

NOTES

A CHANGING STANDARD OF FEASIBILITY: THE FAILURE OF U.S.-LED COALITION FORCES TO ADAPT FEASIBLE PRECAUTIONS IN ATTACK TO IS'S HUMAN SHIELDING TACTICS

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ABSTRACT

The practice of human shielding affords conflict parties significant tactical advantages in warfare, deterring the attacking party from targeting military objectives or compelling that party to breach its obligations under international humanitarian law at a high political price. These advantages were quickly recognized and leveraged by the Islamic State (IS) in its fight against the U.S.-led Anti-IS coalition in west Mosul and Raqqa. As IS fighters lost territory, civilians were forced to serve as human shields in the remaining areas under occupation. IS repeatedly laced civilian infrastructure with explosives, mined exit routes to prevent civilians from leaving conflict areas, and positioned fighters in densely populated areas to reduce the overall use of coalition strikes and artillery. While these human shielding tactics created a difficult operational environment for the coalition forces' campaign, the coalition did not alter its strike assessments despite multiple rounds of hostilities and high civilian casualty rates.

This Note examines whether the U.S.-led coalition violated its legal obligation to take all feasible precautions in attack by failing to adapt its target selection and engagement tactics to changing circumstances, specifically IS's use of civilians as human shields. Discussion will focus predominantly on the precautions relating to the verification of non-civilian objectives and the methods and means of attack. The examination proceeds in four parts, briefly reviewing the use of human shields as a tactical tool in asymmetric conflict, the legal framework, and the compliance of the U.S.-led coalition to the feasible precautions requirement within its operations in west Mosul and Raqqa. Ultimately, it concludes that while feasibility is a flexible standard that accommodates different

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operational realities, it does not obviate the need for coalition forces to adapt precautions to lessons learned from past experience.

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I. INTRODUCTION

Contemporary conflict has been increasingly waged in urban settings, bringing civilian populations closer to the frontlines where civilian and military objects become more difficult to distinguish. The vulnerability of these populations has only been compounded by conflict parties’ deliberate use of civilians to shield themselves from attack. Due to the inability of some forces to protect their military interests with conventional methods, they seek to overcome the military might of their adversary through human shielding tactics among other forms of asymmetric warfare. The specific practice of human shielding affords conflict parties with a significant tactical advantage, as it can either deter the attacking party from targeting military objectives, or compel the attacking party to breach its obligations under international

humanitarian law (IHL) and bear a high political cost for such a violation.¹ These advantages were quickly recognized and leveraged by the Islamic State (IS) in its fight against the U.S.-led Anti-IS coalition in west Mosul and Raqqa. As IS fighters lost territory, civilians were forced to serve as human shields in the remaining areas under occupation. IS repeatedly laced civilian infrastructure with explosives, mined exit routes to prevent civilians from leaving conflict areas, and positioned fighters in densely populated areas to reduce the overall use of coalition strikes and artillery.² For this reason, the U.S.-led coalition faced a difficult dilemma in its response to IS's human shielding tactics. Despite multiple rounds of hostilities and high civilian casualty rates resulting from coalition strikes, the coalition nevertheless failed to adapt its operations to lessons learned from its experience with IS.

This Note examines whether the U.S.-led coalition violated its legal obligation to take all feasible precautions in attack by failing to adapt its target selection and engagement tactics to changing circumstances, specifically IS's use of civilians as human shields. Discussion will focus predominantly on the precautions relating to the verification of non-civilian objectives and the methods and means of attack. The examination proceeds in four parts. First, it briefly reviews the use of human shields as a tactical tool in asymmetric conflict. Second, it outlines the existing legal framework bearing on the obligation to take all feasible precautions. Third, it evaluates the compliance of the U.S.-led coalition to the feasible precautions requirement within its operations in west Mosul and Raqqa. Finally, it concludes that while feasibility is a flexible standard that accommodates different operational realities, it does not obviate the need for coalition forces to adapt precautions to lessons learned from past experience.

1. Non-state armed groups use human shields based on the expectation that the international community will instinctively condemn the attacking party for high civilian casualty rates. Emotive images of civilians circulated in the media create the appearance, though not the legal reality, that the attacking party bears full responsibility for civilian harm, thereby weakening support for that party's military effort. See Michael N. Schmitt, *Human Shields in International Humanitarian Law*, 47 COLUM. J. TRANSNAT'L L. 292, 297–98 (2009).

2. Amnesty Int'l, *Syria: Unprecedented investigation reveals US-led Coalition killed more than 1,600 civilians in Raqqa 'death trap'* (Apr. 25, 2019), <https://www.amnesty.org/en/latest/news/2019/04/syria-unprecedented-investigation-reveals-us-led-coalition-killed-more-than-1600-civilians-in-raqqa-death-trap/>; see also Amnesty Int'l, *Syria: 'Deadly labyrinth' traps civilians trying to flee Raqqa battle against Islamic State* (Apr. 24, 2017), <https://www.amnesty.org/en/latest/news/2017/08/syria-deadly-labyrinth-traps-civilians-trying-to-flee-raqqa/>.

II. OVERVIEW OF HUMAN SHIELDS AS A TACTICAL TOOL IN ASYMMETRIC CONFLICT

Asymmetric conflict often involves “unorthodox, indirect, surprising, or even ‘unthinkable’ [and unlawful] methods” of challenging the military superiority of other parties to a conflict.³ Among the unconventional tools available to conflict parties when avoiding direct confrontation with superior forces is the practice of human shielding. The use of human shields can be passive or active.⁴ In the former case, conflict parties may intentionally position themselves within civilian areas for purposes of deterring attack; whereas, the latter may involve the forcible use of civilians to physically shield combatants or military objectives.⁵ These strategic practices are especially attractive to parties, such as IS, when engaged in armed confrontations with an adversary that possesses more manpower, technologically-advanced equipment, or air superiority.⁶

The tactical advantages of using human shields are twofold. First, human shields can effectively render an area immune from attack due to legal and moral constraints.⁷ Where there is an extensive civilian presence, the use of force on the part of the attacking party could be deemed excessive in relation to the anticipated military advantage, thus deterring the attacking party from violating the principle of proportionality under IHL. Second, even if the attacking party proceeds to strike an objective shielded by civilians, this party will likely breach its obligations under IHL and thereby risk falling into international disrepute for taking action that results in a significant number of civilian casualties.⁸ For these reasons, the use of human shields can provide a defending party with several effective means to gain a competitive advantage vis-à-vis the attacking party.

Importantly, the use of human shields is not a tactic exclusive to IS. In recent years, similar tactics have been employed by other armed groups such as al-Qaeda,⁹ Hamas, Hezbollah, and the Taliban.¹⁰ Such

3. Steven Lambakis et al., *Understanding “Asymmetric” Threats to the United States*, 21:4 J. COMP. STRATEGY 241, 245 (2017).

4. Michael N. Schmitt, *Asymmetrical Warfare and International Humanitarian Law*, 62 A.F.L. REV. 1, 18 (2008).

5. *See id.*

6. Robert Postings, *A Guide to the Islamic State’s Way of Urban Warfare*, MODERN WAR INST. (July 9, 2018), <https://mwi.usma.edu/guide-islamic-states-way-urban-warfare/>.

7. Amnon Rubinstein & Yaniv Roznai, *Human Shields in Modern Armed Conflicts: The Need for Proportionate Proportionality*, 22 STAN. L. & POL’Y REV. 93, 95 (2011) [hereinafter Rubinstein & Ronzai].

8. *Id.*

9. Schmitt, *supra* note 1, at 295–96.

10. Rubinstein & Roznai, *supra* note 7, at 97–98.

groups have embraced the practice of human shielding to counter attacks against which they could not adequately defend themselves or their respective military interests. In light of the endemic use of human shields in asymmetric conflict, it is crucial to understand attacking parties' respective obligations and responses to these defensive tactics.

III. THE LEGAL FRAMEWORK BEARING ON THE OBLIGATION TO TAKE FEASIBLE PRECAUTIONS IN ATTACK

International humanitarian law, a branch of international law that seeks to limit the methods and means of armed conflict for humanitarian purposes, confers special protection to the civilian population. Given the ever-changing nature of conflict, this protection has been reinforced over the years with the adoption of the "civilians' convention" and the Additional Protocols to the Geneva Conventions in 1977.¹¹ The principle of feasible precautions in attack is best understood as one of many prerequisites that conflict parties are obliged to respect for purposes of safeguarding civilians during the conduct of hostilities, thereby contributing to a coherent protection regime.¹²

The principle of feasible precautions is primarily grounded in customary international humanitarian law¹³ and Additional Protocol I

11. *Civilians protected under international humanitarian law*, INT'L COMM. RED CROSS (Oct. 29, 2010), <https://www.icrc.org/en/doc/war-and-law/protected-persons/civilians/overview-civilians-protected.htm> (referencing the Fourth Geneva Convention adopted in 1949 and the Additional Protocols to the Geneva Convention in 1977); see also *What are the Geneva Conventions and their Additional Protocols?*, INT'L COMM. RED CROSS (Aug. 13, 2017), <https://blogs.icrc.org/ilot/2017/08/13/geneva-conventions-additional-protocols/> (explaining how the Additional Protocols of 1977 were adopted with the purpose of giving greater protection to victims of both international and non-international armed conflicts, as the age of decolonization demonstrated a need for rules applicable to civil wars and wars of national liberation).

12. See, e.g., CLAUDE PILLOUD ET AL., COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949 ¶ 2189 (Yves Sandoz et al. eds. 1987) [hereinafter COMMENTARY ON ADDITIONAL PROTOCOLS]; see also Théo Boutruche, *Expert Opinion on the Meaning and Scope of Feasible Precautions under International Humanitarian Law and Related Assessment of the Conduct of the Parties to the Gaza Conflict in the Context of the Operation 'Protective Edge'*, GLOBAL INT'L HUM. L. CTR. (June 22, 2015), <https://www.diakonia.se/globalassets/blocks-ihl-site/ihl-file-list/ihl-expert-opinions/precautions-under-international-humanitarian-law-of-the-operation-protective-edge.pdf>.

13. The obligation to take feasible precautions in attack inherently embodies other customary norms in both international and non-international armed conflicts, such as the principle of distinction, supporting its own customary nature. See *Rule 15. Principle of Precautions in Attack*, INT'L COMM. RED CROSS, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule15 (last visited Mar. 30, 2020) [hereinafter *Rule 15. Principle of Precautions in Attack*].

(AP I),¹⁴ applicable in international armed conflicts (IACs). AP I specifically outlines the following precautions: doing everything feasible “to verify that the objectives to be attacked are neither civilians or civilian objects;” choosing the “means and methods of attack with a view to avoiding” harm to civilians or civilian objects; and “refrain[ing] from deciding to launch any attack” that may cause harm to civilians or civilian objects.¹⁵ Although some parties to the conflict violate their own obligations to take feasible precautions against the effects of attack or even deliberately situate themselves in civilian areas, that does not altogether suspend the attacking party’s obligation to take feasible precautions.¹⁶ These protections are seemingly more comprehensive in IACs under AP I; however, Additional Protocol II (AP II) also provides that “the civilian population and individual civilians shall enjoy general protection against the dangers arising from military operations” in non-international armed conflicts (NIACs),¹⁷ which is an obligation that could not be given effect if feasible precautions were not taken in attack. In addition, other treaties applicable in NIACs, namely the Amended Protocol II to the Convention on Certain Conventional Weapons,¹⁸ also include the requirement to take precautions to avoid, and in any event to minimize, the incidental loss of civilian life. Thus, the obligation to take all feasible precautions appears to extend to conflict parties in IACs and NIACs. The precise scope of this obligation, however, appears to be less settled and will be reviewed in this section.

14. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), art. 57, June 8, 1977, 1125 U.N.T.S. 3 [hereinafter Additional Protocol I].

15. *Id.*

16. *See* Prosecutor v. Kupreškić, Case No. IT-95-16-T, Judgment, ¶ 511 (Int’l Crim. Trib. for the Former Yugoslavia Jan. 14, 2000) (rejecting reciprocity as a justification for violations of IHL and affirming that “[t]he defining characteristic of modern international humanitarian law is instead the obligation to uphold key tenets of this body of law regardless of the conduct of enemy combatants.”).

17. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), art. 13, June 8, 1977, 1125 U.N.T.S. 609 [hereinafter Additional Protocol II].

18. *See* Amendment to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, art. 3(10), *adopted* Dec. 21, 2001, 2260 U.N.T.S. 82. [hereinafter Convention Prohibitions].

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A. *Understanding the Standard of Feasibility*

The obligation to take all *feasible* precautions has been understood by states to mean everything that is “practicable or practically possible, taking into account all circumstances ruling at the time, including humanitarian and military considerations.”¹⁹ Feasibility is thus a contextual concept, highly dependent on prevailing humanitarian and military concerns. This understanding, however, does not mean that the feasibility standard is without limits. During the drafting process of AP I and following lengthy discussions about the feasibility standard, some delegations wanted to include those circumstances relevant to the success of military operations within the calculus of feasibility.²⁰ In response to the addition of “the success of military operations,” the Commentary to the AP I provision emphasized how this construction imports a certain ambiguity, allowing states to exercise considerable discretion and neglect humanitarian obligations under the pretext of pursuing “military success.”²¹ The Commentary therefore tempers this interpretation, clarifying that operations must be conducted in a “matter of common sense and good faith.”²² In other words, if military operations are conducted in good faith, their success should not undermine measures taken to spare the civilian population to the greatest extent possible. This understanding does not necessarily prohibit attacks against civilians, but instead attempts to avoid, and in any event to minimize, attacks that may result from negligence or malign intent. While not all states agree with this interpretation, Canada has adopted it within its Military Manual, which refers to the standard of feasibility as “the honest judgement [sic] of responsible commanders, based on the information reasonably available to them at the relevant time, taking fully into account the urgent and difficult circumstances under which such judgements [sic] are usually made.”²³ Accordingly, the reading of the feasible precautions to require good faith is consistent with the delicate balancing required under IHL, which eschews a *per se* prioritization of either military or humanitarian concerns.

19. *Rule 15. Principle of Precautions in Attack*, *supra* note 13.

20. COMMENTARY ON ADDITIONAL PROTOCOLS, *supra* note 12, ¶ 2198.

21. *Id.*

22. *Id.*

23. *Practice Relating to Rule 14: Proportionality in Attack: Section C. Information required for judging proportionality in attack*, INT’L COMM. RED CROSS, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule14_sectionc (last visited Mar. 30, 2020).

The standard of feasible precautions can also be understood in relation to the standard of “reasonable precautions” in AP I Article 57.²⁴ The Commentary carefully notes that the expression to take all “reasonable precautions” is “undoubtedly slightly different from and . . . less far-reaching than the expression ‘take all feasible precautions.’”²⁵ Feasibility requires strict adherence, rather than a mere exercise of discretion in favor of protecting the civilian population.²⁶ In light of the tenuous distinction between the two standards, the feasibility provision should be construed to “reaffirm the rules that exist to protect civilians in . . . [conflict] situations” rather than to subvert them.²⁷

B. *Information Required for the Verification of Objectives in Attack*

The collection of information to verify objectives in attack serves as both a means to determine which feasible precautions should be taken and as a feasible precaution itself.²⁸ Many military manuals maintain that the attacking party must gather “the best possible intelligence, including information on concentrations of civilian persons, important civilian objects, specifically protected objects, the natural environment[,] and the civilian environment of military objectives.”²⁹ Although it cannot be expected that the attacker have perfect information, the attacking party is not excused from the obligation to gather all available information relevant to the decision-making process. Thus, the attacking party cannot ignore its duty to spare the civilian population where there is a lack of meaningful information, especially when verifying whether the objectives to be attacked are legitimate military objectives.³⁰ Reliance on limited information would otherwise contravene a tenet of IHL that all doubts as to civilian or combatant status should be resolved in favor of treating the person as a civilian.³¹ The ICRC Commentary further provides that in the case of slight uncertainty, those who plan or decide upon an attack are not released from their responsibility to “call for additional information and if need be give

24. See Additional Protocol I, *supra* note 14, art. 57(4).

25. COMMENTARY ON ADDITIONAL PROTOCOLS, *supra* note 12, ¶ 2230.

26. *Cf. id.*

27. *Id.*

28. Boutruche, *supra* note 12, at 20.

29. *Rule 15. Principle of Precautions in Attack*, *supra* note 13; see also U.S. Joint Chiefs of Staff, *Joint Publication 3-06: Joint Urban Operations*, at I-8, ¶ 13 (Nov. 20, 2013) (stating that “[a]n analysis of the threat is essential as is detailed intelligence and information on the physical terrain and infrastructure characteristics of the urban environment.”).

30. Boutruche, *supra* note 12, at 21.

31. Additional Protocol I, *supra* note 14, art. 50(1).

orders for further reconnaissance to those of their subordinates.”³² Relatedly, for information that is relied upon, parties must include “a serious check of its accuracy.”³³ It is generally understood that no responsible party staging an attack would wish to target objectives which were of no military value, and in this regard humanitarian and military concerns coincide.³⁴

Another requirement implicated in the obligation to collect information involves how those responsible for planning or implementing an attack must arrive at their decision based on the assessment of information from all available sources *at the time*.³⁵ In other words, the determination of feasibility cannot be based on abstract, hypothetical scenarios.³⁶ Such an interpretation has largely been supported by state practice³⁷ and expressly articulated in Austria’s reservation to AP I, stating that Article 57(2) “will be applied on the understanding that, with respect to any decision taken by a military commander, the information actually available at the time of the decision is determinative.”³⁸ This understanding, mirroring other IHL rules, requires an *ex ante* assessment of the information available to the attacking party, precluding reliance on information acquired after or as the attack occurred.

32. COMMENTARY ON ADDITIONAL PROTOCOLS, *supra* note 12, ¶ 2195

33. *Id.*

34. *Id.*

35. Boutruche, *supra* note 12, at 20.

36. *See id.*

37. *See, e.g., Germany, Practice Relating to Rule 15. The Principle of Precautions in Attack*, INT’L COMM. RED CROSS, https://ihl-databases.icrc.org/customary-ihl/eng/docindex/v2_cou_de_rule15 (last visited Mar. 30, 2020) (clarifying that military commanders “can only evaluate the situation on the basis of facts at their disposal during the planning and execution of an attack” during the ratification procedure to AP I); *Algeria, Practice Relating to Rule 15. The Principle of Precautions in Attack*, INT’L COMM. RED CROSS, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_cou_dz_rule15 (last visited June 27, 2022) (stating that the word “feasible” must be understood as referring to “precautions and measures which are feasible in view of the circumstances and the information and means available at the time” of ascension to AP I); *Argentina, Practice Relating to Rule 15. The Principle of Precautions in Attack*, INT’L COMM. RED CROSS, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_cou_ar_rule15 (last visited June 27, 2022) (noting Argentina’s Law of War Manual states that “feasible precautions are those which are practicable or practically possible taking into account all circumstances prevailing at the time.”).

38. *Austria, Practice Relating to Rule 15. The Principle of Precautions in Attack*, INT’L COMM. RED CROSS, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_cou_at_rule15 (last visited Mar. 30, 2020).

C. *Means and Methods of Attack*

The obligation to take feasible precautions includes the choice of means and methods of attack for purposes of minimizing incidental harm to civilians. In selecting weapons and munitions, their precision and impact range must be taken into account.³⁹ Interestingly, this precaution does not prohibit any specific type of weapon, such as explosive weapons prone to wide-area effects.⁴⁰ Instead, conflict parties are obliged to use the least harmful weapon type at their disposal in pursuit of their respective military interest, despite differences that may exist between these parties in terms of weapon availability and technological sophistication.⁴¹ This understanding is consistent with the language and structure of Article 57 of AP I, which suggests that the duty to take constant care to protect civilians informs the subsequent list of precautions, including the means and methods of attack.⁴² This precaution thereby reflects the balance between concerns to protect the civilian population and concerns of military commanders who seek to preserve ammunition and avoid attacking areas of no military interest.⁴³

Another important aspect of complying with this obligation involves the choice of features of a given weapon system. More specifically, the type of munition, fusing, delivery system, warhead, and distance at which the attack is launched can be manipulated to avoid or minimize civilian harm within the area of attack.⁴⁴ For instance, the U.S. Combined Arms Manual restricts certain use of fuses on mortars in urban settings: “When using [high-explosive] ammunition in urban fighting, only point-detonating fuzes should be used. The use of proximity fuzes normally should be avoided because the nature of urban areas causes proximity fuzes to function prematurely.”⁴⁵

Aside from the choice of weapons and their corresponding features, this obligation also extends to the attacking party’s tactical choices related to angle, location, and timing of attack.⁴⁶ The angle at which an

39. COMMENTARY ON ADDITIONAL PROTOCOLS, *supra* note 12, ¶ 2200.

40. *Id.* ¶ 2201.

41. Jean-François Quéguiner, *Precautions Under the Law Governing the Conduct of Hostilities*, 88 INT’L REV. RED CROSS 793, 802 (2006).

42. *See id.* at 796.

43. COMMENTARY ON ADDITIONAL PROTOCOLS, *supra* note 12, ¶ 2200.

44. Isabel Robinson & Ellen Nohle, *Proportionality and Precautions in Attack: The Reverberating Effects of Using Explosive Weapons in Populated Areas*, 98 INT’L REV. RED CROSS 107, 140 (2016) [hereinafter Robinson & Nohle].

45. *Id.* at 143, as reprinted in U.S. Dep’t of the Army, *Combined Arms Operations in Urban Terrain*, ATTP 3-06.11, at 12-14 (2011).

46. *See id.* at 145.

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attack is launched affects the direction and level of secondary fragmentation. Fragment types such as metal, glass, cement, or wood may be projected out from the resulting attack, incidentally killing or injuring civilians or damaging civilian objects.⁴⁷ For this reason, the angle of attack can be designed to mitigate these fragmentation effects. Moreover, the obligation may restrict the location of attack “by requiring, where circumstances permit, that parties avoid attacking a densely populated area if the attack is likely to cause heavy civilian losses.”⁴⁸ In those situations where there is no alternative means or methods of attack, the precaution remaining involves avoiding any action that would be disproportionate in nature.⁴⁹ The U.S. Joint Urban Operations Manual acknowledges this approach, as it identifies several courses that can be taken such as “prohibiting attacks on targets located in heavily populated areas.”⁵⁰ Lastly, the timing of attack is implicated within this obligation. The precaution encourages those planning or deciding upon an attack to schedule it at a feasible time when it is known that civilians and civilian objects will not be present.⁵¹

D. *Lessons Learned from Past Experience*

Implicit within the attacking party’s obligation to take precautionary measures in attack, parties must consider “prior knowledge of the operational environment, training, and past experiences.”⁵² By way of illustration, the attacking party should be aware and reference intelligence and prior knowledge relating to structures typically occupied by civilians, common patterns of civilian life, demographics, general effects of the selected weapon system, and battlefield tactics of the adversary.⁵³ In effect, the information required in the assessment of feasibility is not static and depends on lessons learned from past experience to ensure compliance with this obligation. Experts such as Marco Sassòli and Anne Quintin endorse this view, emphasizing that “[f]easibility [e]volves through [e]xperience,” and while “[p]recautions that prove to be unsuccessful do not render past attacks unlawful . . . they may imply the need to revise the practice to avoid such incidents in the

47. *Id.* at 144.

48. *Id.* (citing Quéguiner, *supra* note 41, at 800).

49. Additional Protocol I, *supra* note 14, art. 57(2)(b).

50. Robinson & Nohle, *supra* note 44, at 144 (quoting U.S. Joint Chiefs of Staff, Joint Urban Operations, Joint Publ’n 3-06 IV-16 (2013)).

51. *See id.* at 143 n.182.

52. *Id.* at 139.

53. *Id.* at 140.

future.”⁵⁴ In other words, precautions taken in an attack that result in a genuine mistake do not violate the obligation to take all feasible precautions if the attacker demonstrates it acted in good faith on the basis of reasonably available information, including past experience. However, repeated attacks carried out with the same questionable effectiveness in avoiding civilian collateral damage, by their cumulative effect, are probative of noncompliance with the principle to take all feasible precautions.⁵⁵ Past experience effectively puts attackers on notice of the threat to civilian life and objects,⁵⁶ requiring them to review the operational realities and the general adequacy of precautionary measures in cases where those measures proved unsuccessful. This review of precautionary measures post-attack is not precluded by the *ex ante* consideration of information when used to inform the development of future precautionary measures. Lessons learned from experience thereby fall squarely within the scope of information required in the assessment of feasible precautions.

However, the question arises as to whether single incidents or repeated practices are included in the information required in the feasibility assessment. A more cautious approach suggests that the information required in the feasibility assessment should not be exclusively confined to a single incident.⁵⁷ Thus, if there is a recurrent or systematic pattern of precautionary measures that have been successful and only a limited number of incidents where those same measures were unsuccessful, it does not necessarily imply that these measures are generally inadequate.⁵⁸ A pattern of adequate precautions would not, however, prevent a finding that the feasible precautions requirement was violated in a specific incident.⁵⁹ By contrast, a more lenient approach would permit the consideration of a prior single incident in the feasibility assessment. This understanding is not without precedent and has

54. Marco Sassoli & Anne Quintin, *Active and Passive Precautions in Air and Missile Warfare*, UNIV. DE GENÈVE 15 (2014), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.907.4828&rep=rep1&type=pdf>.

55. See *Prosecutor v. Kupreškić*, Case No. IT-95-16-T, Judgment, ¶ 526 (Int’l Crim. Trib. for the Former Yugoslavia Jan. 14, 2000) (discussing in the context of Article 57 of AP I that “in case of repeated attacks, all or most of them falling within the grey area between indisputable legality and unlawfulness, it might be warranted to conclude that the cumulative effect of such acts entails that they may not be in keeping with international law. Indeed, this pattern of military conduct may turn out to jeopardise excessively the lives and assets of civilians, contrary to the demands of humanity.”).

56. Robinson & Nohle, *supra* note 44, at 122.

57. Boutruche, *supra* note 12, at 23.

58. *Id.*

59. *Id.*

been evidenced in several contexts. For instance, during the bombing campaign in Kosovo, “the White House quietly issued a directive to restrict cluster bomb use” after learning a lesson from a malfunction of this explosive weapon in a previous attack that resulted in significant civilian casualties.⁶⁰ Likewise, in the wake of the Eritrean-Ethiopian war, the Claims Commission condemned Eritrea for not “tak[ing] appropriate actions . . . to prevent future recurrence” after an attack failed to hit military targets.⁶¹ It seems that although not expressly listed as a precautionary measure in AP I, the implicit obligation to learn from previous mistakes, (whether of first-instance or recurrent in nature), is the only way to give force to the duty to take constant care to spare the civilian population. The precautionary measures rule is therefore violated when information available from experience is ignored.

E. *Relative Technological Capabilities of the Conflict Parties*

The precautions related to the verification of objectives and the methods and means of attack vary according to the conflict parties’ respective technological capabilities. These precautions are naturally influenced by the availability and quality of the technology at the attacking party’s disposal, and thus some parties may have more advanced means to collect information and strike military objectives.⁶² Indeed, it is unreasonable to construe the rules specified in Article 57(2)(a)(i) and (ii) to require parties to the conflict to have highly sophisticated reconnaissance devices and precision technology in attack. These rules do, however, require the parties to use “the most effective and reasonably available means” to collect information and select weapons systems that minimize civilian harm prior to attack.⁶³

Some states reject the feasibility standard in favor of a more practical standard, due to the disproportionate burden it places on technologically-advanced states.⁶⁴ It is relatedly argued that the obligation to use the most precise technology available for surveillance and weaponry could create adverse incentives that deter conflict parties from developing

60. Hum. Rts. Watch, *Civilian Deaths in the NATO Air Campaign* 8 (Feb. 2000), <https://www.hrw.org/sites/default/files/reports/natbm002.pdf>.

61. Central Front (Eth. v. Eri.), *Ethiopia’s Claim 2, Partial Award (Eritrea-Ethiopia Claims Comm’n, Apr. 28, 2004)*, 26 R.I.A.A. 155, 190 (2009), https://legal.un.org/riaa/cases/vol_XXVI/155-194.pdf.

62. See COMMENTARY ON ADDITIONAL PROTOCOLS, *supra* note 12, ¶¶ 2199, 2212.

63. Quéguiner, *supra* note 41, at 798.

64. *Id.* at 802.

sophisticated surveillance and weapons systems.⁶⁵ Nonetheless, a majority of states support the standard of feasible precautions, for this formula has been generally accepted as reflecting customary international humanitarian law.⁶⁶

The above arguments also have little persuasive weight, as the existing incentives to improve these systems are not exclusively humanitarian, but are instead intimately linked to military interests of increasing efficiency at the tactical and operational levels.⁶⁷ Of equal import, one of the core objectives of the feasible precautions requirement is to take constant care to spare civilian populations in the conduct of military operations. In light of this objective, experts contend that the feasibility standard “mean[s] that parties to an armed conflict which *could* do more (account taken of their state of technological advancement and available resources) cannot get away with implementing the lowest common denominator of precautions simply because their adversaries are not in the same technologically privileged position as they are.”⁶⁸ This lowest-common denominator approach would otherwise run counter to the aforementioned objective relating to the sparing of civilians.⁶⁹ Accordingly, the obligation to take all feasible precautions is purposely framed in relative terms to accommodate different operational realities, such as those that account for a wide range of technological capabilities among the conflict parties.

IV. EVALUATION OF THE U.S.-LED COALITION’S COMPLIANCE TO THE FEASIBLE PRECAUTIONS REQUIREMENT IN LIGHT OF IS HUMAN SHIELDING TACTICS

During the battle for west Mosul and Raqqa, the combination of IS human shielding tactics and U.S.-led coalition strikes repeatedly claimed civilian lives and damaged civilian objects. IS tactics specifically involved forcing civilians into conflict zones, preventing civilians from escaping such zones, booby-trapping buildings, and occupying civilian structures for purposes of launching attacks on coalition forces.⁷⁰ These strategic practices, employed in densely populated urban

65. *Id.*

66. Boutruche, *supra* note 12, at 18.

67. Quéguiner, *supra* note 41, at 802.

68. Kimberley Trapp, *Great Resources Mean Great Responsibility: A Framework of Analysis for Assessing Compliance with API Obligations in the Information Age*, in *INT’L HUMANITARIAN LAW AND THE CHANGING TECH. OF WAR* 153, 156 (Dan Saxon ed., 2013).

69. *See id.*

70. *See generally* Amnesty Int’l, *At Any Cost: The Civilian Catastrophe in West Mosul, Iraq*, MDE 14/6610/2017, at 10 (July 11, 2017), [hereinafter *Civilian Catastrophe in West Mosul*]; Syria: *Unprecedented investigation reveals US-led Coalition killed more than 1,600 civilians in Raqqa ‘death trap’*,

environments, greatly impacted the scale and gravity of civilian casualties. Despite multiple rounds of hostilities and the known extent of civilian harm, the U.S.-led coalition appeared to demonstrate a continued unwillingness to adapt its practices in light of IS's use of human shields, signaling a violation of the obligation to take all feasible precautions in attack.

A. *U.S.-led Coalition Operations in West Mosul*

In October 2016, the U.S.-led coalition against IS began a military offensive with Iraqi forces in Mosul, known as *Qadimun Ya Nainawa*.⁷¹ During the battle for Mosul, an estimated number of 5,805 civilians were killed as a result of attacks led by coalition forces between February and June of 2017.⁷² Amnesty International investigated 45 attacks reasonably known to have been launched by coalition forces, which they found resulted in 426 civilian deaths and over 100 civilian injuries.⁷³ Given these high civilian casualty rates, it warrants examining whether the U.S.-led coalition complied with the obligation to take all feasible precautions.

1. The Coalition Failed to Verify Objectives in Attack

The U.S.-led coalition did not meet its obligation to “do everything feasible” to verify non-civilian objectives in attack.⁷⁴ In the course of verifying objectives as neither civilians or civilian objects, U.S. Air Force Brig. Gen. Andrew Croft stated that the coalition used a number of “unmanned vehicles over the top of the fight to see exactly what [was] happening” and had “direct control and conversations with Iraqis minute by minute on exactly what [was] happening on the ground.”⁷⁵ This form of surveillance alone, however, is not sufficient to guarantee that all feasible precautions were taken in attack. The impact on the civilian population likely depends on other factors, including known practices of the adversary including IS's regular use of human shields.⁷⁶

supra note 2; Syria: ‘Deadly labyrinth’ traps civilians trying to flee Raqqa battle against Islamic State, *supra* note 2.

71. *Civilian Catastrophe in West Mosul*, *supra* note 70.

72. *Id.* at 24.

73. *Id.* at 25.

74. See Additional Protocol I, *supra* note 14, art. 57(2)(a)(i).

75. Merrit Kennedy, *Amnesty Says U.S.-Led Coalition May Have Committed War Crimes in Mosul*, NPR (July 12, 2017), <https://www.npr.org/sections/thetwo-way/2017/07/12/536870827/amnesty-says-u-s-led-coalition-may-have-committed-war-crimes-in-mosul>.

76. See *Policies and Practices to Protect Civilians: Lessons from ISF Operations Against ISIS in Urban Areas*, CTR. FOR CIVILIANS IN CONFLICT 41 (Oct. 1, 2019) [hereinafter *Policies and Practices to Protect Civilians*], https://civiliansinconflict.org/wp-content/uploads/2020/11/ISF-Report_PRINT_Revise_

The importance of this particular factor was demonstrated in an attack in the Al-Thawra neighborhood of west Mosul, whereby one IS fighter entered a civilian home containing roughly 104 civilians.⁷⁷ The home was struck one hour after the fighter exited the structure through the main gate onto the street.⁷⁸ This particular strike reflects a failure to take all feasible precautions, as the attack should have been suspended or canceled when it became apparent that the fighter was not present and the home was no longer a military objective.⁷⁹ Given the visible exit of the fighter via the main gate and the established technological capability of the U.S.-led coalition, the target could have been reasonably verified. Even if coalition surveillance failed to detect that the fighter had exited, those planning or deciding upon the strike could have expected the damage to a home, tightly-packed with civilians consistent with IS's human shielding tactics, to be excessive in relation to the anticipated military advantage of striking a single fighter.⁸⁰ This attack, as only one example within a wider pattern of IS tactics, revealed that the commanders calling the strike did not incorporate lessons from the past into their formulation of feasible precautions. IS's routine practices, involving the use of human shields and the herding of large numbers of civilians into buildings, should have sufficiently put coalition forces on notice of the threat to civilian life and objects. Quite notably, the coalition appeared to even ignore lessons learned from a previous airstrike that killed 105 civilians in an IS booby-trapped building only one month prior.⁸¹

Although the combination of IS tactics and the densely populated urban setting of Mosul admittedly complicated the coalition's task of detecting civilian presence in target areas, there were alternative means of verification of objectives in attack available to U.S.-led forces. Coalition leaders recognized that "in order to assess civilian presence [more accurately], [they] would have needed more drones, more cooperation from civilians, and more trained forces who could go behind enemy lines and be [a] source of information."⁸² However, intelligence,

hires.pdf ("ISIS used civilians as human shields, cramming several families into one house, or locking families in a basement, which made it difficult to determine accurately the number of civilians in a target area.").

77. *Civilian Catastrophe in West Mosul*, *supra* note 70, at 31–32.

78. *Id.*

79. *See* Additional Protocol I, *supra* note 14, art. 57(2)(b).

80. *See id.* art. 57(2)(a)(iii).

81. Sahr Muhammedally, *Lessons From Mosul: How to Reduce Civilian Harm in Urban Warfare*, JUST SECURITY (July 20, 2017), <https://www.justsecurity.org/43382/lessons-mosul-reduce-civilian-harm-urban-warfare/>.

82. *See Policies and Practices to Protect Civilians*, *supra* note 76, at 41.

surveillance, and reconnaissance (ISR) assets were prioritized for confirming partner force positions rather than confirming civilian presence.⁸³ Coalition forces, who were already familiar with the shortcomings of overhead imagery-based ISR systems to effectively monitor civilian presence,⁸⁴ could have adjusted their measures and instead diverted these assets to verify civilian presence upon learning of IS human shielding tactics. Obligated to review prior knowledge of the adversary's battlefield tactics and the effectiveness of previously unsuccessful precautions, the U.S.-led coalition clearly did not take all feasible precautions in attack.

2. The Coalition Failed to Use the Least Harmful Methods and Means of Attack Available

As to the methods and means of attack, U.S.-led coalition forces did not choose the least harmful means available to achieve their military aims during the battle of west Mosul. Although coalition forces claimed to have used the “most precise and discriminate weapons,”⁸⁵ the use of artillery, mortars, and improvised rocket assisted munitions (IRAMs) featured prominently in the campaign against IS.⁸⁶ These weapon types have well-documented harmful effects on civilian populations due to their imprecision and fragmentation range.⁸⁷ IRAMs, in particular, were reported to have had “crude targeting abilities” that subsequently devastated areas “where large groups of civilians were trapped in homes or makeshift shelters.”⁸⁸ Importantly, the high cost to civilian life was clearly communicated to coalition forces in the number and nature of injuries sustained by civilian victims throughout their operations in west Mosul. Hospitals and other medical centers reported a dramatic increase in crush and burn injuries, commonly associated with the

83. *See id.*

84. *See id.* at 41–42 (describing how “observing the outside of a building through an ISR platform for minutes or even hours, and not noting any civilian activity, does not guarantee that there are no civilians in the building, as civilians would be hiding in homes and basements for days as operations intensified [As the coalition] learnt civilians moved between homes, unless a drone has gone inside the building, can one really confirm [the] number [sic] of civilians for [a] collateral damage estimate?”).

85. Kennedy, *supra* note 75.

86. *Civilian Catastrophe in West Mosul*, *supra* note 70, at 11.

87. *See generally Expert Meeting: Explosive Weapons in Populated Areas: Humanitarian, Legal, Technical, and Military Aspects*, INT’L COMM. RED CROSS (Feb. 24, 2015), <https://www.icrc.org/en/document/explosive-weapons-populated-areas-humanitarian-legal-technical-and-military-aspects> [hereinafter *Expert Meeting: Explosive Weapons in Populated Areas*].

88. *Civilian Catastrophe in West Mosul*, *supra* note 70, at 6.

detonation of explosive weapons in civilian areas.⁸⁹ Additionally, thousands of civilian victims of coalition strikes were rescued and transported to medical facilities by coalition forces themselves.⁹⁰ The U.S.-led coalition thereby appears to have disregarded lessons learned concerning the effects of selected weapons systems on civilians in their assessment of all feasible precautions.

Despite the likelihood that civilian casualties are “going to happen, just based on the nature of the war,”⁹¹ coalition forces do not have a blank check to use mortars, artillery, or other weapons with wide-area effects where there is an extensive civilian presence. On only one occasion following a bombing in Mosul al-Jadida did the U.S.-led coalition reportedly consider a change in strategy.⁹² However, subsequent events, including an attack that followed days after the bombing in the Al-Tenak neighborhood,⁹³ reveal that the coalition maintained its reliance on artillery, mortars, and IRAMs within their operations in densely populated areas of west Mosul, when other less intrusive means were available. These other means included the use of “precision-guided munitions (such as Excalibur and Guided Multiple Launched Rocket System precision guided munitions), low-yield weapons, low-fragmentation weapons, and direct-fire munitions (such as the AGR-20 laser guided rockets),”⁹⁴ all of which increase targeting precision and minimize civilian harm. The abovementioned weapons and munitions were indeed employed by coalition forces in west Mosul, although on a scant and inconsistent basis.⁹⁵ Coalition partners instead acknowledged how their forces frequently relied on unguided artillery rockets prior to entering IS-controlled areas for purposes of reducing the level of resistance they would encounter, “even when they knew they were firing inaccurate munitions” that resulted in high civilian casualty rates.⁹⁶ In light of these considerations, the U.S.-led coalition failed to use the

89. *Id.* at 40.

90. *Id.*

91. Kennedy, *supra* note 75 (quoting U.S. Air Force Brig. Gen. Andrew Croft in an interview with NPR).

92. See *Civilian Catastrophe in West Mosul*, *supra* note 70, at 25; see also MARCO SASSÒLI ET AL., *How does Law Protect in War in Iraq, the Battle for Mosul*, ICRC CASEBOOK (3rd Ed. 2011).

93. *Civilian Catastrophe in West Mosul*, *supra* note 70, at 29.

94. *Policies and Practices to Protect Civilians*, *supra* note 76, at 49.

95. See *id.* at 49, 51 (quoting a 16th division artillery officer and major general in the ISF) (“When soldiers move forward, if there is a gun shooting and it is a small target, we will use hand weapons or rockets but not heavy weapons . . . [However,] some troops used excessive force and weapons with wide range, especially when they were suffering high casualties.”).

96. See *id.* at 51.

least harmful means available to avoid, and in any event to minimize, harm to civilians and civilian objects.

B. *U.S.-led Coalition Operations in Raqqa*

In Raqqa, the U.S.-led coalition, together with Syrian Democratic Forces, set out to end IS control of the city and surrounding areas in June of 2017. Coalition forces launched an accelerating campaign against IS, shifting from “attrition tactics . . . to annihilation tactics.”⁹⁷ In response, IS intensified its efforts and employed many of the same tactics used in west Mosul, preventing civilians from leaving the conflict zone and effectively trapping and using 160,000 civilians as human shields.⁹⁸ The high civilian casualty rate from U.S.-led coalition strikes, estimated at 1,600 civilian deaths,⁹⁹ coupled with IS’s well-known human shielding tactics raise the question as to whether coalition forces sufficiently complied with the obligation to take all feasible precautions in attack.

1. The Coalition Again Failed to Verify Objectives in Attack

With respect to the verification of objectives, U.S.-led coalition forces failed to do everything feasible when ensuring objectives were not civilian in nature. In the target selection process, coalition forces reported “invest[ing] a significant amount of intelligence and analysis characterizing the area to include ISIS activity, where civilians are, their pattern of life, and how structures are used.”¹⁰⁰ Despite this assurance, a concerning gap exists between these noted precautionary measures and those implemented in practice.

The striking of a school in Mansourah, on the outskirts of Raqqa, serves as one illustrative case.¹⁰¹ Although the coalition’s Combined Joint Task Force conducted a “pattern of [civilian] life analysis” and found no civilian activity on site, testimony indicated that the school had long

97. Ruth Sherlock et al., ‘Entire Families Wiped Out’: U.S. Airstrikes Killed Many Civilians in Syria, NPR (Nov. 9, 2018), <https://www.npr.org/2018/11/09/664360606/entire-families-wiped-out-u-s-airstrikes-killed-many-civilians-in-syria> (quoting Secretary of Defense James Mattis).

98. *Recommendations to Anti-ISIS Coalition on Operations in Syria*, CTR. FOR CIVILIANS IN CONFLICT (June 20, 2017), <https://civiliansinconflict.org/publications/research/recommendations-anti-isis-coalition-operations-syria/>.

99. *Syria: Unprecedented investigation reveals US-led coalition killed more than 1,600 civilians in Raqqa ‘death trap.’* *supra* note 2.

100. Hum. Rts. Watch, *All Feasible Precautions? Civilian Casualties in Anti-ISIS Coalition Airstrikes in Syria* (Sept. 24, 2017), <https://www.hrw.org/report/2017/09/24/all-feasible-precautions/civilian-casualties-anti-isis-coalition-airstrikes-syria>.

101. *Id.*

housed displaced civilians, including those unaffiliated with IS.¹⁰² Residents of the area suggested that either human intelligence or aerial surveillance could have reasonably detected extensive civilian activity, which included children “play[ing] in the school courtyard.”¹⁰³ This attack reflects the repeated failure in the Raqqa offensive to adequately detect the nature of targets and the considerable presence of civilians, which is proof of noncompliance with the feasible precautions requirement.

Accordingly, coalition forces were provided with an abundance of information, through a documented pattern of attacks on IS in similarly situated environments, that needed to be accounted for in their assessment of feasible precautions. Due to earlier coalition operations in west Mosul and other parts of Raqqa, these forces were aware of the cost of IS tactics to civilian life, especially those that involved the use of human shields and civilian infrastructure. While the standard of feasibility introduces some malleability into the rule of precautions, accounting for different operational needs such as the prioritization of speed in attack and choosing targets within minutes,¹⁰⁴ it does not absolve coalition forces from the need to learn from past experience in fulfilling its duty to take constant care to spare civilians.

2. The Coalition Again Failed to Use the Least Harmful Methods and Means of Attack Available

Considering the methods and means used in attack, the U.S.-led coalition did not employ the least harmful weapon types at its disposal in pursuit of military objectives in Raqqa. Data reported by the U.S. military’s central command indicated that a minimum of 30,000 rounds of artillery were expended in the four-month campaign, which is the rough equivalent to one strike every six minutes.¹⁰⁵ Within this spate of strikes, weapons including air-delivered bombs, mortars, and unguided artillery (known to have a margin of error of more than 100 meters)¹⁰⁶ were used in the pursuit of military objectives, even those located in densely populated areas of the city. Consistent testimonies from residents in Raqqa described the firing of six to twelve unguided artillery

102. *Id.*

103. *Id.*

104. Sherlock et al., *supra* note 97.

105. *Syria: Unprecedented investigation reveals US-led coalition killed more than 1,600 civilians in Raqqa ‘death trap,’ supra* note 2.

106. Amnesty Int’l, *Syria: Raqqa in ruins and civilians devastated after US-led ‘war of annihilation,’* (June 5, 2018), <https://www.amnesty.org/en/latest/news/2018/06/syria-raqqa-in-ruins-and-civilians-devastated-after-us-led-war-of-annihilation/>.

shells into residential neighborhoods, targeting wide areas rather than specific military targets.¹⁰⁷ Heavy civilian casualties were reported to have directly resulted from coalition strikes, such as 146 civilian casualties out of 176 reported cases in June and July 2017 alone.¹⁰⁸ These examples, within a much larger pattern, demonstrate the coalition's experience with these destructive weapon types.

Despite the general awareness of the imprecision and wide-impact radius of the weapons, no adequate precautions, such as an adjustment in the choice of weapons, were taken to mitigate the effects on the civilian population.¹⁰⁹ Coalition forces did indeed manipulate the technical features of the selected weapon systems to minimize incidental civilian harm, such as by employing time-delay fuses (which allows for "sub-surface detonation or detonation within a [particular] target or structure") instead of airburst fuses ("which detonate above the target" and result in "wide-area blast . . . effects").¹¹⁰ By using delay fuse settings munitions, the coalition strategically "allow[ed] the ground to absorb the majority of the fragmentation,"¹¹¹ thereby minimizing damage to civilians and civilian structures located in target area surroundings.¹¹² However, this weapon delivery system is only effective at engaging the target and reducing harm to civilians "if real-time intelligence on the location of opposing forces and of civilians is available."¹¹³ In the instant case, where real-time intelligence was limited¹¹⁴ and repeated encounters with

107. Amnesty Int'l, *"I Won't Forget This Carnage": Civilians Trapped in the Battle for Raqqa - Syria*, MDE 24/6945/2017, at 5 & n.5 (Aug. 23, 2017).

108. *Id.*

109. Merrit Kennedy, *Amnesty Criticizes U.S.-Led Coalition's 'Indiscriminate' Actions In Raqqa*, NPR (Apr. 26, 2019), <https://www.npr.org/2019/04/26/717154905/indiscriminate-strikes-amnesty-criticizes-u-s-led-coalition-s-actions-in-raqqa> (quoting U.S. Air Force Lt. Gen. David Deptula, who "wouldn't recommend using artillery in an urban area[,] [t]hat's insane" and explained how "artillery in general is an order of magnitude more inaccurate than precision-guided weapons dropped from the air.").

110. *Expert Meeting: Explosive Weapons in Populated Areas*, *supra* note 87, at 25.

111. *Policies and Practices to Protect Civilians*, *supra* note 76, at 49

112. See Brig. Gen. Matthew Isler, Ass. Deputy Commander, U.S. Air Forces Central Command, Department of Defense Press Briefing: Targeting and Civilian Casualty Investigation Process (Oct. 25, 2017), <https://www.defense.gov/News/Transcripts/transcript/article/1354094/departement-of-defense-pressbriefing-by-brig-gen-matthew-isler-on-central-command/>.

113. *Policies and Practices to Protect Civilians*, *supra* note 76, at 49.

114. See *id.* at 41 (quoting a major general in the U.S.-led coalition: "It was a big challenge for us to know from the air whether there were any civilians, we had limited resources for that. For some ISIS locations, we could cross check information from different sources: civilians and coalition intelligence. Sometimes we could not check. This is war. We can't know from the air where civilians are. In Mosul, some mistakes happened because there were many houses and people were in basements.").

IS revealed that IS fighters were hiding among civilians and using them as human shields,¹¹⁵ the continued reliance on these means of attack known to exact serious civilian injury constitutes a violation of the obligation to take all feasible precautions.

V. CONCLUSION AND RECOMMENDATIONS

For future encounters with IS and other affiliate groups, coalition forces should adjust their tactics to take the presence of civilian populations into account, particularly due to IS's known tendencies to booby-trap civilian infrastructure and use civilians as human shields. To give effect to this precaution, surveillance of civilian patterns of life and population movements must be improved,¹¹⁶ such as through a combination of increased ISR capacity and civilian contact. In the event of uncertainty, civilian presence should be assumed.

Coalition forces should also conduct post-strike assessments that document the nature and extent of civilian harm, which then apprises parties of the effects of certain targeting decisions and weapons systems on the civilian population. Site visits and interviews with witnesses following civilian casualty incidents can inform these assessments for purposes of increasing the reliability of available information that is later integrated into a formulation of feasible precautions. Site visits specifically provide the opportunity to observe munition impact on civilian infrastructure.¹¹⁷ Interviews with witnesses are equally necessary for understanding the sequence of events preceding and during the strike, such as how IS fighters confined civilians in basements, created passageways between connecting houses to move beyond coalition detection, and placed explosives in civilian structures to generate mass casualties.¹¹⁸ Most importantly, however, the U.S.-led coalition must effectively disseminate these lessons learned from experience, both across time and coalition partners, to avoid similar mistakes in future operations. Understanding that strike assessments can be disrupted by events such as staff turnover and records mismanagement, a centralized database that communicates these

115. Amnesty Int'l, "War of Annihilation:" Devastating Toll on Civilians, Raqqa – Syria, MDE 24/8367/2018, at 53–54 (June 5, 2018), <https://www.amnesty.org/en/documents/mde24/8367/2018/en/> (quoting U.S. Lieutenant General Paul Funk II in a December 2017 interview: "When the enemy uses civilians as human shields, it's incredibly hard not to have civilian casualties. Our procedures are sound.").

116. *Id.* at 7–8.

117. *See id.* at 54.

118. *See Policies and Practices to Protect Civilians*, *supra* note 76, at 39.

lessons should be maintained for coalition officials to reference when devising all feasible precautions in attack.¹¹⁹

Finally, the U.S.-led coalition should generally limit the use of weapons with wide-area effects, such as artillery, mortars and IRAMs, in urban settings where civilians are likely to be present. As a tactical alternative, the U.S.-led coalition can increase the capabilities of ground forces to conduct urban operations for the purpose of minimizing harm to the civilian population.¹²⁰ Specifically, coalition forces can continue with, although implement more consistently, their good practice of clearing neighborhoods door-to-door, which proved successful in both reducing civilian casualties and achieving desired military objectives in parts of Mosul.¹²¹ Likewise, coalition forces can maintain the good practices of surrounding IS-controlled buildings with small arms, breaching IS defensive lines in locations exclusively occupied by IS fighters, and using shows of force, such as through air support, to deter IS from launching counterattacks without conducting strikes.¹²² These options available to the coalition avoid the use of heavy weaponry while also accommodating different operational realities.

Based on these recommendations, the increased presence of civilians within the conflict landscape has only reaffirmed the importance of precautionary measures in attack. As observed in the legal framework bearing on the obligation to take all feasible precautions, lessons learned from the past necessarily fall within the scope of this obligation. Failure to adapt precautions, particularly to strategies of the adversary used to generate mass civilian casualties, violates the duty to take constant care to spare the civilian population, a principal tenet of the feasible precautions requirement. More specific to the context of U.S.-led coalition operations, these forces became increasingly familiar with IS human shielding tactics following repeated rounds of hostilities in west Mosul and Raqqa. Nevertheless, coalition forces failed to both recognize these tactics and take precautions that reflected their experience with IS, violating their obligation to take all feasible precautions in attack. While there is undeniably a need to maintain the flexible standard of feasibility that accounts for military interests such as the speed of attack or operational costs of precautionary measures, the U.S.-led coalition is not altogether relieved from its obligation to continue adapting precautions to lessons learned.

119. *In Search of Answers: U.S. Military Investigations and Civilian Harm*, CTR. FOR CIVILIANS IN CONFLICT 5 (2020), <https://civiliansinconflict.org/wp-content/uploads/2020/02/PDF-Report-for-Website.pdf>.

120. See Muhammedally, *supra* note 81.

121. See *Policies and Practices to Protect Civilians*, *supra* note 76, at 49.

122. See *id.*