of terrorists, which was called the “Neighbor Practice.” According to the practice, before the forces enter, the military force sends one of the local neighbors to the house it intends to search, in order to recommend to the residents of the building that they turn themselves in, and thereby avoid being arrested by force. Following a petition to the High Court of Justice and in light of the criticism from international human rights organizations, a new procedure called “Advance Warning” was adopted, which included a significant change from the neighbor practice: the use of the practice was aimed only at protecting civilians, and not also IDF soldiers, as previously. However, this change did not prevent another petition to the Supreme Court (Cohen & Cohen, 2014, pp. 177-178).

The Supreme Court ruled that the practice is contrary to international law. Justice Barak invalidated it, and was joined in this conclusion by Justices Cheshin and Beinisch, based on four reasons, three of which are relevant to our topic: first, based on the general principle in the laws of belligerent occupation regarding the prohibition against using civilians as part of the war effort, the court derived that the use of local residents in advance warning should also be prohibited; second, the court ruled that the advance warning practice violates

the principle of distinction and the obligation imposed on the attacking side that is derived from it—to keep civilians away from the combat area; third, the court noted the risk imposed on the local resident conveying the warning—both the immediate risk of physical harm and the broader risk of having the status of a “collaborator”—especially given the difficulty of properly assessing the existence of danger under conditions of war.

However, the court’s rulings and the reasons for invalidating the advance warning practice do not apply to roof knocking due to the completely different nature of the practice. Regarding the first reason, the prohibition against using civilians, not only does roof knocking not make use of civilians, but it also aims at keeping them away from the area of dangerous military activity. Regarding the second reason, the principle of distinction, the entire purpose of roof knocking is to distinguish between the civilian population and military activity. The practice seeks to empty the military target of uninvolved residents before the strike is carried out, and thus in fact it works in accordance with the obligation imposed on the attacking side to distance civilians from the combat zone. Regarding the third reason, the potential risk to civilians, the situation is a bit more complicated. On the face of it, it can be argued that in the case of roof knocking too, there is a certain risk to civilians, especially in cases in which they are located on the roof of the building when the practice is used; this may have occurred in the unfortunate event that took place in 2018, when two youths who were on the roof of a building that served as a military target were killed, apparently as a result of roof knocking (Kubovich, 2018). However, the risk of harm to civilians as a result of roof knocking is vastly lower than the risk inherent in advanced warning, if only due to the fact that real-time visual surveillance is part of implementation of the practice and accompanies the launch of the small missile, which significantly reduces the risk of harming civilians located on the roof

of the building at the time. The fact that the example cited is a rare case indicates in itself that in essence roof knocking does not incur a substantial risk to civilians.

Another essential difference between the roof knocking and advance warning practices relates to the accompanying conditions. In the framework of the third reason, the court addressed the difficulty of assessing risks under conditions of war.³ In contrast, roof knocking is carried out as a surgical action from the air, in which the decision to use the practice is not made on the ground in stressful conditions but rather in IDF bases under supervision and in a “sterile” atmosphere. Therefore, the mechanism of approving and implementing roof knocking in effect neutralizes the concern about improper assessment of risks and hurried decision making (see also State Comptroller, pp. 51-54).

Thus, an analysis of the ruling shows that roof knocking is completely different from the advance warning practice in that it does not involve or make use of civilians at all; on the contrary, it seeks to keep them away from the combat zone. In addition, the mechanism of approving and implementing the practice occurs far from the battle zone, and thus presumably in a controlled manner. Roof knocking therefore neutralizes the main problems that stem from the use of the advance warning practice, which led the Supreme Court to prohibit its use. Consequently, based on the rulings of the Supreme Court on advance warning, it seems that its interpretation of the obligation of warning does not invalidate the use of roof knocking.

Criticism of Roof Knocking

The practice of roof knocking was examined by the UN Human Rights Council (UNHRC) commissions of inquiry on the military conflicts in the Gaza Strip, which stated that Israel failed in its obligation to take sufficient precautions to reduce harm to uninvolved civilians. At the same time, the commissions criticized the effectiveness of the warning from roof

knocking and the very use of this method as a warning measure. It seems that the criticism can be divided into two main arguments: one is directed at the ineffectiveness of the practice as a means of warning, while the second is directed at the method of issuing the message, which purportedly amounts to an attack in itself.

The Effectiveness of the Practice

The effectiveness of the warnings that Israel has used in its conflicts in the Gaza Strip have been harshly criticized by the UNHRC’s commissions of inquiry, including the reports on Operation Cast Lead and Operation Protective Edge.

In its report on Operation Cast Lead, known as the Goldstone Report, the commission of inquiry’s criticism focused on the effectiveness of the roof knocking practice in the parameter of the clarity of the message (UN Human Rights Council, 2009, ¶532-541). According to the report, during large-scale military conflicts that include air strikes, as in Operation Cast Lead, civilians cannot be expected to distinguish between explosions that aim to warn of a future attack and explosions caused by the fighting itself. Consequently, it stated that roof knocking failed to issue the warning to civilians clearly enough, considering the above circumstances. It also stated that roof knocking could cause confusion among civilians to whom the warning is addressed, which of course significantly impairs its effectiveness, and thus it in effect subverts its intended purpose. Therefore, the commission stated that roof knocking practice cannot be considered an effective warning, as required in Article 57(2)(c).

This criticism was leveled at Israel even more stringently by the commission of inquiry on Operation Protective Edge (UN Human Rights Council, 2015, ¶235-237). Based on an examination of several cases in which Israel made use of roof knocking, the commission stated that the practice raises serious concerns about the level of effectiveness. It stated that in some cases examined by the commission, civilians did not understand that their homes

were about to be attacked, and as a result did not flee the danger zone. At the same time, the commission placed a special emphasis on the residents of lower floors, who, according to the commission, might not understand whether the warning was directed at them or at one of the nearby buildings. This confusion could lead to concern among these residents about leaving their home, and could even discourage them from moving away from the danger zone.

In addition, the commission criticized the short timespan between the roof knocking and the attack itself as not providing residents with enough time to leave the building. The commission claimed that the practice is usually implemented only a few (3-5) minutes before the attack, and in their view this is not enough time to evacuate buildings populated by families with children and elderly people, including people with disabilities. Finally, the commission stated that roof knocking is not an effective warning, in particular if it is not implemented in combination with other kinds of warnings.

Thus the first criticism argues that roof knocking is not an effective warning, primarily because of insufficient clarity and not providing enough time to evacuate, and consequently does not meet the requirements of Article 57(2)(c) of the Geneva Convention.

Issuing the Warning

The second criticism of roof knocking was first made in the UNHRC’s commission of inquiry on Operation Cast Lead, which harshly criticized the method of issuing the warning. In the opinion of the commission, the practice is a kind of attack against the civilians living in the building, and an attack, limited as it may be, cannot be considered an effective warning according to the meaning of Article 57(2)(c). The commission also criticized the element of causing fear, which stems from the noise caused by the explosion of the small missile launched toward the roof of the building. Accordingly, in its conclusions the commission stated that roof knocking cannot be described as a warning, due to its belligerent

nature, and is a dangerous practice that is more similar in essence to an attack than to a warning:

The Mission also examined the practice of dropping lighter explosives on roofs (so-called roof knocking). It concludes that this technique is not effective as a warning and constitutes a form of attack against the civilians inhabiting the building. (UN Human Rights Council, p. 19, ¶ 37)

Unlike the first criticism, this argument does not depend on factual findings, but rather rejects outright the operational technique of the practice. The second criticism opposes defining roof knocking as a means of warning, and in effect states that it does not meet the definition of Article 57(2)(c) of Protocol I of the Geneva Convention.

In summary, while the first criticism sees roof knocking as a means of warning, albeit ineffective, the second criticism rejects this conclusion and sees the practice as an attack in itself that in principle cannot be considered a warning.

The Israeli government report on Operation Protective Edge stated that although the practice is not perfect, roof knocking was certainly highly effective, and prevented the injury and killing of many civilians during the conflict.

Response to the Argument on Effectiveness

The conclusions of the Israeli government regarding the effectiveness of roof knocking as a warning are completely different. The Israeli government report on Operation Protective Edge stated that although the practice is not perfect, roof knocking was certainly highly effective, and prevented the injury and killing of many civilians during the conflict (“The 2014 Gaza Conflict,” 2015, ¶1313). According to the report, the practice was especially important

given Hamas's efforts to encourage or force Gazan civilians not to heed the warnings and to remain in the buildings that were targeted for attack. Consequently, a warning that is more tangible than standard means such as flyers and radio broadcasts was needed in order to encourage civilians to leave the buildings, over Hamas's entreaties and persuasion efforts.

According to the common assumption, the level of effectiveness of a warning is not assessed by examining the result of reduced harm to civilians in practice. In other words, the obligation imposed on the attacking side amounts to the warning being transmitted effectively, and not to a result of uninvolved civilians indeed acting in accordance with it (Cohen & Mimran, 2015). Consequently, the occurrence of unfortunate incidents in which warnings did not prevent harm to civilians does not necessarily indicate a lower level of effectiveness of the warning methods in principle, as long as the lack of success is the abnormal result. The fact that in some cases roof knocking did not achieve its objective of preventing harm to civilians does not in itself prove categorically that this is an ineffective method of warning (Sharvit Baruch, 2016, p. 41).

The level of effectiveness of the warning should therefore be examined in accordance with three essential parameters: the clarity of the message; the credibility of the warning; and the possibility of flight, including in relation to the amount of time allowed (Lieblich & Alterman, 2017, p. 142). Consequently, in order to derive conclusions regarding the level of effectiveness of roof knocking as a warning method, the practice must be examined according to the three parameters.

The Clarity of the Message

The commission of inquiry on Operation Cast Lead stated in relation to roof knocking that civilians cannot be expected to distinguish between explosions that aim to warn of a future attack and explosions that are part of the fighting itself, and thus the practice failed

in issuing the warning clearly enough to civilians. Similarly, the commission of inquiry on Operation Protective Edge also stated that sometimes citizens did not understand the warning intended by roof knocking and refrained from fleeing the danger zone. In this context, the commission related specifically to the residents of lower floors, who might mistakenly think that the warning was directed at one of the nearby buildings. In the opinion of the commissions, this insufficient clarity might cause an opposite result, meaning that civilians would be afraid of leaving the buildings and moving away from the danger zone.

However, this criticism ignores the fact that roof knocking is the final stage in the chain of warnings given to civilians before an attack, such as phone calls, flyers, and radio broadcasts, and thus the clarity of the knock on the roof cannot be examined separately from the standard warnings given beforehand. Even in cases in which due to the circumstances roof knocking serves in practice as a first warning, it is accompanied by real-time visual surveillance that aims to ensure that the residents evacuate the building.⁴

In terms of the complementary aspect of the identity of those receiving the warning, roof knocking, in contrast with other customary warning methods, is aimed directly at the specific civilians who are in danger, in the most precise and explicit manner possible. This fact highlights the conclusion that roof knocking fulfills the requirement of the clarity of the message, as part of the warning's effectiveness (Sabel, 2011).

The Credibility of the Warning

In order to maintain the credibility of the roof knocking practice in the eyes of the civilian population, it is important to ensure as high correlation as possible between the number of times the practice is used and the number of times a strike is actually carried out. For a variety of reasons it may be necessary to cancel or postpone the strike, but it is important to

strive to reduce these instances to the bare minimum. In this context, it goes without saying that the practice should not be used for purposes other than warning, in order not to erode its credibility as a warning method among the civilian population.

An interesting question that raises legal and moral dilemmas in the context of the parameter of the threat's reliability is how to act in the case of civilians intentionally ignoring a warning and not leaving the building targeted for attack. This question is not purely theoretical, given that Hamas and the other terrorist organizations encourage and sometimes even force civilians to remain in a building that is targeted for attack. First, if civilians do not heed a warning, this does not deny their protected status as civilians, and thus the attacking side is obligated to take into account the presence of civilians in the building when assessing the proportionality of the attack (Lieblich & Alterman, 2017, p. 142). However, it is possible that there is also room for considering the anticipated consequences of the erosion of the warning, in terms of civilians heeding it, when deciding on the proportionality of the attack. Consistently choosing not to attack a building in the case of civilians not heeding warnings could encourage the terrorist organizations to place heavy pressure on civilians not to heed the warning, and in effect use them as human shields to protect the military targets. Given that roof knocking is the final stage in the chain of warnings conveyed to civilians in Gaza, the erosion of its impact is very dangerous, and ultimately could leave Israel without a method of effective and credible warning, and as a result place the civilians of Gaza in greater danger. Of course, this concern does not categorically legitimize attacking military targets addressed by roof knocking, regardless of the number of civilians who refuse to leave the building, but rather illustrates the importance of using the practice in a calculated manner in advance, in order to avoid the erosion of its credibility.

In any case, given the circumstances that characterize warfare in the Gaza Strip, including

that Hamas and the other terrorist organizations encourage and sometimes even force civilians to remain in a building targeted for attack, the credibility of the warning is especially important. Consequently, a warning that is conveyed in a relatively forceful manner, such as roof knocking, could be seen by the civilian population as more credible, and as a result achieve a better result in practice in terms of evacuating civilians and protecting them than a warning conveyed in a standard form.

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The Possibility of Flight

One of the main arguments in the report of the commission of inquiry on Operation Protective Edge focused on the amount of time between the warning and the attack itself, which does not provide the residents with enough time to evacuate the building. According to the report, roof knocking, which occurs only a few minutes before the attack itself, sometimes actually serves as the first warning for the civilians. Accordingly, the commission claimed that the few minutes granted to civilians to evacuate are not enough time to evacuate buildings populated by families with children and elderly people, as well as people with disabilities. In addition, according to the report, it is necessary to take into account the amount of time civilians need to understand that the early attack, meaning the use of the practice, is in fact a warning before the upcoming attack itself. Furthermore, the commission of inquiry argued that the very fact that Israel used means of warning indicates that the target of the attack does not require the element of surprise. Therefore, seemingly, there is no reason not to provide more time to the residents of the building to complete the

evacuation of their homes, at least in cases in which the effect of surprise is not a necessary part of attacking the target.

However, criticism that roof knocking is used as a first warning is unjustified, even if there were indeed certain cases in which this was the case. Such criticism does not take into account the actions by Hamas to obstruct the standard means that Israel uses to warn the civilian population of an imminent attack. In principle, roof knocking is the final stage in a chain of warnings to civilians prior to attack, and in effect is only an additional warning beyond the standard methods. In other words, Israel uses the roof knocking warning practice only after civilians have not heeded, or could not heed, the standard warnings given beforehand. Consequently, the use of the practice as a first warning is due to the efforts by the terrorist organizations to prevent civilians from heeding the standard warnings issued in advance, to the point of rendering them useless. For example, terrorist organizations work to encourage or force civilians to remain in buildings that are targeted for attack, alongside calls from official Hamas figures not to heed Israel's warnings (Sharvit Baruch, 2016, p. 41). Thus, it seems that the early use of roof knocking as a first means of warning is sometimes a function of the situation and not an intentional policy (Schmitt, 2010, pp. 828-829).

Similarly, the argument directed at the short amount of time given to civilians to evacuate the building before attack reveals a mistaken conception on the part of the commission of inquiry regarding the nature of Israel's military struggle against the terrorist organizations. The commission ignores the fact that a significant portion of the military targets that do not involve a necessary element of surprise are buildings used for storing terrorist organizations' weapons, such as short-range and long-range rockets that are intended for launch into Israeli territory, or war rooms and intelligence offices that are used for operational purposes. This is what makes such buildings legitimate military

targets in the first place under international law. Significantly extending the amount of time could enable Hamas's operatives to remove the weapons or the intelligence-operational information from the target and transfer them to another building, and thus nullify the very purpose of the attack.

Furthermore, according to the commission, the ineffectiveness of the practice stems mainly from the confusion that it creates among civilians. As an example, the report notes a case in which after evacuating a building, the residents returned to their homes because they thought the danger had passed. It is thus claimed that extending the amount of time given to civilians for evacuating a building could cause confusion among the civilians and undermine the effectiveness of the warning, and as a result lead to additional casualties. This claim amounts to holding two contradictory positions—since according to the commission of inquiry, the amount of time granted to civilians to evacuate is simultaneously too short and too long. Thus, it is clear that there is a need to balance between leaving enough time for civilians to heed the warning and evacuate the building, and refraining from providing a warning too far in advance in a way that could mislead civilians and place them at risk.

Consequently, we can say that the amount of time given to civilians to evacuate the building must balance two objectives: first, the military need of the attacking side, meaning preventing the possibility of removing the weapons or intelligence materials from the target; and second, increasing the effectiveness of the warning in order to prevent harm to uninvolved civilians. While the first objective (the military need) seeks to minimize the amount of time between the practice and the attack, the second objective (preventing harm to civilians) is divided into two sub-objectives pulling in opposite directions: on the one hand, the need to provide civilians living in the building with enough time to evacuate the building suggests a preference to lengthen the amount of time

between the practice and the attack, while on the other hand, the need to choose the proper timing for providing a warning in a way that does not create confusion among civilians indicates a preference for shortening this amount of time.

The best option, therefore, is to adhere to a relatively short amount of time, a few minutes, as this balances the different needs best. Otherwise, not only could the military need be significantly undermined, possibly to the point of making the attack pointless, but also roof knocking could mislead civilians and cause them to think that the attack has ended, and as a result lose its effectiveness as a means of warning aimed at protecting uninvolved civilians. Furthermore, because the roof knocking is accompanied by real-time visual surveillance, presumably the amount of time between the warning and the attack will be lengthened in accordance with the speed of the evacuation, and enough time will be given for all of the building's civilians to evacuate, including those who need a longer time to do so, such as children, elderly people, and people with disabilities, as the effectiveness of the warning is in Israel's clear interest. However, it is important to avoid prolonging the time between the warning and striking the target so that the roof knocking leads to confusion among the civilians, thus losing its effectiveness.

In any case, it seems that the question of the ideal amount of time between the roof knocking and the attack is a complicated question that cannot be unequivocally determined, but rather depends on the concrete circumstances of each individual strike and requires flexibility and the use of judgment. My purpose here is not to draft a formula for the precise amount of time required according to international law, as this is not possible in a theoretical framework, but rather to present the rules of thumb and guiding principles according to international law that should be applied in each case according to its concrete circumstances. For example, in a hypothetical case in which the visual surveillance indicates that the residents

of the building are continuing to evacuate the building, while it does not clearly identify actions to remove the military infrastructure, such as transporting weapons, then it seems that the amount of time given for completing the evacuation of the residents of the building can be extended without endangering the operational aspect of the attack.

Summary of the Response to the Argument on Effectiveness

According to media reports, the United States military has adopted a warning method that is similar to roof knocking in its strikes in Iraq and Syria against ISIS, which are also mainly characterized by asymmetric warfare. A senior commander in the US military even admitted that the new warning method was adopted under the inspiration of the Israeli roof knocking practice (“US Learns from IDF,” 2016). The very fact that a foreign army saw fit to adopt the roof knocking practice, a warning method that requires significant efforts and financial costs, may well suggest an opposite conclusion to that presented in the commission's reports regarding the level of effectiveness. It is unlikely that a foreign army would adopt a costly practice that imposes voluntary limitations on itself unless it believed that this was an effective warning method that produces results that meet the test of reality and can help reduce the challenges stemming from asymmetric warfare in an urban setting.

It seems that the fact that Hamas and the other terrorist organizations in the Gaza Strip seek to thwart Israel's standard warnings in effect requires the use of the roof knocking practice in order to abide by the provisions of Article 57(2) of Protocol I. In addition, the frequency of the phenomenon of intentionally ignoring Israel's warnings is a critical element in examining the level of effectiveness of the practice and must be taken into account, as clearly even the most effective warning is doomed to failure if the person it addresses ignores it knowingly and intentionally (Sharvit

Baruch, 2016, p. 42). Moreover, examining the level of effectiveness of roof knocking as a warning in accordance with the relevant parameters shows that the practice meets the test of effectiveness, especially considering the unusual circumstances surrounding its use. Consequently, in the absence of more effective alternatives, it seems that roof knocking as a warning instrument is the least bad alternative, and is clearly far preferable to not providing a warning at all—which is usually the practical implication of relying on standard warnings only, without resorting to roof knocking.

Response to the Argument on Issuing the Warning

The second criticism surrounds the legal definition of roof knocking as a warning. According to this argument, the roof knocking practice is a kind of attack against civilians living in a building, and an attack, limited as it may be, cannot be considered an effective warning under Section 57(2)(c) of Protocol I. Thus, the second argument rejects outright the operational technique of roof knocking as a warning.

International Law and the Aim of Article 57 of Protocol I

The conclusion to be drawn from the second criticism raises a complicated question. Will the attacking side be asked to abandon a warning method that can prevent harm to civilians just because its method of operation does not meet the technical definition of a warning? This seems completely contrary to the purpose of international law, and undermines the intention of Article 57 of Protocol I of the Geneva Convention. However, it is possible that the seemingly literal distinction actually stems from the fear of blurring the boundaries, which in turn could lead to excessive flexibility toward the rules presented in the Protocol. This could lead to legitimizing the use of aggressive means of warning that would subvert their intended objective and be exploited by military elements

to exercise force even when it is unnecessary, under the guise of a warning technique. While this is a claim that should not be taken lightly, it appears that in the case of roof knocking, the immediate benefit produced by its use in the form of protecting civilians outweighs the potential damage in the long term due to concern of a slippery slope.

Roof Knocking does not Amount to an Intentional Attack against Civilians

The second argument therefore brings up the question of the legitimacy of warning shots, as in both cases the warning is conveyed through the use of force (Lieblich & Alterman, 2017, p. 142). While this is a complicated issue beyond the scope of this article, the fact that the legal manuals of many armies include the use of warning shots as a legitimate method of providing warning, alongside the extensive use of this method among law enforcement authorities around the world, leads to a conclusion opposite to that reached by the UN commission of inquiry (Sharvit Baruch & Neuman, 2011, pp. 387-388). In addition, *The Harvard Manual on International Law Applicable to Air and Missile Warfare* recognizes, “In some situations the only feasible method of warning may be to fire warning shots using tracer ammunition, thus inducing people to take cover before the attack” (Program on Humanitarian Policy and Conflict Research, 2013, p. 154, ¶11).

The *Manual* thus relates to warning shots as a legitimate warning method in circumstances in which it is the only feasible possibility, when the objective is, of course, to reduce the harm to uninvolved civilians. Roof knocking is likewise used as a last resort, meaning only after the civilians have not heeded, or were not able to heed, standard warnings given to them beforehand by Israel. While roof knocking is not implemented using tracer ammunition as written in the *Manual*, it uses a small missile that does not contain an amount of explosive material that could endanger the residents of the building or cause significant damage.

Furthermore, it seems that other kinds of ammunition meet the purpose of permitted use warnings shots and cause civilians to take cover before an attack (Sharvit Baruch & Neuman, 2011, p. 387). Consequently, not only does the *Manual on Air and Missile Warfare* confirm the legality of warning shots, but an analysis of the text suggests that the permission also applies to roof knocking. Further reinforcement for this appears later in the *Manual*, which states the following about warnings in general: “Warnings need not be formal in nature. They may be issued either verbally or in writing, or through any other means that can reasonably be expected to be effective under the circumstances” (p. 155, ¶15). Considering that the residents of Gaza are already very familiar with roof knocking and are aware that Israel uses it frequently during military conflicts, it is clear that the practice is within the definition of “means that can reasonably be expected to be effective under the circumstances.” Thus, the roof knocking practice is similar in essence to the method of warning fire, and reflects an accepted practice that is compatible with international law.

According to the UNHRC’s commission of inquiry on Operation Cast Lead, the roof knocking practice constitutes a kind of attack against the civilians living in the building, and an attack, limited as it may be, cannot be considered an effective means of warning under Article 57(2)(c). Article 49 of Protocol I of the Geneva Conventions defines the meaning of “attack” and states that “‘Attacks’ means acts of violence against the adversary, whether in offence or in defence.” This definition of attack thus includes three conditions: (1) act of violence; (2) against the adversary; and (3) whether in offense or in defense. Regarding the first condition, it seems that roof knocking can indeed be considered an act of violence, as it involves the use of weapons that seldom cause harm and damage to the building or to those located on the roof of the building. However, regarding the second condition, that the act be directed *against* the adversary, it seems

that in the case of roof knocking the element of “against” does not hold, as the practice does not aim to harm or to cause damage, but rather to serve as a means of warning for civilians in order to protect them, and therefore it does not meet this condition. For the same reason, even if roof knocking is considered an attack according to international law, its use should certainly not be seen as an intentional attack *against the civilians* in the building, as stated by the commission. Because the building in question constitutes a legitimate military target according to international law, since otherwise the attack does not meet the principle of distinction in the first place, then the presence of civilians is in effect an issue of proportionality, and the use of the practice does not amount to attack (Schmitt, 2010, p. 829; Sharvit Baruch & Neuman, 2011, p. 388).

Considering the unique circumstances of warfare in the Gaza Strip as a densely populated urban space, the relatively aggressive mode of operation of roof knocking is therefore a necessity. That said, the practice is not contrary to the rules of international law, and even helps fulfill their purpose more effectively, considering the high level of credibility attributed to it among the Gaza Strip population. Israel has been lauded by foreign armies for its use of roof knocking, which have claimed that the practice is a cautionary measure not required by international law, and could become fixed as a custom and raise the standard of caution required (Efroni, 2014, p. 82).⁵ Consequently, it is clear that roof knocking cannot be seen as an intentional attack against civilians. On the contrary, it is a cautionary measure that raises the standard of caution taken by Israel in relation to the standard required and customary in international law.

Roof Knocking as a Precaution

Roof knocking can thus be seen as a precautionary measure, in the framework of Article 57(2)(a)(ii) of the Protocol, and not as a warning according to Article 57(2)(c). In

other words, the use of the practice includes requirements that naturally stem from the obligation to take precautions, such as the need for precise timing of the attack and for choosing appropriate means of attack. Furthermore, the practice corresponds with the rationale of precautions—preventing or reducing harm to civilians. Consequently, its use can be seen as part of choosing the means and methods for an attack. Therefore, it seems that roof knocking's mode of operation does not preclude its use as a precaution according to Article 57(2)(a)(ii). Consequently, even if according to the UNHRC commission of inquiry on Operation Cast Lead the practice is problematic as a warning due to its specific issuing, this does not affect the legality of the practice's use as a precaution.

During Operation Guardian of the Walls, relatively extensive use was made of roof knocking. Targets included towers and high-rise buildings in Gaza.

A possible consequence of this distinction between warning and precaution could arise in the case of a significant military target that is located on a street that is so crowded that attacking it could also damage a nearby building that is not a military target. In such a situation, if the practice is defined as a warning then it might not be possible to use it on the nearby building, which is in effect a civilian target, certainly according to the stance of the commissions of inquiry. This would make it difficult to attack the military target, and perhaps even lead to its cancellation, as it would have difficulty meeting the test of proportionality without recourse to the practice. In contrast, if the practice is defined as a precaution, then it might be possible to use it also on the nearby building, with the purpose of preventing, or reducing as much as possible the harm to civilians, and as a result enable the attack on the target.⁶ However, this is a complicated issue beyond the scope of this article.

Thus the roof knocking technique, which is similar in essence to the method of warning fire, does not amount to an attack directed against civilians according to international law and does not negate the legality of the practice and its use as a cautionary measure—whether as a warning or as a precaution.

Roof Knocking in Operation Guardian of the Walls: Strategic implications

During Operation Guardian of the Walls, relatively extensive use was made of roof knocking, proving once again its importance and necessity for Israel in the struggle against the terrorist organizations in Gaza, especially given the continued erosion of the effectiveness of the standard means of warning. Targets included towers and high-rise buildings in Gaza. For example, roof knocking was used as part of striking and destroying the al-Jalaa tower (Tunik, 2021), which contained the offices of the AP news agency, al-Jazeera, and the headquarters of additional broadcasting stations (Kubovich, 2021). According to the IDF, along with the civilian offices, the building contained intelligence and technological assets of the terrorist organizations in Gaza, such as a research and development unit of Hamas's military intelligence. The destruction of the tower, which was broadcast live, was widely publicized and led to many responses in Israel and worldwide. Consequently, it was especially important for Israel's freedom of operation that the strike on the tower and its destruction occur without any harm to uninvolved civilians, and indeed, thanks to roof knocking, this is what happened. Even Human Rights Watch, which criticized Israel for the attack on the towers, noted that there were no reports of casualties following the attacks. Had the destruction of the tower harmed uninvolved civilians, then international public opinion, and its diplomatic and operative consequences for Israel, would presumably have been completely different.

Israel in any case had to cope with significant international pressure, and it is clear that harming uninvolved civilians would have led to harsher and more forceful responses that could have made it harder to continue to wage the operation in its planned format. Heavy pressure from the international community can shorten the time span of the fighting, including under conditions that are unfavorable, and thus preventing or softening it is a primary strategic objective for Israel.

Strikes on targets that are located in the heart of a densely-populated urban setting, and all the more so demolition of high-rise buildings in such conditions, cannot take place in a “sterile” manner, meaning completely avoiding harm to uninvolved civilians, without the knock on the roof. Consequently, without the practice, it is possible that the destruction of the towers, and many other strikes carried out during Operation Guardian of the Walls, would not have been possible while abiding by the principle of proportionality according to international law, or would not have been strategically worthwhile for Israel, considering the potential public relations damage. Roof knocking enabled Israel to destroy military assets of the terrorist organizations while reducing international criticism, at least regarding harm to uninvolved civilians, and hence its strategic importance for Israel. In other words, roof knocking helps Israel achieve simultaneously two important objectives: it grants it the ability to strike strategic infrastructure of the terrorist organizations while overcoming their concealment in civilian buildings, and at the same time reduces the damage that could be caused in the sphere of legitimacy as a result of attempting to attack these targets without the use of the practice, meaning with more extensive harm to uninvolved civilians.

Consequently, the use of roof knocking in Operation Guardian of the Walls proved that it is an effective method under the unique circumstances that characterize warfare in the Gaza Strip. It reduces harm to uninvolved

civilians and at the same time expands Israel’s freedom of operation, while also easing the intensive media-cognitive efforts (see also Mandelblit, 2012).

Strikes on targets that are located in the heart of a densely-populated urban setting cannot take place in a “sterile” manner, meaning completely avoiding harm to uninvolved civilians, without the knock on the roof.

Conclusion

Presuming that the reality of frequent conflicts with the terrorist organizations in the Gaza Strip will continue to accompany Israel in the near future, it is particularly important to use roof knocking as an effective cautionary measure, especially in light of its success, which goes beyond the purely operational aspect, as reflected in Operation Guardian of the Walls. Maintaining the effectiveness of the practice will only be done by ensuring proper operating rules in the spirit of international law: judgment must be used regarding the timing of its use, which should be coordinated as much as possible with the timing of the strike on the target, in order to maximize its effectiveness; the practice should not be used or exploited for purposes other than warning or caution, in order not to erode its credibility among the civilian population; and in general, it is important to ensure wise and careful use that is compatible with the basic principles of international law.

Ensuring these principles, while constantly using operational and legal judgment, will preserve the effectiveness of roof knocking both as a means of preventing harm to uninvolved civilians and as a tool for expanding freedom of operation in war, as part of Israel’s national security doctrine.

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Notes

- 1 For a current perspective, see interview with the outgoing commander of the ground forces (Harel, 2021).
- 2 However, there are instances in which the warning can exact a cost of the attacking side, for example when there is importance to the element of surprise. In such a situation, especially salient is Article 57(2)(c), particularly the clause on circumstances permitting (Sharvit Baruch & Neuman, 2011, pp. 388-390).
- 3 Similar to Justice Barak, Justices Cheshin and Beinisch also related to the stressful conditions surrounding combat soldiers who take part in operational activity on the ground, as a central factor in their decision.
- 4 Regarding the residents of the lower floors, it is not clear what the commission’s statement is based on. Since there is no dispute that the residents of the upper floors should understand that the action is directed toward them, it is hard to assume that the residents of the lower floors would be unaware that their neighbors from the upper floors are evacuating the building, as this flight would certainly involve considerable noise and commotion. The concern that the message would not be conveyed clearly enough to the residents of the lower floors is further reduced given that the practice is accompanied by real-time visual surveillance, and in this way it is possible to ensure that a reasonable number of people in relation to the size of the building have indeed evacuated before the strike is carried out.
- 5 Similarly, the former Chairman of the Joint Chiefs of Staff of the US military praised Israel after Operation Cast Lead for its efforts to reduce the harm to civilians, including through roof knocking (Benhorin, 2014).
- 6 While Article 57(2)(a)(ii) seeks also to reduce the damage to the property of civilians, it is clear that the desire to reduce the harm to their lives or their physical wellbeing is a higher priority, all the more so when the harm to the property is minimal, as the small missile is not meant to cause significant damage to the building.