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Preparing for Civilian Harm Mitigation and Response in Large-Scale Combat Operations

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Abstract

The Department of Defense's (DOD's) 2022 *Civilian Harm Mitigation and Response Action Plan* states that DOD should be effectively prepared to mitigate and respond to civilian harm in any operating environment. To support this objective, the Office of Special Operations/Low-Intensity Conflict in the Office of the Under Secretary of Defense for Policy requested that CNA develop practical steps DOD can take to prepare to mitigate and respond to civilian harm during a large-scale combat operation (LSCO). This report examines the *what, why,* and *how* regarding DOD adopting a civilian harm mitigation and response (CHMR) approach to LSCOs. CHMR promotes the effective and precise use of force in even the most challenging operational dilemmas. CHMR also helps the US to counter robust information efforts US adversaries are likely to employ in the future, in part by reducing adversaries' information operation arsenals. This report gives DOD a foundation for realizing an effective, comprehensive approach to CHMR.

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Cover image: Russia's war against Ukraine. Shutterstock.

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EXECUTIVE SUMMARY

The US military has always taken steps to safeguard the lives of civilians on the battlefield through a combination of compliance with international law and practical steps in planning and operations. However, in the past 20 years, the US and its allies have demonstrated that more can be done to protect civilians. An approach referred to as civilian harm mitigation and response (CHMR) emerged in the cauldron of military operations. With this approach, US forces found ways to reduce the civilian toll while still maintaining effectiveness.

However, US implementation of the CHMR approach has been inconsistent in practice. Although US forces have at times displayed creativity and adaptive learning to find effective ways to mitigate harm to civilians and to respond to that harm, US efforts to mitigate civilian harm were incomplete or ineffective overall.

In 2022, Secretary of Defense (SECDEF) Lloyd Austin directed the creation of the Department of Defense's (DOD's) *Civilian Harm Mitigation and Response Action Plan* (CHMR-AP). The action plan is based on lessons from and analysis of real-world operations and contains SECDEF-directed actions to meet two overall goals: improving DOD's ability to mitigate harm to civilians in its operations and improving response to this harm when it occurs.

This CHMR approach is relatively new and often misunderstood, at times evoking concern among military and national security stakeholders. Perhaps the greatest concern is, *Will taking steps to better protect civilians compromise the military's ability to conduct its mission?* In other words, *How can the military be effective when fighting with one hand tied behind its back?* The heart of this concern is the view that civilian harm mitigation is synonymous with restraint—meaning that militaries are constrained from acting because they must avoid risks to civilians.

However, civilian harm mitigation does not equate to restraint. Rather, it is an adaptive, data-driven, and holistic approach to military operations in which risks to civilians are considered along with risks to mission and risks to force. Effective approaches are then developed and taken, achieving operational and strategic objectives while minimizing civilian harm to the extent feasible. Previous analysis shows that the CHMR approach can, in fact, yield improved operational effectiveness, help military attacks get the right target, and provide strategic and operational advantages.

In the introduction to the CHMR-AP, Secretary Austin states the plan is "scalable and relevant to both counterterrorism operations and large-scale conflicts against peer adversaries." As the US considers how best to prepare for a large-scale combat operation (LSCO) against peer adversaries, the Office of Special Operations/Low-Intensity Conflict in the Office of the Under Secretary of Defense for Policy requested that CNA develop practical steps DOD can take to prepare for mitigating and responding to civilian harm in the context of a LSCO. This report examines the *what*, *why*, and *how* regarding DOD adopting a CHMR approach to LSCOs.

For the *what*, we describe the data-driven CHMR approach outlined in the CHMR-AP and in DOD policy and identify characteristics of LSCOs that are relevant to mitigating and responding to civilian harm that may occur. Specifically, we discuss characteristics of the adversary, of friendly forces, of allies and partners, of the information domain, and of the civilian environment that are relevant to implementing a CHMR approach during a LSCO.

For the *why*, we show how effective CHMR can help the US address challenging operational dilemmas often associated with LSCOs in ways that reinforce US grand strategy, such as enabling freedom of action, strengthening alliances and coalitions, and reinforcing the rules-based international order—a framework that supports the US and its position and influence. Learning and adapting are integral to CHMR, and strong institutional and operational learning will be necessary. If implemented, CHMR will help the US out-adapt adversaries in high-intensity conflicts. Fundamentally, the CHMR approach promotes the effective and precise use of force in even the most challenging operational dilemmas while also reducing adversaries' information operation arsenals.

For the *how*, we examine how the US can conduct four principal CHMR functions: constructing the civilian environment, mitigating civilian harm, assessing civilian harm, and responding to civilian harm. For each CHMR function, we assess historical lessons and causal factors, and then we analyze the effects of the previously identified attributes of high-intensity conflict.

Constructing the civilian environment

Just as DOD acquires and maintains information about the location and identity of friendly forces and threats, it must do the same for civilians and civilian objects—acquire and maintain information about the civilian environment. Although DOD has made previous efforts in this area, these efforts have been partial in scope and in dissemination, thereby limiting the utility of the information for the purpose of CHMR. We identify capabilities and processes for constructing the civilian environment that will better support an effective CHMR approach.

Mitigation of civilian harm

We discuss steps that can be taken to strengthen the mitigation of civilian harm in light of lessons from US operations. CNA has analyzed more than 2,000 real-world cases of civilian harm from the past two decades. From our analysis, we observed that four general types of failure collectively contribute to civilian harm:

- **Breakdowns in communication and command and control.** Often in civilian harm incidents, someone knows critical details that would have stopped the engagement if they had been shared more broadly.
- **Poor understanding of the civilian environment.** Militaries devote intelligence and capability development to cultivating better awareness of threats and friendly forces, but less attention is given to understanding the details of the civilian environment, which creates risk to civilians.
- **Cognitive bias and false assumptions.** Civilian harm can also result from misinformed decisions based on assumptions without evidence.
- **Not exploring mitigation measures.** Forces often have options for better mitigating harm to civilians, but they do not always consider these options in practice.

We examine each of these four areas and offer recommendations that will strengthen the mitigation of civilian harm during a LSCO.

Civilian harm assessments

Historically, civilian harm assessments have not fully supported the data-driven CHMR approach during a LSCO. DOD lacks a consistent approach to assessments that includes key attributes to support learning and adaptation. Those assessments also tend to err on the side of underestimating civilian harm. And critically for LSCOs, DOD assessments have generally focused on specific instances of civilian harm, which is infeasible for comprehensive use in a high-intensity operation. To illustrate what assessments could look like in LSCOs and identify practical recommendations for DOD, we considered the utility of incident-specific versus macro-level assessment during LSCOs, reviewed best practices for assessing civilian harm, and identified data sources and methods DOD currently uses for assessments (as well as methods that DOD is not currently using but are available). Given the high tempo and intensity of a LSCO, we recommend that DOD develop the capability to conduct macro-level assessments of civilian harm leveraging novel approaches and datasets.

Response

In the CHMR-AP, DOD committed to effectively responding to civilian harm caused during its operations at both incident and community levels. Historically, DOD's response to civilian harm has been ad hoc, incident specific, and varied across different operations. DOD's response during LSCOs will by necessity be different, and some aspects will be more difficult due to more limited access to affected areas and greater scales of harm. Thus, response during a LSCO will require a more deliberate and comprehensive approach. To illustrate what response could look like during LSCOs, we identified all possible DOD authorities for response and reviewed DOD's history and lessons learned regarding civilian harm response. We then examined challenges with response in LSCOs, created a menu of options for LSCO response, and discussed how DOD could plan for civilian harm response.

We also examined elements that will be critical during a LSCO. For example, successful CHMR during a LSCO will require strong operational learning. Forces must rapidly identify critical risks to civilians and make operational adjustments in stride to reduce those risks and respond as appropriate. The conflict in Ukraine is a clear example of how military innovation and adaptation are essential against a near-peer competitor. We discuss the history of operational learning for CHMR, cover some key limitations US forces have faced, and offer a model for future operational headquarters to adopt for more intentional and effective operational learning.

We also examine CHMR considerations for nonlethal tools and nonkinetic operations. Although nonlethal tools could significantly contribute to CHMR, we discuss how historically this has not been the case. We discuss how DOD's approach to nonlethal capabilities will require changes in order for these tools to be useful in a LSCO context. We also examine cyber and space operations, identifying how these operations could better incorporate a CHMR approach and be integrated into the larger DOD enterprise.

We conclude with a set of recommendations based on our analysis. The changes that must be made to take a comprehensive, effective approach to CHMR will result in strategic gains for the US. That said, significant and sustained efforts will be necessary to achieve them. We therefore provide sets of recommendations for each of the areas we examined in the project. Our foremost recommendation is that the CHMR Steering Committee should direct and receive an annual review of progress. Such a review should be combined with a monitoring and assessment evaluation of progress and gaps

for CHMR in LSCO to help DOD gauge whether efforts are on track and determine needed course corrections.

In our final recommendation, we identify major topics for which further assessment and studies are needed. The subject of civilian harm mitigation is vast, and this current effort is intended to serve only as a starting point for DOD, with future studies needed to further develop some topics and begin work on others that are not addressed here. Recognizing that a robust and sustained analytic agenda around CHMR is necessary within DOD, including in support of the services, we provide a set of topics for which studies and analysis would be particularly valuable as a starting point.

Overall, CHMR is a smart strategy for the US. CHMR promotes the effective and precise use of force while supporting effective mitigation of civilian harm. CHMR also helps the US to counter robust information efforts that its adversaries are likely to employ in the future, in part by reducing the ability of adversaries to incorporate civilian harm into their information operation arsenals. This report gives DOD a foundation for beginning the journey toward an effective, comprehensive approach to CHMR in the most demanding operational contexts.

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INTRODUCTION

In 2022, Secretary of Defense Lloyd Austin directed the creation of the Department of Defense's (DOD's) *Civilian Harm Mitigation and Response Action Plan* (CHMR-AP). This plan contains SECDEF-directed actions to meet two overall goals: improving DOD's ability to mitigate harm to civilians in its operations and improving response to this harm when it occurs.

In the introduction to the CHMR-AP, Secretary Austin states that the action plan is "scalable and relevant to both counterterrorism operations and large-scale conflicts against peer adversaries."[1] As the US military considers how best to prepare for a large-scale combat operation (LSCO) against peer adversaries, the Office of Special Operations/Low-Intensity Conflict in the Office of the Secretary of Defense for Policy requested that CNA develop practical steps DOD can take to prepare for mitigating and responding to civilian harm in the context of a LSCO. The purpose of this project is to identify actions that DOD can take now to better prepare for effective civilian harm mitigation and response (CHMR) in advance of LSCOs. Specifically, DOD seeks to identify and mitigate risks to civilians while maintaining or improving overall mission effectiveness and being positioned to respond to harm when it occurs. Effective mitigation and response can reduce strategic, operational, and other types of costs that civilian harm can cause.

Particularly in the past 20 years, best practices for effective CHMR have emerged as the US, partners in the North Atlantic Treaty Organization (NATO), and other militaries have operated in counterinsurgency and counterterrorism contexts. The steps for implementing CHMR will be different in various operational contexts, but the overall principles of CHMR hold for high-intensity operations such as LSCOs; take a learning, adaptive approach to operations, identify risks to civilians, and find ways to mitigate these risks when possible while maintaining effectiveness. This report identifies steps DOD can take to best implement CHMR in the context of a LSCO.

Is CHMR possible during a LSCO?

LSCO is an Army term for a major combat operation of significant intensity and strategic stakes. Descriptions of LSCOs feature language such as the following:

- LSCOs "involve widespread, devastating violence, usually on a vast scale."[2]
- LSCOs are "intense, lethal, and brutal."[3]
- A LSCO is "war at its conventional zenith."[4]
- A LSCO features "weapons…exponentially more lethal."[5]

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1 Department of Defense, *Civilian Harm Mitigation and Response Action Plan*, Aug. 27, 2022.

2 Winston Williams and Jennifer Maddocks, "Large-Scale Combat Operations Symposium – Introduction," *Articles of War (West Point Lieber Institute blog)*, May 8, 2023, https://lieber.westpoint.edu/large-scale-combat-operations-symposium-introduction/.

3 Quoted in John Dzwonczyk and Clayton Merkley, "Through a Glass Clearly: An Improved Definition of LSCO," *Military Review* (Nov. 2023), https://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2023-OLE/Through-a-Glass-Clearly.

4 Quoted in Dzwonczyk and Merkley, "Through a Glass Clearly."

5 Quoted in Dzwonczyk and Merkley, "Through a Glass Clearly."

During this study, we encountered skepticism about whether the CHMR approach is even feasible or compatible with a LSCO context. Is a LSCO simply so violent and intense that very little thought (besides legal considerations) can be devoted to mitigating and responding to civilian harm?

We have found that in many cases, this skepticism is rooted in a misunderstanding of what CHMR actually is (for example, "CHMR is simply restraint") or a perception that CHMR inherently reduces mission effectiveness—in particular, targeting effectiveness. In other words, the reasoning goes, if CHMR is implemented, the military force will be less effective in countering an adversary military force, and there is no margin for reduced effectiveness in a high-intensity conflict with a near-peer adversary.

In CNA's two decades of work on CHMR, we have encountered many beliefs about civilian harm and civilian harm mitigation. As we discuss in this report, CHMR does not mean restraint, and military effectiveness can in fact increase through an effective CHMR approach. When we understand the CHMR approach, we see it is indeed feasible during a LSCO. We do not mean to understate the serious challenges in practicing CHMR during a LSCO, which we discuss in this report. Rather, we emphasize that understanding how to implement CHMR in practice is foundational to DOD's objectives. Armed with an accurate understanding of the CHMR approach, including understanding how and when civilian harm occurs, we can then examine the CHMR approach in LSCOs and determine what is needed.

As such, this report starts with the *what*—what is a LSCO, and what is CHMR? We then examine the *why*—why is CHMR in LSCOs strategically advantageous to the US? Finally, we consider the *how*—how can the US develop the ability to practice CHMR in the course of a LSCO?

Methodology

Our research team took a multifaceted approach to answering the what, why, and how of CHMR in LSCOs. We first addressed the what of CHMR, based on our two decades of experience with and body of work on CHMR. Our findings are based on an analysis of more than 2,000 real-world cases of civilian harm from the last two decades of operations, our insights from our involvement in every DOD assessment of civilian harm, and our work in implementing CHMR in practice with the US and other militaries. For the what of LSCOs, we conducted a literature review of government and nongovernment sources. The focus of this research was to distill the essential characteristics of a LSCO that would shape the context and operational dilemmas US forces would face.

We then examined the why, starting with why CHMR is beneficial to militaries and governments considering various costs imposed by civilian harm in war. We considered the benefits of CHMR in LSCOs and how the ability to mitigate and respond to civilian harm in that context is strategically advantageous to the US. In this examination, we compared CHMR with three previous strategic offsets the US has pursued over the years to strengthen its national security. We then tested CHMR and found that it meets three proposed criteria for a strategic offset. We also outlined the key decisive elements of CHMR for US strategy and the kinds of dilemmas—both operational and information-operations–related—that CHMR provides solutions to. Based on this analysis, we propose CHMR as a fourth offset strategy.

Having answered what and why, we then set out to answer how the US can develop the ability to practice CHMR during a LSCO. In conjunction with the sponsor, we identified four key areas essential to effective CHMR: constructing the civilian

environment, mitigating civilian harm, assessing civilian harm, and responding to civilian harm. For each area, we identified historical challenges related to CHMR based on the past 20 years of operations. To do so, we analyzed specific civilian harm incidents, recurring lessons and trends, and previous assessments of civilian harm. We then considered current DOD policies, procedures, doctrine, and available capabilities and how they address these challenges, and we identified specific gaps that exist. We next considered how attributes of a LSCO would interact with, and complicate, a CHMR approach. Based on this analysis, we developed recommendations to address gaps and shortfalls.

The most complex research area was mitigation of civilian harm. In practice, civilian harm in operations can occur in various ways and tends to be multicausal. For example, in previous CNA research, we identified several pathways for how civilian harm occurs in practice, based on analysis of more than 2,000 real-world civilian harm cases.[6] To be fully effective, approaches to mitigating civilian harm must consider the full set of these pathways, so we considered how the pathways may contribute to risks to civilians during a LSCO. To better explain how incidents tend to result from multiple failures, we can draw on the Swiss cheese model of causality. According to this model, in a complex system, multiple factors or processes collectively keep accidents, or failures, from occurring. But each of those factors or processes has flaws, which can be considered holes in a slice of cheese. When those holes line up during a single incident, an accident occurs.

In our previous work examining the use of artificial intelligence and CHMR, we created a model of causal factors contributing to civilian harm. For this project, we refined this model and added another level of detail, breaking out the different components of each causal factor (or slice of Swiss cheese). This additional fidelity allowed us to more deeply examine the various ways a LSCO context would provide challenges that the US must address for effective CHMR.

One possible concern with this approach is that the robust dataset on civilian harm incidents encompasses only incidents occurring in low-intensity operations, such as counterinsurgency and counterterrorism operations. To address this limitation, we recommend that DOD and the services conduct instrumented exercises and evaluations to examine potential differences in civilian harm risks that can arise in various LSCO contexts. In the meantime, to help validate our findings, we also considered fratricide incidents—another type of combat identification failure—which we had data for in the context of major combat operations (Operation Iraqi Freedom in 2003) and joint exercises and evaluations using high-intensity combat scenarios. We found that fratricide and civilian harm incidents share many characteristics and that these characteristics tend to be consistent across low-intensity and high-intensity contexts. This finding suggests that the fundamentals of combat identification failures are largely independent of the operational context, though specific details of those incidents will differ.

Organization of this report

In the next section of this report, we define CHMR and discuss the elements of a comprehensive approach to CHMR. We also discuss some overall benefits the US and others have gained from the CHMR approach. In the following section, we identify key attributes of high-intensity conflicts to provide a baseline understanding of the anticipated operational context. We derived these attributes from a variety of resources, including government

[6] We detail these pathways in the section of this report titled "CHMR: A Strategic Offset."

sources, analytic reports, military-adjacent reporting and commentary, and military operations during recent and ongoing conflicts. We discuss five characteristics of LSCOs—adversarial aspects of the operating environment, operational approach, the civilian environment, ally and partner relationships, and the information environment—and give some examples of these characteristics.

We then frame CHMR as a significant advancement in US strategy, considering past strategic offsets. Over a period of 75 years, the US has employed three offset strategies. We review these strategies and show that CHMR, if properly resourced and implemented, represents a fourth offset strategy. If DOD is able to gain the capabilities and proficiencies described in this report, this fourth offset could help the US achieve key advantages over adversaries—advantages that will be critical for effective deterrence and for prevailing during a LSCO.

We next consider four principal CHMR functions: understanding the civilian environment, mitigating civilian harm, assessing civilian harm, and responding to civilian harm. For each CHMR function, we assess historical lessons and causal factors for CHMR. Then we analyze the effects of the previously identified attributes of high-intensity conflict. For each topic, we recommend steps DOD can take to address CHMR challenges that DOD will face during high-intensity conflicts. We note that some of the implications lack clear solutions considering the lack of recent US experience in high-intensity conflict and the changing operational environment we expect the US to face. Thus, this project serves as a preliminary guidepost, suggesting initial actions that DOD can take and pointing to experimentation, innovation, and concept development that will be necessary for DOD to refine its understanding of operational dilemmas and develop an effective set of solutions.

We then devote a section to additional topics relevant to CHMR during a LSCO. One of the critical elements for successful CHMR during a LSCO will be operational learning: rapidly identifying critical risks to civilians and making operational adjustments in stride to reduce those risks and respond as appropriate. For example, the conflict in Ukraine is a clear example of how military innovation and adaptation are essential against a near-peer competitor. We discuss the history of operational learning for CHMR, cover some key limitations US forces have faced, and offer a model for future operational headquarters to adopt for more intentional and effective operational learning.

We also examine CHMR considerations for nonlethal tools and nonkinetic operations. Although nonlethal tools could significantly contribute to CHMR, historically this has not been the case. We discuss how DOD's approach to nonlethal capabilities will have to change for these tools to be useful in a LSCO context. We also examine cyber and space operations, discussing how these operations could better integrate a CHMR approach and be integrated into the larger DOD enterprise.

We conclude with recommendations. The changes that must be made to take a comprehensive, effective approach to CHMR will result in strategic gains for the US—that said, significant and sustained efforts will be required to achieve these gains. Our first recommendation is that the CHMR Steering Committee should direct and receive an annual review of progress combined with a monitoring and assessment evaluation of progress and gaps so that DOD knows whether efforts are on track and can course correct as needed. We then provide recommendations for each of the four focus areas of the project.

Our final recommendations identify major topics for which further assessment and studies are needed. The subject of CHMR is vast, and this current study is intended to serve as only a starting point for DOD, with future studies needed to further develop some topics and begin work on others that are not addressed here. For example, because of resource considerations and sponsor priorities, we touch only briefly on considerations for CHMR in cyber operations, and we provide a framework that can guide future examination of the issue. In addition, we do not examine CHMR considerations in nuclear operations, a complex but vital topic.[7] Recognizing that a robust and sustained analytic agenda around CHMR is necessary within DOD, including in support of the services, we provide a set of topics for which studies and analyses would be particularly valuable as a starting point.

Overall, CHMR is a smart strategy for the US military. CHMR promotes the effective and precise use of force in even the most challenging operational dilemmas. CHMR also helps the US counter robust disinformation (intentionally false information) and misinformation (unintentionally false information) efforts that its adversaries are likely to employ in the future, in part by reducing the information operation arsenal of adversaries. This report gives DOD a foundation for beginning the journey toward an effective, comprehensive approach to CHMR in the most demanding operational contexts.

[7] The design of nuclear weapons does consider civilian harm. For example, analysis shows that "a nuclear EPW [Earth Penetrating Weapon] could reduce civilian casualties in an urban area by a factor of 2 to 10 compared to a surface-burst weapon with 25 times the yield." Reference: Jonathan Medalia, *Bunker Busters: Robust Nuclear Earth Penetrator Issues, FY2005 and FY2006*, Congressional Research Service, June 23, 2003. That said, there is an opportunity to apply the new, comprehensive CHMR approach and lessons to the planning, employment, and design of nuclear weapons.

DEFINING CHMR

The United States has always taken steps to safeguard the lives of civilians on the battlefield through a combination of compliance with international law and practical steps in planning and operations. However, in the past 20 years, the US and its allies have demonstrated that more can be done to protect civilians. An approach referred to as CHMR emerged in the cauldron of military operations. With this approach, US forces found ways to reduce the civilian toll while still maintaining effectiveness.

The *Civilian Harm Mitigation and Response* DOD Instruction (DODI) defines *civilian harm* as "civilian casualties and damage to or destruction of civilian objects resulting from military operations."[8] CNA's functional definition for *civilian harm mitigation and response* gives additional clarity on this point: "The collective efforts armed actors, militaries and nations can take to reduce the scale and impact of this harm to civilians, both direct and indirect, from their actions."

From this definition, we see that harm to civilians can be both direct (i.e., death, injury, or the destruction of civilian objects such as homes, other property, hospitals, and critical infrastructure) and indirect (e.g., long-term impacts on the civilian population from the loss of essential services, migration, and degraded resources and health care). In addition, CHMR includes both mitigation and response: *mitigation* is reducing the scale of harm to civilians as much as possible; *response* is the use of various actions to reduce the impact of that harm when it does occur.

Although CHMR is supported in DOD through policy and guidance (the CHMR DODI and the CHMR-AP, respectively), the CHMR approach has never been fully implemented in practice. Even so, positive examples exist, including the International Security Assistance Force (ISAF) campaign in Afghanistan; however, the success of that campaign had more to do with serendipity and ad hoc initiative than institutional preparedness. For example, the progress that was made in Afghanistan depended on circumstances such as the following:

- ISAF Commander General David McKiernan decided to track allegations of civilian harm, convinced that they were not real and wanting a way to systematically disprove false allegations. But many of these allegations turned out to be true, and this initiative led to the creation of a Civilian Casualty Tracking Cell.
- ISAF Commander General Stanley McChrystal was convinced that civilian casualties were strategically toxic to the coalition campaign. Consequently, he shared his intent for US and coalition forces to do more to protect civilians and was willing to implement changes based on analysis of civilian casualty tracking data.
- The chairman of the Joint Chiefs of Staff directed the DOD joint lessons-learned cell—the Joint Center for Operational Analysis (JCOA)—to better understand civilian casualties and offer potential data-driven solutions. A CNA field representative at JCOA (one of the coauthors of this report) led this effort. Analyzing all civilian harm incidents occurring in the past few years, JCOA found that ISAF efforts to mitigate harm to date were based on an incomplete

[8] Department of Defense Instruction (DODI) 3000.17, Dec. 2023, *Civilian Harm Mitigation and Response*.

understanding of how civilian harm occurred. Although ISAF had been taking steps to reduce harm to civilians, those steps did not address the most pressing problems. This analytical approach—which was later termed longitudinal analysis—enabled the development of data-driven mitigation measures during operations.

- The US Central Command and Special Operations Command directed an effort to have this lessons-learned team support ISAF in its mitigation efforts, leading to a data-driven approach to understanding risks to civilians. With this approach, such risks were considered along with risk to mission and risk to friendly forces, and changes to tactics, command guidance, and operational procedures were made. As a result, civilian casualties dropped by 20 percent in the first year, with additional reductions over time.

Although additional processes were in place in Afghanistan—such as the ISAF staff reviewing civilian harm incidents and making recommendations as well as the establishment of a more robust Civilian Casualty Mitigation Team—those processes tended to identify lessons learned from a single incident. Consequently, they could cause decision-makers to draw the wrong conclusions and make changes that in fact increased the risks to civilians. Though ad hoc and driven by multiple confluent developments, the data-driven approach, in which lessons were drawn analytically from a much broader set of civilian harm incidents, performed better and enabled progress.

This situation has precedents. For example, in 1942, German submarines operated off the coast of the Atlantic with freedom of action and successfully sank hundreds of US ships. In desperation, the US Navy turned to civilian scientists to form a unit, the Antisubmarine Warfare Operations Research Group, to help them solve this problem. Instead of relying on individual (often haphazard) reports, the group brought rigor to the reporting process and created search and screen theory to optimize the use of resources and the ability to detect and effectively attack enemy submarines. The development of this theory significantly improved outcomes, and later in the year, German submarines retreated from the Atlantic coast. This approach "helped turn the tide of the war at sea."[9]

The CHMR approach also represents such a theory: a systematic, data-driven approach to military operations that enables effective mitigation of civilian harm while promoting mission effectiveness and force protection. Beginning with the ISAF campaign, CNA and others have developed and refined this CHMR approach through analysis and assessments. That said, the full CHMR approach has never been implemented. Although there have been times when US forces displayed creativity and adaptive learning to find effective ways to mitigate harm to civilians and to respond to that harm, there have also been many instances when US efforts to mitigate civilian harm were incomplete or ineffective.

To ensure consistency in CHMR, in 2022, Secretary of Defense Austin directed the creation of the Department of Defense's CHMR-AP. The action plan is based on lessons and analysis of real-world operations and contains SECDEF-directed actions to meet two overall goals: improving the DOD's ability to mitigate harm to civilians in its operations and improving response to this harm when it occurs.

Because the CHMR approach has never been fully institutionalized in practice, established operational and institutional practices often do not exist for us to adapt to LSCOs. Rather, as we examined how CHMR can be effectively implemented in LSCOs, we

[9] Don Boroughs, *The Story of CNA: Civilian Scientists in War and Peace*, CNA, 2021.

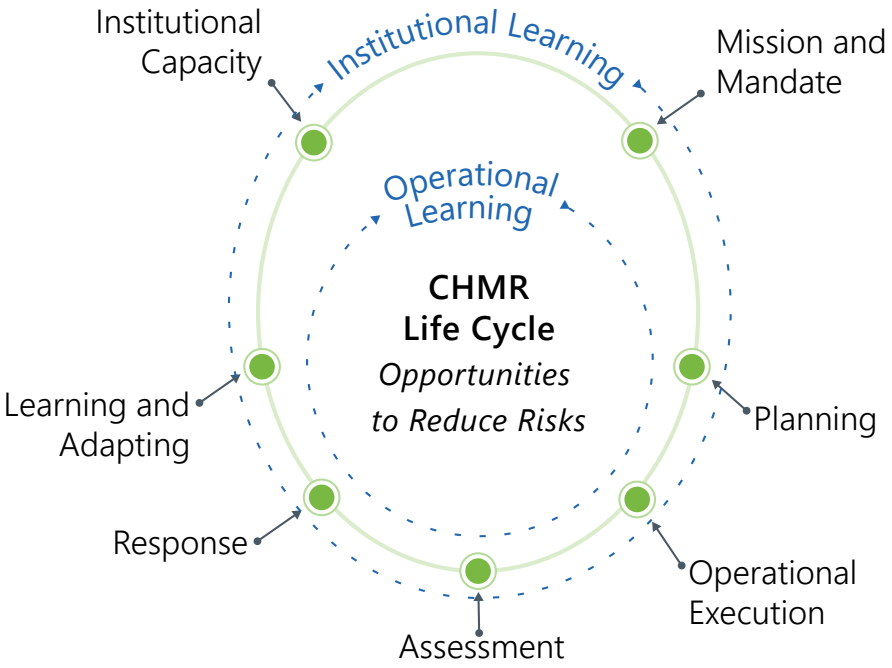
looked at ways to regularize successful but ad hoc processes and learned from operations that were not as successful in practicing CHMR.

Historically, civilian harm mitigation has raised several concerns among military and national security stakeholders. Perhaps the greatest concern has been, *Will taking steps to better protect civilians compromise the military's ability to conduct the mission?* In other words, *How can the military be effective when it has to fight with one hand tied behind its back?* Often, civilian harm mitigation is seen simply as *restraint*—meaning that militaries do not take certain steps because they create risks to civilians. But civilian harm mitigation does not equate to restraint. Rather, it is a nuanced, adaptive, and holistic approach to military operations in which risks to civilians are considered along with risks to mission and risks to force. Effective approaches are then developed and taken, achieving operational and strategic objectives while minimizing civilian harm to the extent feasible.

A comprehensive approach to CHMR

How is this adaptive and holistic approach to CHMR achieved in practice? Our analysis shows it can be best achieved through a comprehensive approach that we call a CHMR life cycle (see Figure 1). This life cycle reflects care in mitigating risks to civilians, with steps being taken at all points in the planning and use of military force, including learning loops so that militaries can adapt and improve to overcome challenges.

Figure 1. Civilian harm mitigation and response life cycle



Source: CNA.

The life cycle consists of the following elements:

- **Mission and mandate.** Assessing the risks to civilians, designing and gaining needed capabilities and authorities, and developing informed courses of action to conduct operations in ways that consider mitigation of civilian harm from the outset.
- **Planning.** From the strategic down to the tactical level, conducting planning that factors in risks to civilians and includes feasible steps and alternatives to help mitigate those risks.
- **Operational execution.** Taking steps to promote accurate identification and delivery of intended effects from an operation while seeking ways to minimize direct civilian harm as well as indirect harm, such as interruption of essential services.
- **Assessment.** Considering all available information to determine the best estimate of civilian harm caused by an operation. Also includes identifying causes, trends, and patterns of harm.
- **Response.** Working to mitigate the tragic consequences of civilian harm by providing urgent medical care and assistance and by acknowledging and apologizing for this harm.
- **Learning and adapting.** Using assessments, including analysis of patterns of harm and trend data, to identify operational refinements that could better mitigate harm to civilians in operations. These assessments might also identify institutional requirements that could help address observed challenges.
- **Institutional capacity.** Addressing observed challenges and requirements across the military institution (e.g., doctrine, training, and materiel solutions) to strengthen the ability to mitigate harm in operations.

The life cycle includes two learning loops: (1) operational learning, in which assessments of causes and trends directly inform the improvement of operational practices and policies in the context of an ongoing operation, and (2) institutional learning, in which assessments of challenges and requirements inform needed changes to, for example, doctrine, policy, organization, training, and leadership, along with equipment and facilities.

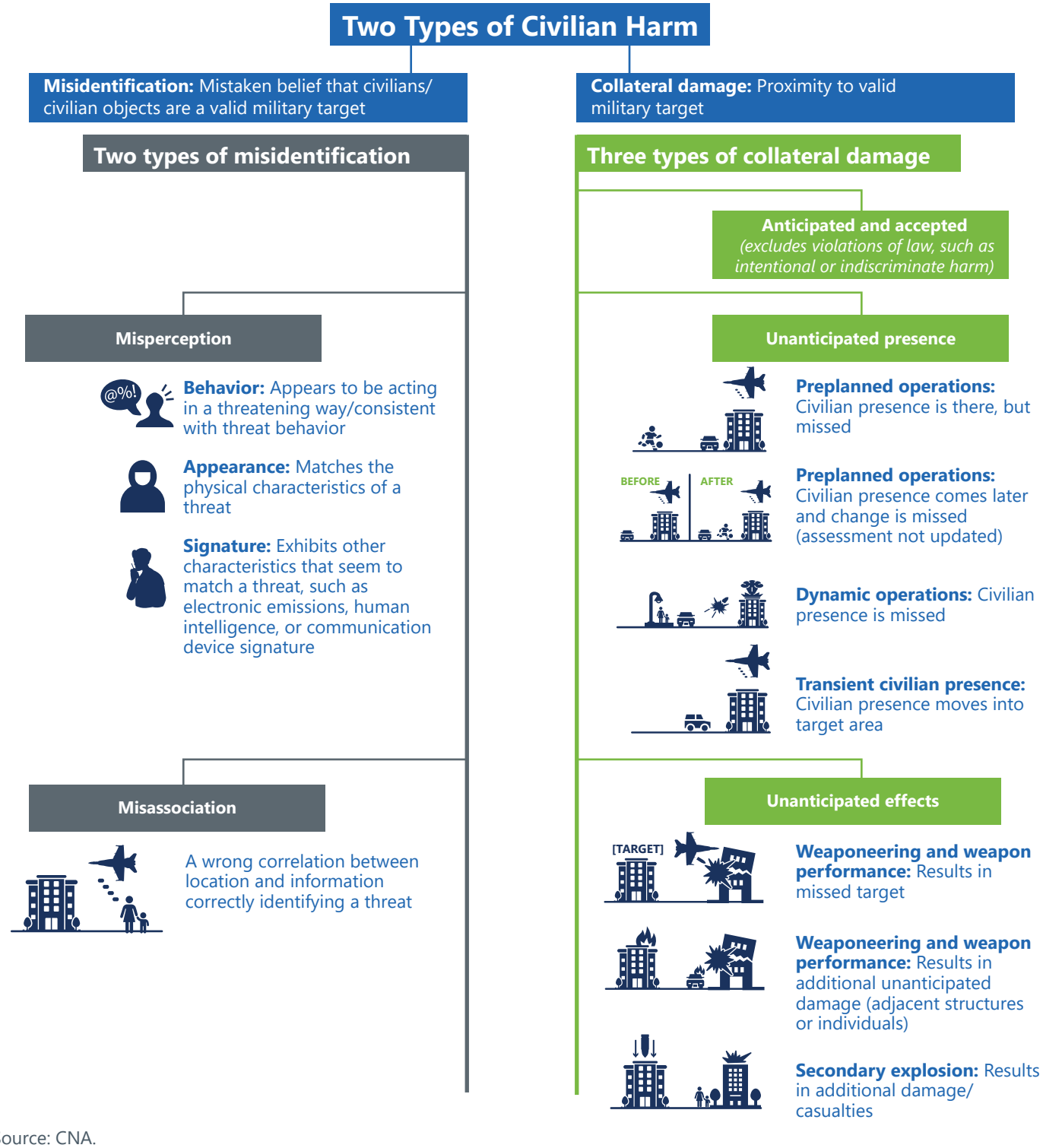
CHMR can promote effectiveness

We previously note the central concern about CHMR: *Will taking steps to better protect civilians compromise our ability to conduct the mission?* Given that CHMR represents this comprehensive approach, what is the relationship between CHMR and mission effectiveness? We can deduce the relationship, in part, based on the mechanisms involved in civilian harm. In our analysis of more than 2,000 real-world cases of civilian harm, we observed a number of specific pathways by which civilian harm occurs.[10] We illustrate these pathways in Figure 2.

During operations, about half of all civilian harm comes from misidentification (the left-hand side of the figure). In misidentification, civilians or civilian objects are mistaken for a valid military target and are attacked in that mistaken belief. Therefore, about half of all civilian harm incidents do not simply result in civilians being harmed—they can also result in a valid military target being missed. This finding suggests that mitigating civilian harm,

[10] Larry Lewis and Andrew Ilachinski, *Leveraging AI to Mitigate Civilian Harm*, CNA, Feb. 2022.

Figure 2. Pathways to civilian harm



Source: CNA.

which includes reducing misidentifications, can have a positive effect on mission effectiveness.

We see this positive effect in actual military operations in the field. To examine the concern that CHMR could reduce mission effectiveness, we analyzed operational data from a particularly high-priority mission in Afghanistan: special operations. We examined operations from this mission over time, considering rates for both mission effectiveness—specifically, the achievement of the objective, usually a high-value target being captured or killed—and civilian harm. Over several years, special operations forces increased their civilian harm mitigation measures and adopted tactics to better protect civilians. In comparing the two rates over time, we found that the rate of civilian harm decreased, reflecting the concerted efforts made to protect civilians. The rate of successful missions rose over the same period.[11] This finding is consistent with the win-win situation suggested in theory: effective civilian harm mitigation can help militaries better protect civilians while enhancing effectiveness in carrying out military attacks. This does not mean there are no trade-offs involved in protecting civilians. In certain situations, a choice must be made between risking civilian harm and achieving the military objectives of an attack. Yet these results indicate that the trade-offs are not binary, zero-sum situations; in aggregate, the same measures meant to protect civilians can also improve the effectiveness of operations in terms of successfully identifying and dealing with valid military targets.

CHMR can mitigate other costs of civilian harm

Militaries are prioritizing civilian harm mitigation for good reason. Over time, civilian harm from military operations has increasingly resulted in strategic and operational costs. Based on military operations over the past 20 years, the strategic and operational costs of civilian harm—as well as costs imposed on military forces—have included the following:

- **Degraded legitimacy.** The right of states to govern and to exercise such functions as the use of force is related to legitimacy. Legitimacy stems in part from adherence to international norms, including those for armed conflict, and to common expectations for the protection of civilians. Lack of perceived legitimacy due to civilian harm undermines efforts to govern and maintain a monopoly on the use of force. Conversely, making efforts to mitigate civilian harm has enhanced the legitimacy of militaries, both within local populations and internationally.
- **Creation of grievances.** Civilian harm can serve as a wellspring for grievances among populations. Grievances can also reduce the population's support for security forces and increase support of nonstate armed groups, undercutting security in the long term. CHMR reduces the number of civilians harmed and the effectiveness of how these cases are exploited (as we discuss next).
- **Exploitation by adversaries.** Civilian harm strengthens the cause of adversaries, who often use charges of US-caused civilian casualties to recruit new forces

[11] Larry Lewis, *Improving Lethal Action: Learning and Adapting in US Counterterrorism Operations*, CNA, Sept. 2014, https://www.cna.org/archive/CNA_Files/pdf/cop-2014-u-008746-final.pdf.

and fundraise. These civilian tolls can also influence international opinion and improve the morale and cohesion of adversary forces. Furthermore, adversaries are not necessarily bound by legal and ethical considerations, meaning that they might make false claims about casualties or collocate their own forces with civilians to increase the risk of civilian harm, which they could then use for their own gain. This problem is compounded by widespread mis- and disinformation campaigns conducted over social media. Being able to mitigate harm to civilians and to respond effectively to cases of harm helps reduce the informational arsenal adversaries can use.

- **Curtailed freedom of action.** In both Iraq and Afghanistan, when civilian harm was viewed to be excessive or out of control, the US was curtailed by the host nation at specific times and in specific areas. At some points, US leaders paused operations for specific units or changed their missions to better reduce harm to civilians. Over time, US forces in Afghanistan and elsewhere regarded civilian harm mitigation as an essential element of maintaining freedom of action and gained the ability to operate in areas and contexts that had been denied before.
- **Reduced targeting effectiveness.** Operational data show that civilian harm often stems from a misidentification of civilians as a valid military target. As a result, in addition to civilians being harmed, the operation was not successful in its mission. As noted previously, data also show that forces have been able to simultaneously improve the mitigation of civilian harm—with operational rates of civilian harm decreasing over time—while improving targeting effectiveness. As noted previously, civilian harm mitigation does not equate to restraint. Rather, it is about maintaining or improving effectiveness while finding creative ways to mitigate risks to civilians.
- **Disrupted partnerships.** In both Iraq and Afghanistan, civilian harm strained coalitions. At other times, allies thought poorly of US tactics and policy that appeared to safeguard the lives of civilians inadequately. This same effect was observed with the NATO coalition in Operation Allied Force in Kosovo. Civilian harm by the Israeli Defense Forces in Gaza is likewise straining alliances. Reducing civilian harm can help preserve important alliances and strengthen the foundation for the long-term success of partners.

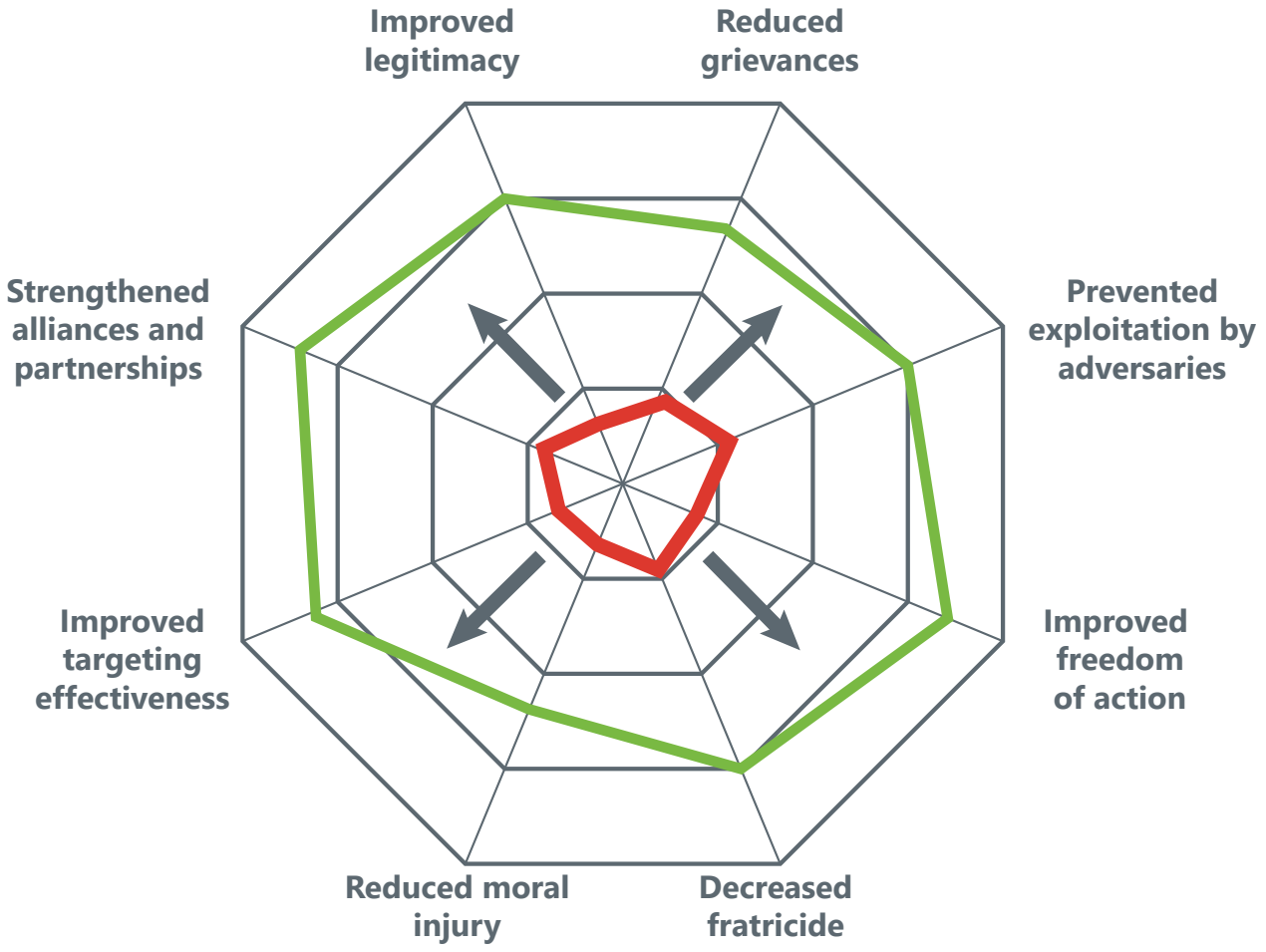
We also see other costs to the military force from civilian harm, including the risk of fratricide and moral injury:

- **Increased fratricide.** Analysis of fratricide in US and coalition operations shows that cases of US and coalition losses from friendly fire include common factors with incidents of civilian harm. These two types of harm share the same types of combat identification failures, as exemplified by numerous cases of US forces shooting at United Kingdom (UK) ground forces, US troops at a checkpoint killing Italian nationals, and US air assets misidentifying and attacking UK ground vehicles. Addressing common factors that lead to civilian harm should also result in decreases of fratricide.

- **Moral injury.** US forces involved in civilian harm incidents can experience serious distress and remorse for many years after such incidents. US Special Operations Command's (SOCOM's) support of the 2010 Joint Civilian Casualty Study was inspired in large part by the SOCOM commander's desire to reduce moral injury from civilian harm in the special operations community. Effective mitigation of civilian harm should decrease the burden of moral injury.

Overall, a failure to address causes of civilian harm can have a wide and significant effect on the US, through strategic, operational, and other costs to the military force. In the same way, CHMR can have a strong and multifaceted positive effect on US goals and interests. These positive effects are illustrated in Figure 3.

Figure 3. Civilian harm mitigation and response: positive effects



Source: CNA.

Note: Magnitudes shown here are illustrative and will be context dependent in practice.

PROJECTED ATTRIBUTES OF FUTURE LSCOS

Over the past 20 years of operations, US forces have engaged primarily in counterinsurgency and counterterrorism operations. These operations have been lower intensity operations against weaker states (Iraq and Libya) or nonstate armed groups. In order to discuss how DOD can apply CHMR to large-scale combat operations (LSCOs), we must first describe what such operations will look like in practice—what operational context will the US be facing? In this section, we lay out unclassified attributes of these types of conflict scenarios. We based these attributes on our analysis of government sources, analytic reports, military-adjacent reporting and commentary, and military operations during recent and ongoing conflicts. We identified five overall categories, which we discuss in this section:

- Adversarial aspects of the operating environment
- Operational approach
- Civilian environment
- Ally and partner relationships
- Information environment

Adversarial aspects of the operating environment

We anticipate that the strategic aims of the adversary will commonly include seizing control of population centers and consolidating control. Adversaries are likely to effectively contest the operational environments across all domains (air, land, maritime, space, and cyberspace). They will likely deploy kinetic anti-access/area-denial capabilities. They will also likely use a mix of kinetic and nonkinetic effects across multiple domains to deny, degrade, or make sporadic numerous technological capabilities upon which operating forces rely, including communications; intelligence, surveillance, and reconnaissance; targeting; position, navigation, and timing; data; power; and computer systems. Adversaries are expected to heavily leverage deceptive capabilities and tactics in addition to undertaking overt operations to create operational advantages.

Beyond the inherent risks of adversary operations on the civilian environment, we anticipate that adversaries will take deliberate actions that affect civilians. These actions include using human shields and dual-use facilities and resources to create operational dilemmas and try to force the US to exercise restraint or cause civilian harm, which adversaries could then use to criticize the US and its allies. Adversaries may target civilian infrastructure kinetically and nonkinetically and conduct overt or covert efforts to support civilian resistance, sow doubt, or erode public support for the conflict. Finally, we expect that dispersing adversary forces among the civilian population will be inherent to their approach.

Operational approach

We anticipate that operating forces engaged in high-intensity conflicts will commonly be focused on countering attempts by adversaries to seize control or on clearing territory and removing adversaries from entrenched control. Operating forces should expect to achieve only limited pockets of domain control or superiority in terms of both time and space, and therefore to experience a relative lack of sanctuary from adversary surveillance or attack. Although they will retain the ability to fight through disruptions, they will rely on continuity-of-operations capabilities

and plans, including for command and control (C2) of forces, communications, and information sharing about the operational environment, including the civilian environment. We expect operations to include a high volume and tempo of attacks over time—both high concentrations of fires in specific areas and also operations distributed over a large geographic region. These operations will feature both kinetic and nonkinetic attacks.

Generally, we expect that ground, air, and maritime operations by both conventional and special operations forces will be conducted using disaggregated forces, with significant use of uncrewed systems and distributed decision authorities and C2 structures (including for targeting decisions). We expect that cyber, space, and global strike operations will be conducted by more concentrated forces, with decision authorities and C2 structures remaining centralized for irreversible or strategic effects. Distributed decision authorities and C2 structures will generally be approved only for reversible or tactical cyber and space effects. Because of the highly contested nature of a LSCO, it will be necessary to rapidly employ defensive fires, even in urban or dense civilian areas.

Civilian environment

Civilian population demographics and dynamics in such operations will vary by region, but certain characteristics should be expected. For example, portions of the population will likely reside in dense urban areas and depend heavily on other aspects of the civilian environment, such as infrastructure, whereas others will be in more suburban and rural environments. During a LSCO, the operating area may be vast, encompassing the land, air, and maritime domains, and civilian presence and activities will need to be understood for each.

Portions of the population will be highly connected (e.g., via cellphones and social media), whereas others will be less connected. Portions of the population, including affluent people with more options, will attempt to flee from conflict areas, whereas others—such as sick, disabled, under-resourced, or older people as well as those who simply do not want to move—will be more likely to remain in place.

Portions of the population may consider themselves sympathetic or otherwise aligned with the operating forces. Others may (1) have neutral or mixed opinions, (2) be sympathetic or otherwise aligned with the adversary, or (3) take advantage of the armed actors to settle scores unrelated to the overarching conflict. These last two portions of the population may engage in active resistance, such as informing on military positions, engaging in nonviolent protests against friendly or adversary forces, or sabotaging friendly or adversary forces.

Urban warfare in the context of a LSCO can be particularly challenging because of the potentially extreme density of urban areas, the number and likely dispersion of protected entities (e.g., hospitals and cultural sites) in the urban environment, and the interconnected and likely embedded nature of critical infrastructure. Populations of modern and future urban areas—including mega-cities—will be particularly vulnerable to kinetic damage and cyberattacks in light of two features of cities: interdependencies among critical systems and reliance on outside resources for essential needs (such as water, food, and fuel). These vulnerabilities could be exacerbated if the movement of resources is restricted by maritime blockades or aircraft no-fly zones.

To mitigate damage to vulnerable elements of urban areas and recognize when such damage has occurred, the military must be able to characterize

critical aspects of the complex civilian environment and disseminate that information. Obtaining an accurate picture of the civilian environment can be complicated by potential movements of the population, including migration and evacuation before and during a conflict. The interconnectedness of the population and critical infrastructure can also change dynamically as the population moves and infrastructure is disrupted or destroyed.

Unlike in past conflicts involving nonstate armed groups, nonstate humanitarian actors may not necessarily operate in the affected area during a conflict. Efforts to ameliorate human suffering and meet basic needs during an armed conflict or disaster will likely come from the government (if there is a host government), local civil society, and any US and coalition contributions.

Ally and partner relationships

We anticipate that the operating force will be inherently multinational or partnered, necessitating information sharing and shared operational processes. This collaboration will include promoting an interoperable approach to CHMR across the coalition or with a partner. Even when acting as part of a coalition, each ally and partner is likely to abide by its own rules of engagement and guidance on the use of force. More capable militaries involved in the operating force will be relied on greatly for intelligence, weapons, logistics, and sustainment. At the same time, more capable militaries will likely rely greatly on other allies or partners for access, basing, and overflight. Coalitions can also bring together complementary capabilities, with allies or partners bringing unique abilities that can create synergy in combined operations. Operations in ally and partner territory should be anticipated, meaning that the civilians most heavily affected may live in a state that is friendly to the operating force.

Depending on the conflict, US and coalition partners may also need to work with a host nation government to protect civilians. These efforts may involve a host nation security force that is invested in protecting its own territory but lacks significant operational experience. In such cases, the host nation's forces may have a weak ability to deconflict their operations with US and coalition partners, creating challenges in mitigating civilian harm. These difficulties can be compounded if the host nation has processes in place for mass mobilization or conscription in the event of an external threat (or even more challenging if the host nation decides to mobilize forces spontaneously based on an exigent threat). In such cases, those contributions will need to be included in planning and operations, and force movements will need to be deconflicted from coalition and threat forces. This deconfliction may be especially challenging in complex and dense operational environments, and if the host nation forces lack strong interoperability with the US and coalition overall.

This coordination and cooperation may include establishing overall agreements regarding the protection of civilians or the compensation for harm to civilians caused in conflicts; sharing data regarding civilian harm estimates, assessments, and trends; and sharing potential courses of action for operational plans to get host nation buy-in and to coordinate reconstruction and provide aid to the affected population.

Information environment

The information environment is likely to be dense and information-rich while simultaneously being contested by multiple actors. It will be an important source of information about the civilian population throughout the conflict, offering insights on population dynamics, dependencies of the population, and exigent needs as they emerge. When civilian harm occurs, we expect that

a substantial amount of accurate information will be promulgated, along with information that is unintentionally imprecise or inaccurate. Adversaries will also intentionally spread disinformation to delegitimize the operating force and create hesitancy regarding the use of force. Importantly, some accurate information may be uniquely disseminated by adversarial or nonfriendly entities. In addition, information sources for constructing the civilian environment will likely be contested. Although much information from open sources and humanitarian organizations will be accurate, it may be challenging to disentangle misinformation and disinformation from the truth.

Overall, these characteristics affect both the nature of risks to civilians and the potential means that can be used to mitigate those risks.

CHMR: A STRATEGIC OFFSET

Over the past 20 years, as the concept of CHMR has emerged, the US has struggled to practice it. Although US forces have at times found effective ways to mitigate harm to civilians and to respond to that harm, there have also been many instances when US efforts to mitigate civilian harm were incomplete or ineffective and when responses to civilian harm were inconsistent, with public denials of civilian harm needing to be retracted when later assessments found that civilian harm had in fact occurred.

That said, these mixed results occurred in relatively permissive environments against nonstate armed groups, which had limited ability to pose significant CHMR challenges to US forces. During future conflicts, the US can expect significantly more challenging operational dilemmas. Possible operational dilemmas for mitigating harm could include the following:

- How to plan for and conduct operations against a modern military in a dense urban operation, in which US forces seek to free the city without destroying it to the extent that normal life becomes untenable.
- How to destroy or disrupt a C2 node located underneath a dense set of structures that house civilians or within a critical structure, such as a dam.
- How to respond in self-defense to enemy fire in a dynamic urban environment.
- How to engage military targets and mitigate harm in an environment where GPS and communications are denied or degraded.
- How to use force in populated areas while minimizing the destruction of civilian infrastructure, considering that infrastructure and its interdependencies can become more opaque and distributed in modern cities.
- How to protect humanitarian organizations operating in these challenging operational environments.

Information operations must also be considered when discussing the effects of civilian harm.[12] Incidents of civilian harm bolster the information operation arsenal of adversaries determined to hurt the US and its interests. They can also sway public opinion in the US and internationally, as seen recently in Israeli operations in Gaza. In addition, they can influence political decisions and the will to fight.[13] The US can expect a dramatic increase in the sophistication of information operations to create disinformation or to amplify information concerning actual US-caused civilian harm at a scale it has not yet experienced. Possible state-level efforts could include the following examples:

- Exaggerated reports of the scale of US-caused civilian harm (with factual or manufactured details) broadly disseminated over media and to international institutions, such as the United Nations and the International Criminal Court, with allegations of war crimes.
- Detailed and graphic depictions of civilian harm—actual photos or videos or those created with artificial intelligence (AI)—disseminated in world media channels.

[12] For a detailed discussion of this point, see Dan E. Stigall, "Future Conflicts, Civilian Harm, and the CHMR-AP – Part II," *Articles of War (West Point Lieber Institute blog)*, May 5, 2023, https://lieber.westpoint.edu/future-conflicts-civilian-harm-chmr-ap-part-ii/.

[13] Michael J. McNerney et al., *National Will to Fight: Why Some States Keep Fighting and Others Don't*, RAND, 2018, https://www.rand.org/pubs/research_reports/RR2477.html.

- Video or audio (either intercepted from US communications or posted to social media by non-US actors) of US forces expressing opinions or committing actions that degrade civilians or endanger them.
- Real or fabricated intercepted US military guidance or commands that target or show a lack of care for civilians.

These civilian harm mitigation and information challenges are much more difficult than those the US has faced over the past 20 years. Managing these challenges is strategically important to the US given the current and future operating environment, considering the many costs that civilian harm can impose. As a result, the US needs to prepare for these and similar dilemmas. That said, if the US can address these challenges effectively, CHMR can improve mission effectiveness and provide a host of other benefits. In this way, CHMR can give the US a strategic edge over competitors and potentially serve as an offset strategy for the US—an idea we unpack in the remainder of this section.

Historical offset strategies

Throughout history, militaries have adapted to obtain a competitive edge, which has led to fundamental changes in how war is conducted and the tools used in its conduct.[14] Some of these changes have been incremental, whereas others have been revolutionary or disruptive in nature. In the US, a set of fundamental changes to warfighting was intended to specifically offset the relative strengths of competitors and thereby gain a new advantage. These changes to warfighting are referred to as *offset strategies*.

The first documented use of an offset strategy may be the story of David and Goliath, featuring unequally matched combatants and odds that seem heavily in favor of the giant Philistine warrior, Goliath, over the Israelite boy shepherd, David. In the story, even Goliath himself considers his competitor unequal to the task, but in the end, David prevails by using a different approach, capitalizing on a noncombat skill and hurling a stone from a sling.

In keeping with this story, an *offset strategy* is the deliberate development of a set of approaches and technologies that address operational dilemmas in asymmetric ways. Assistant Secretary of Defense for Research and Engineering Stephen Welby has described the concept this way:

> An offset strategy is an approach to military competition that seeks to asymmetrically compensate for a disadvantaged position. Rather than competing head-to-head in an area where a potential adversary may also possess significant strength, an offset strategy seeks to shift the axis of competition, through the introduction of new operational concepts and technologies, toward one in which the US has a significant and sustainable advantage. A successful offset strategy devalues an adversary's current advantages and imposes costs to react to US efforts and help establish a long-term competitive advantage for US forces.[15]

[14] Parts of this subsection have been adapted from Larry Lewis, *Insights for the Third Offset*, CNA, Sept. 2017.

[15] Stephen Welby, Testimony Before the Armed Services Committee, Subcommittee on Emerging Threats and Capabilities, United States Senate, *Third Offset Technology Strategy*, 114th Cong., Apr. 12, 2016, https://www.armed-services.senate.gov/imo/media/doc/Welby_04-12-16.pdf.

The US has at times found itself unable to counter a potential threat head on and instead found asymmetric solutions to deter and thus counter the threat. Since World War II, the US has announced three such offset strategies: the first near the end of the Korean War, the second in the 1970s, and the third in 2014. We summarize each in the following subsections.

First Offset: nuclear deterrence to conventional capabilities

The First Offset strategy came about at the start of the Eisenhower Administration against the backdrop of a stalemated Korean War, which the US saw as just one example of the Soviet Union promoting regional instability to counter US hegemony. The US military might have appeared outmatched because Soviet conventional military ground forces dwarfed those of the US: the Soviet military had 175 active divisions and another 125 reserve divisions, whereas the US Army and Marines had only 29 active and 7 reserve divisions. It was not considered feasible to build up US ground forces to Soviet levels, especially given fiscal constraints at the time. Thus, US efforts to contain Soviet expansion with conventional forces seemed doomed.[16]

At the same time, the US had a clear lead in its growing nuclear stockpile after World War II. The Eisenhower Administration saw an opportunity to solve its problem: it could rely on its nuclear capabilities to counter greater Soviet conventional strength. This idea became the First Offset, then titled the "New Look" defense policy, issued in October 1953. Under this policy, the US would contain the threat of Soviet expansion using the threat of using nuclear weapons in response. This approach was seen to provide "a maximum deterrent at a bearable cost."[17]

This offset strategy had two primary components: nuclear devices and delivery capability. The US had, and maintained, superiority in both components. At the end of 1952, the US had 841 nuclear warheads, whereas the Soviets were estimated to have 120. Furthermore, the US was growing its stockpile at a rate twice that of the Soviets. And the US had recently demonstrated its first thermonuclear device, the hydrogen bomb, with a destructive yield many times that of a fission device. For nuclear weapon delivery, the US had the jet-propulsion B-47 bomber and was developing the B-52, which entered active service in 1955. (Soviet bombers were slower, propeller-driven aircraft.) The US also had a strategic advantage in basing because it was able to use allied bases in NATO Europe and Asia. The Soviets lacked these alliances, so they did not have air bases close to US territory.[18]

Growing concerns about this deterrent approach stemmed from the apparent lack of US resolve to use nuclear weapons in response to many possible scenarios. Allies began to wonder if they could count on US support in response to Soviet actions. Gradually, the Soviet Union reached relative parity with the US in nuclear capabilities, and by the 1970s, it had developed a second-strike capability that resulted in the doctrine of "mutually assured destruction."[19] In this dangerously destabilized environment, the US began searching for another form of deterrence.

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16 Peter Grier, "The First Offset," *Air Force Magazine*, June 2016.

17 Grier, "The First Offset."

18 Grier, "The First Offset."

19 Van Jackson, "Superiority at Any Price? Political Consequences of the First Offset Strategy," *War on the Rocks*, Oct. 30, 2014, https://warontherocks.com/2014/10/superiority-at-any-price-political-consequences-of-the-first-offset-strategy/; Grier, "The First Offset."

Second Offset: reconnaissance and precision strike

In the 1970s, US defense officials were faced with the potential threat of a Soviet conventional-force invasion of Central Europe.[20] Soviet forces had a great numerical advantage, having up to three times more personnel and armored vehicles available than US and NATO forces had. As a result, the US and its allies were unable to muster enough capacity to counter the strength of the Soviet force directly. The US saw advancements in microelectronics and computers as an opportunity to create another form of offset: it would improve conventional capabilities and create an asymmetric advantage to counter the Soviet Union's numerical edge.[21] To do so, the US used advanced technology to enable better information sharing on the battlefield and to conduct precision strikes to improve combat effectiveness.

The Second Offset was not a broad effort to generally improve all weapon systems through better technology. Rather, this effort identified specific enabling capabilities for specific operational requirements and developed them over the course of decades. In 1991, Operation Desert Storm displayed the results of the Second Offset efforts. Desert Storm was seen as a sweeping success, and it was touted as the new American way of war.[22] In particular, three advanced technology components of the Second Offset contributed to Desert Storm's success: reconnaissance, situational awareness, and integrated action; suppression of enemy defenses; and precision-guided munitions. Collectively, these capabilities—and a well-led, well-trained force using them—resulted in a decisive victory marked by a rapid end, minimal coalition casualties, and sharply reduced civilian casualties compared with previous armed conflicts.[23]

Third Offset: operationalizing AI and autonomy

The US capability to conduct a new way of war was again put on display during operations in Afghanistan in 2001 and in Iraq in 2003. Again, major combat operations were rapid and decisive. However, both of these operations transitioned into extended counterinsurgency and stability operations that expended significant US military resources and attention for the next 15 years.[24] Meanwhile, key enabling capabilities of the Second Offset—such as network-based warfare, precision-guided munitions, advanced missiles, and sophisticated surveillance platforms—have proliferated to other near-peer states. Several countries are causing particular concern. As expressed by former deputy defense secretary Bob Work, "The pacing competitors—not adversaries—are Russia and China, because they're developing advanced capabilities that potentially worry us."[25] These countries have capabilities—such as digital networks for warfare—that are comparable with those of the US, and they have also introduced

[20] Robert Tomeo, "Why the Cold War Offset Strategy Was All About Deterrence and Stealth," *War on the Rocks*, Jan. 14, 2015, https://warontherocks.com/2015/01/why-the-cold-war-offset-strategy-was-all-about-deterrence-and-stealth/.

[21] Chuck Hagel, "Keynote Speech Delivered at Reagan National Defense Forum," (Ronald Reagan Presidential Library, Nov. 15, 2014), https://www.defense.gov/ News/Speeches/Speech-View/Article/606635/.

[22] Max Boot, "The New American Way of War," *New York Times,* July 25, 2003, http://www.nytimes.com/cfr/international/20030724faessayv82n4_boot.html?pagewanted=print&position.

[23] William J. Perry, "Desert Storm and Deterrence," *Foreign Affairs*, 1991, https://www.foreignaffairs.com/articles/iraq/1991-09-01/desert-storm-and-deterrence.

[24] Hagel, "Keynote Speech."

[25] Cheryl Pellerin, "Deputy Secretary: Third Offset Strategy Bolsters America's Military Deterrence," DOD News, United States Department of Defense, Oct. 31, 2016, https://www.defense.gov/News/Article/Article/ 991434/deputy-secretary-third-offset-strategy-bolsters-americas-military-deterrence.

ways to counter US strengths, such as by jamming networks and disrupting GPS satellites that US military systems rely on.[26]

The focus of the Third Offset, initiated in 2014, has been to "exploit all the advances in artificial intelligence and autonomy and insert them into DOD's battle networks to achieve a step increase in performance that the department believes will strengthen conventional deterrence."[27] This approach was promoted by wide investment in AI and autonomous capabilities across DOD, with the establishment of the Joint AI Center, later adapted to form the Chief Digital and Artificial Intelligence Office, to serve as an accelerator for adopting AI across DOD. A prominent example of an AI application supporting the offset strategy is the development of the Joint All-Domain Command and Control system, intended to "regain and maintain information and decision advantage."[28]

Recognizing that the use of AI and autonomy introduces new sources of risk to both friendly forces and civilians (collectively described in DOD's directive on autonomy as "inadvertent engagements"), DOD codified a set of AI ethical principles to guide the development and use of military applications, particularly regarding the use of force.[29] More recently, DOD has established its Responsible AI initiative, which seeks to promote safe and ethical military applications of AI.[30] The US has led international efforts to promote this Responsible AI approach through the *Political Declaration on Responsible Military Use of Artificial Intelligence and Autonomy*, first issued in February 2023.[31] The CHMR-AP includes seeking AI applications that advance more effective mitigation of civilian harm.[32]

CHMR as a fourth offset

Over the past 20 years, modern militaries have faced increasingly challenging dilemmas—dilemmas apparent in the ongoing conflicts in Ukraine and Gaza. Even with precision-strike capabilities, adversary practices of hiding within the population, operating in dense urban areas, and weaponizing actual or fictionalized civilian harm as a strategic tool have proven difficult for the US and its allies to counter. The result has been mounting political opposition to military action that results in civilian harm. The effectiveness of this adversary approach is due to several factors, including the following:

- The increasing transparency of war, with the 24-hour news cycle and social media bringing tactical events into living rooms around the world.
- A growing expectation of precision and reduced civilian harm in military operations.
- An increase in the use of mis- and disinformation regarding civilian harm to promote various interests and impose costs on militaries and governments for military actions.

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26 Pellerin, "Deputy Secretary."

27 Paraphrase of former deputy defense secretary Work. Reference: Pellerin, "Deputy Secretary."

28 Department of Defense, *Summary of the Joint All-Domain Command and Control (JADC2) Strategy*, Mar. 2022.

29 Department of Defense, "DOD Adopts Ethical Principles for Artificial Intelligence," Feb. 24, 2020, https://www.defense.gov/News/Releases/Release/Article/2091996/dod-adopts-ethical-principles-for-artificial-intelligence/.

30 Department of Defense, *US Department of Defense Responsible Artificial Intelligence Strategy and Implementation Pathway*, June 2022, https://www.ai.mil/docs/RAI_Strategy_and_Implementation_Pathway_6-21-22.pdf.

31 State Department, *Political Declaration on Responsible Military Use of Artificial Intelligence and Autonomy*, Feb. 2023, https://www.state.gov/political-declaration-on-responsible-military-use-of-artificial-intelligence-and-autonomy/.

32 Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.

In the context of a LSCO against near-peer threats, these competitors can create even more challenging operational dilemmas in high-tempo and large-scale targeting contexts and use information operations in ways the US has not previously experienced to impose strategic, operational, and other costs of military action. CHMR, if properly resourced and implemented, provides a way for the US to reduce these costs and better meet overall strategic goals.

CHMR as a strategic offset would combine the use of technology with new concepts of operations in the following ways:

- **The development of the civilian environment—a component of the operational environment—to provide more detail and fidelity regarding civilians and civilian objects, including interdependencies and critical infrastructure.** The Second Offset featured the development of a robust operational environment, shared among the force through digital networks and data links. However, that operational environment to date has largely been two-dimensional—focused on threats and friendly forces. Building out a robust understanding of the three-dimensional operational environment—including civilian information—will strengthen operational decision-making to better consider and mitigate risks to civilians, enable more precise and accurate operations, and incorporate a wider set of operational alternatives into planning and operations.
- **Additional tools and capabilities, including the use of emerging technologies such as AI, to strengthen the mitigation of civilian harm.** Additional advances could include deep-penetrating, low-explosive munitions that can target subterranean military objectives even in populated areas and autonomous platforms that can target individuals in certain structures or areas instead of targeting the structures themselves. Forces should also have the ability to select the optimal choice among alternatives easily (for example, being able to consider cyberattacks, which at present are not always within the span of control of operational forces in the field). Collectively, these tools and capabilities reinforce the ability of US forces to deal with significant operational dilemmas.
- **Strengthened learning and adaptation through experimentation and operational learning to anticipate, adjust to, and overcome changes in adversary approaches and the operational environment.** CHMR is data driven, and learning based on data is crucial for adaptation and improved effectiveness and mitigation. This strengthened learning and adaptation should include the development of tools to improve battlefield assessments and better predict and detect operational outcomes; the development of command and institutional processes to rapidly identify trends and lessons from those outcomes; and the adaptation of tactics, operational processes, and available capabilities to better address challenges and improve effectiveness while mitigating and responding to civilian harm. These improvements will give the US the ability to outpace adversaries to maintain a competitive edge.
- **Agile and effective communication and action regarding civilian harm that occurs.** Having a robust understanding of the civilian environment and developing new assessment processes can strengthen

the ability of the US to address information and misinformation regarding civilian harm used by adversaries to harm US interests. Combined with additional sensors and data fusion techniques, these tools can be used in conjunction with planned communication concepts of operations (CONOPS) to respond to harm rapidly and effectively when it occurs, both in the information domain and through other response actions (such as assistance to affected civilians), and to counter mis- and disinformation.

If DOD is able to develop the capabilities and proficiencies described in this report, the US can gain key advantages over adversaries, especially near-peer competitors:

- CHMR provides DOD with additional alternatives to effectively solve operational dilemmas posed by challenges during a LSCO and by adversaries seeking to impose costs on the US and its allies.
- CHMR also highlights the stark difference between US values and principles and those of its competitors and adversaries.
- CHMR can also strengthen deterrence: by lowering the strategic and operational costs of warfare and promoting conventional-force effectiveness, the US can gain credible deterrence in even the most challenging operational environments.

In the remaining part of this section, we discuss how CHMR as a strategic offset would enable the US to deal with exigent threats in ways that support US strategic objectives and are improvements over current strategy.

Testing CHMR as the fourth offset

Does CHMR meet the requirements for an effective offset strategy? In 2016, Yuna Huh Wong posited three criteria that future offset strategies should include:

- **Reinforcing grand strategy.** Does the offset strategy advance US grand strategy in a fundamental way?
- **Having a management approach in place for rapid institutional change.** Historically, rapid institutional change has been difficult to achieve in light of military bureaucracies that are constructed to manage and mitigate risk. Is there a process in place for advancing and managing steps to achieve rapid progress?
- **Following the paradigm of military revolution.** Innovation on the battlefield usually couples technological advancements with fundamental operational changes, including modified CONOPS. Does the offset capture this nontechnological aspect of military revolution?[33]

[33] Yuna Huh Wong, *Approaching Future Offsets*, RAND, 2016, https://www.rand.org/pubs/commentary/2016/12/approaching-future-offsets.html.

Reinforcing US grand strategy

According to US political scientist Hal Brands, *grand strategy* is "the conceptual framework that helps nations determine where they want to go and how they ought to get there; it is the theory, or logic, that guides leaders seeking security in a complex and insecure world."[34] Although there are differing schools of thought regarding an optimal US grand strategy,[35] Thomas Bruscino of the US Army War College has summarized the US grand strategy observed in practice in a few overarching principles:

- **Protecting influences in the Western Hemisphere.** "Starting with the Monroe Doctrine and continuing to the present day, American policymaking has been driven by preserving western hemispheric autonomy from external great power influence."[36]
- **Supporting free commerce.** "American policy-making has in general sought free sea, air, and increasingly cyber and space lanes for commerce—preferably for everyone, but at a minimum for Americans."[37]
- **Supporting freedom of action.** "American policy-making has maintained freedom of decision-making and action."[38] US actions seek to influence international institutions, such as the United Nations, and are influenced—but ultimately unhampered—by the decisions and policies of those institutions.
- **Building like-minded alliances.** "The United States has increasingly worked with friendly and like-minded powers, but almost exclusively in coalitions and alliances where the United States is the lead or where the agreements are not so binding as to challenge American sovereignty."[39]
- **Promoting liberal, democratic institutions.** "When the United States has militarily intervened in foreign lands, whatever the cause, the policy for postintervention conditions in those lands has trended heavily toward reinstituting or emplacing more liberal and democratic systems of government."[40]

CHMR advances all three security-related principles of US grand strategy:

- **CHMR promotes freedom of action.** CHMR advances freedom of action by allowing the use of military force when required in circumstances that would be prohibitive or detrimental to the reputation of the US. CHMR also reinforces the rules-based international order, supporting compliance with international law and upholding the protection of civilians. CHMR also promotes effective outcomes from the use of military force.
- **CHMR strengthens like-minded alliances.** CHMR strengthens the ability of the US to build and maintain like-minded alliances,

[34] Hal Brands, *What Good Is Grand Strategy? Power and Purpose in American Statecraft from Harry S. Truman to George W. Bush* (Ithaca: Cornell University Press, 2014), p. 3.

[35] See, for example, Rebecca Friedman Lissner, "What Is Grand Strategy? Sweeping a Conceptual Minefield," *Texas National Security Review* 2, no. 1 (2018): 52–73, https://tnsr.org/2018/11/what-is-grand-strategy-sweeping-a-conceptual-minefield/.

[36] Thomas Bruscino, "Grand Strategy: A Short Guide for Military Strategists," *War Room (*United States Army War College blog), Jan. 4, 2024, https://warroom.armywarcollege.edu/articles/grand-strategy-for-military-strategists/.

[37] Bruscino, "Grand Strategy."

[38] Bruscino, "Grand Strategy."

[39] Bruscino, "Grand Strategy."

[40] Bruscino, "Grand Strategy."

especially in light of growing norms and policies for protecting civilians, such as NATO's Policy for the Protection of Civilians and the Political Declaration on the Use of Explosive Weapons in Populated Areas.

- **CHMR promotes liberal, democratic institutions.** By reinforcing CHMR as part of the rules-based international order—in US operations, in coalitions, and with allies and partners in security cooperation—the US promotes government institutions that prioritize compliance with international law, the protection of civilians, and such principles as transparency and accountability.

How does CHMR support US grand strategy in practice? Consider, for example, recent public comments about the US defending Taiwan from an invasion by China. In these remarks, Admiral Samuel Paparo, commander of the US Indo-Pacific Command, discussed sending thousands of uncrewed platforms to attack Chinese military assets and "turn the Taiwan Strait into an unmanned hellscape."[41] This description mentions work that DOD is doing to develop uncrewed (unmanned) capabilities as part of the Third Offset. However, taking such an approach without considering civilian harm mitigation could undermine all three of the security-related grand strategy elements:

- **Publicly stating that US operations seek to create a "hellscape" communicates that the US military is pursing a scorched earth approach, which works against US goals of upholding international law, protecting civilians, and promoting a rules-based international order.** As a result, the characterization could in fact reduce the will to fight among US policy-makers because concerns about casualties are a key factor in decisions regarding whether to wage war. The hellscape description also creates opportunities for China to employ unrestricted warfare to impose costs and reduce freedom of action for the US. Specifically, China could accuse the US of violating international law and of reducing autonomy in military operations. Such allegations could put the US under the spotlight of the International Court of Justice, which was invoked regarding Israel's operations in Gaza.[42]
- **A hellscape description could also raise concerns from US allies and partners who have said that complying with international law and protecting civilians should be a priority.** In addition, if US strategy seems to go against CHMR, the US may have difficulty promoting this initiative with allies and partners.
- **Such a characterization of a US approach is also contrary to how the US would prefer allies and partners to approach operations.** For example, if Nigeria declared that it would turn northern areas of its territory into a hellscape, this sentiment would highly complicate US policy decisions regarding the provision of military assistance.

[41] Demri Scott Greggo, "Does the Hellscape Strategy Undermine US Strategic Ambiguity Regarding Taiwan?," *Stars and Stripes*, July 11, 2024, https://www.stripes.com/opinion/2024-07-11/us-strategy-taiwan-china-14455980.html.

[42] Greggo, "Hellscape Strategy."

Earlier in this section, we discussed how near-peer competitors could use real or fabricated information about civilian harm to their advantage. In response to a hellscape characterization, China could potentially respond by releasing information like the following:

- Exaggerated reports of the scale of US-caused civilian harm, with factual or manufactured details, broadly disseminated over media and to international institutions, such as the United Nations and the International Criminal Court, with allegations of war crimes.
- Detailed and graphic depictions of civilian harm (actual or created through AI photo and video generation) disseminated in world media channels.
- Video or audio of US forces (either intercepted or posted to social media) expressing opinions or committing actions that degrade civilians or endanger them.
- Real or fabricated intercepted US military guidance or commands that target or show a lack of care for civilians.

CHMR can help the US avoid or address each of these points. By considering potential civilian harm risks in planning, course of action selection, operational execution, and follow-on steps (including assessment, response, and learning), the US can show how it is possible to use effective and decisive force while also promoting the protection of civilians. Allegations can be countered by discussing the steps the US takes to mitigate harm to civilians and by following best practices for strategic communications, as discussed in this report. In addition, instead of using scorched earth language, the US could use language informed by CHMR to help stymie Chinese invasion efforts in ways that can provide deterrence and determination and reinforce the commitment the US has made to safe and responsible military operations. At the same time, the US can highlight China's abuses of and discrimination against the Uyghurs and other minority groups in China, highlighting to the world the stark difference between US values and principles and those of US competitors.[43] Overall, CHMR gives DOD the tools and the lexicon to deal with exigent threats in ways that better support US strategy.

Having a management approach in place for rapid institutional change

A successful offset strategy also needs to have a process in place for managing needed changes, including the ability to promote rapid innovation. The CHMR-AP directed the creation of an Executive Steering Committee "for the purpose of providing executive-level direction, guidance, and oversight of DOD CHMR, including by driving effective implementation of the CHMR-AP and the DOD Instruction (DODI) on CHMR across the DOD."[44]

The CHMR Steering Committee is led by senior DOD leadership, cochaired by the undersecretary of defense for policy, the undersecretary of defense for comptroller, and the vice chairman of the Joint Chiefs of Staff. The committee also includes representatives from the Office of the Secretary of Defense (OSD), the combatant commands, and military departments. One purpose of the Steering Committee is to "ensure expeditious implementation" of CHMR commitments made in the CHMR-AP and the DODI on CHMR. It also can elevate issues to the secretary of defense as needed to make sure DOD meets its implementation goals.

[43] Lauren Baillie and Matthew Parkes, "Don't Look Away from China's Atrocities Against the Uyghurs," US Institute of Peace, Apr. 6, 2023, https://www.usip.org/publications/2023/04/dont-look-away-chinas-atrocities-against-uyghurs.

[44] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.

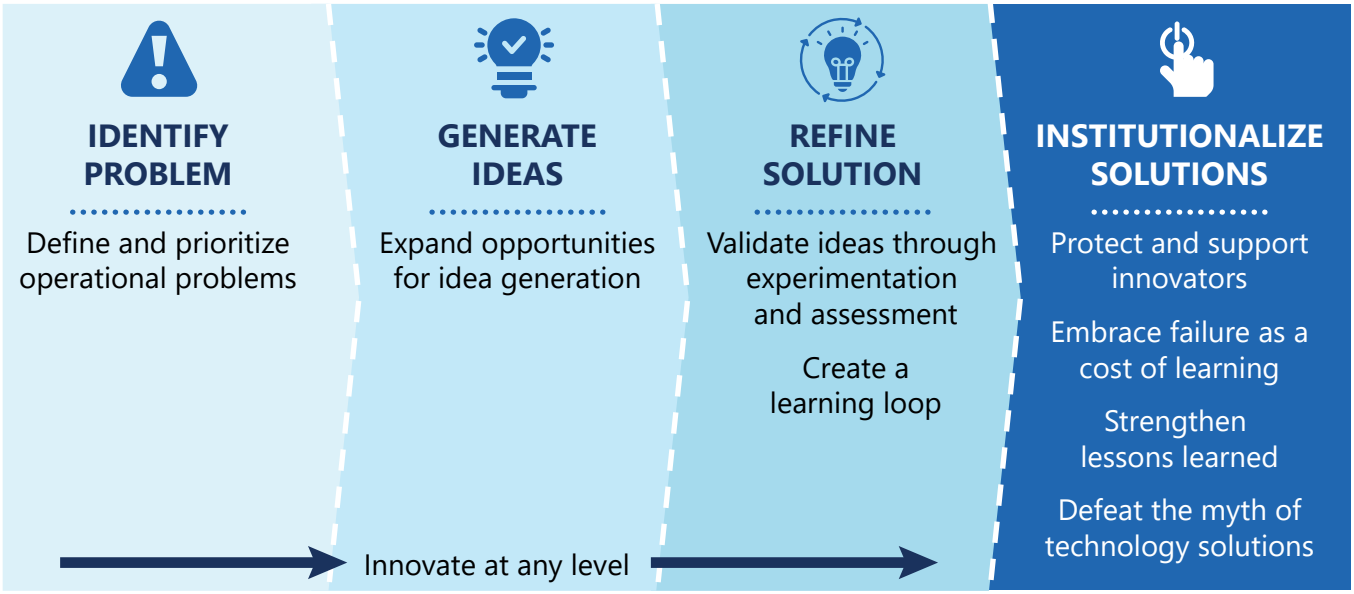
Although the creation of this group does not itself ensure rapid and consistent innovation, it does provide an organizational infrastructure that can support it. It will be essential for leadership—both of OSD and the services—to monitor and drive such innovation and progress. In this report, we specify steps DOD and the services can take to advance CHMR as an effective offset strategy.

Following the paradigm of military revolution

The final characteristic of a successful offset is that it encompasses not only technology but also the elements of military revolution. Technological elements are certainly needed for a comprehensive approach to CHMR. These elements include AI, the use of autonomy, networks and data fusion, new and innovative ways to provide precision effects, ways to counter GPS and communications jamming, and new assessment processes.[45] That said, successful military revolution involves innovation in terms of a new idea, manifested in a different CONOPS. Although technology may have an enabling role, military innovation is inherently a human enterprise.

What is needed for effective military innovation? Figure 4 provides a framework for military innovation, with four overall components: identifying the problem, generating new ideas, refining a solution, and institutionalizing the solution. Successful military innovation begins with a clear understanding of specific operational problems that need to be solved, including a prioritization of which problems are the most urgent to address. The subsequent step of idea generation expands the

Figure 4. Framework for military innovation



Source: Larry Lewis et al., *Putting Innovation into Practice,* CNA, Sept. 2020.

[45] See, for example, Larry Lewis and Andrew Ilachinski, *Leveraging AI to Mitigate Civilian Harm*, CNA, Feb. 2022, and Larry Lewis, *Improving Protection of Humanitarian Organizations in Armed Conflict*, CNA, Mar. 2022.

set of those who can contribute potential solutions. This step is about harnessing creativity broadly and can be done with very little resources except time. Opportunities to generate ideas include convening small discussion groups, inviting speakers to discuss relevant topics, holding conferences that include idea generation, and encouraging ideas regarding solutions from many sources.

Experimentation and wargames, supported by robust assessments, can then validate new ideas and refine potential solutions. Experimentation, wargames, and assessments help quantify performance and identify strengths, weaknesses, and opportunities for improvement. Although these elements are critical, history shows that such assessment and experimentation activities are difficult to sustain in practice because military leaders tend to scrutinize them and ask whether sustaining them is worthwhile. This is unfortunate because these efforts provide the greatest value when they are conducted iteratively to create a learning loop, coupling experimentation with studies and assessments to refine high-impact solutions.

Although the CHMR-AP directed DOD to conduct studies, it did not specifically mention experimentation, which makes sense because the action plan "is directive, but not prescriptive" considering the many contexts in which DOD can operate.[46] Rather, the CHMR-AP primarily sets out responsibilities and creates a departmental infrastructure for making advances in CHMR. But because experimentation—and a combination of experimentation, wargames, and assessments—is not specifically mentioned, those in DOD responsible for ensuring "expeditious implementation" of the CHMR-AP and DODI will need to set aside attention, time, and resources for these critical activities. In this report, we have included recommendations to support effective military innovation regarding CHMR.

The utility of combining experiments and assessments was seen in efforts to address concerns about fratricide during Desert Storm in 1991. After fratricide was seen to be a significant contribution to US combat deaths in that operation, DOD undertook significant efforts for the next decade to develop joint tactics, techniques, and procedures (TTP) to enable safe and effective operations as a joint force. These efforts included instrumented exercises during which TTP were explored and analyzed to assess their effects on mission effectiveness, combat identification performance, and fratricide rates. After a decade, new TTP were employed in Iraq operations in 2003. This same approach of leveraging exercises and evaluations can be used to develop operational approaches for effective CHMR in LSCO.

Implications for learning

The CHMR-AP specifies how DOD will "systematically improve [its] approach to civilian harm mitigation and response." Critical to the success of CHMR are two learning loops: operational learning, which is military adaptation in the context of an operation, and institutional learning, which is military adaptation to improve its larger force, including aspects of doctrine, organization, training, materiel, leadership, personnel, facilities, and policy. We highlight these two types of learning in Figure 5. Through both types of learning, militaries can adapt and improve to become more effective and overcome challenges both in continuing operations and as a larger institution.

Improving institutional learning

Over the past two decades of operations, the US military has regularly struggled with institutional learning in CHMR—this struggle was a major impetus for developing the CHMR-AP. Given that struggle, operational forces were driven to adapt and learn

[46] Stigall, "Future Conflicts."

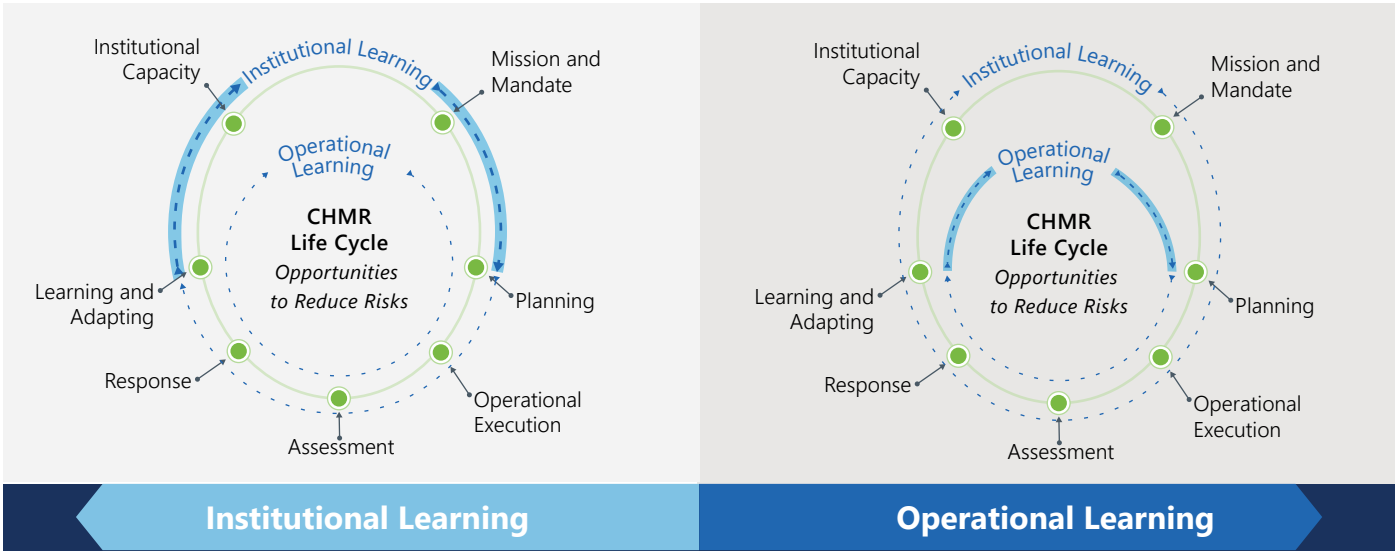
in stride during operations. The poorly functioning institutional learning loop meant that operational learning was vital for effectively mitigating civilian harm, and operational forces had to adapt and innovate with tools and training that were not necessarily fit for purpose.

Such an approach to mitigation—relying on operational learning in stride and the ability to innovate with limited tools—is far from optimal. Effective mitigation and response to civilian harm can be strengthened by taking institutional steps to standardize and mainstream the CHMR approach, such as the following:

- Integrating best practices into doctrine, training, and education.
- Developing and refining capabilities that improve key tasks, such as target identification, pattern-of-life analysis, understanding of the civilian environment, and prediction and control of weapon effects.
- Refining operational plans to better consider and manage risks to civilians.
- Including management of CHMR in senior leadership preparation, such as Capstone and Pinnacle.
- Creating and modifying operational processes to better consider and mitigate harm to civilians and strengthen the response to civilian harm.
- Conducting experimentation, wargames, and studies to innovate, including developing and refining CONOPS, operational approaches, and tools for greater effectiveness regarding specific operational dilemmas.

The overall CHMR approach must by necessity be different during high-intensity operations, such as LSCOs, than it was during operations over the past 20 years, considering the LSCO characteristics we detailed in the previous section. Effective CHMR during a LSCO will require institutional learning,

Figure 5. Two types of learning in civilian harm mitigation and response



Source: CNA.

in which effective CHMR steps have been planned and developed in advance and are in place before operations commence. To do so, the US must prioritize the institutionalization of CHMR as it never has before. Given this necessity, this report provides specific areas of institutional learning that will be especially critical to effectively mitigate civilian harm during LSCOs.

Although some of these changes will take considerable time to implement, others can be done relatively quickly—such as changes to operational plans and processes as well as the beginning of experimentation to identify quick wins (e.g., changes to current CONOPS to address specific operational dilemmas). Institutional learning needs to be sustained over time to achieve its full effectiveness.

Improving operational learning

Although operational learning was the main driver of past CHMR efforts, this learning was far from perfect. US operations over the past 20 years generally lasted many months (e.g., the invasion of Afghanistan, NATO operations in Libya) to years (e.g., Iraq from 2003 to 2010, Iraq and Syria (countering ISIS) from 2015 to 2019, Afghanistan under the ISAF from 2001 to 2014, Afghanistan under Resolute Support from 2015 to 2021). This longer duration supported an in-stride learning approach to CHMR. This operational learning approach, at its best, included monitoring trends and identifying root causes of specific incidents as operations were continuing, identifying adaptations that would better reduce risks to civilians, and operationalizing these adaptations. However, because this approach was ad hoc, there were long stretches of time when this operational learning did not occur or when learning was weak—drawing the wrong lessons and leading to ineffective measures to mitigate harm to civilians. Also, operational learning did not carry over from one theater to the next (e.g., from Iraq to Afghanistan, from Afghanistan to Libya, from Iraq to Syria). During a LSCO, it is still feasible and critical to monitor harm to civilians and aim to adapt operations over time, but doing so in a rapid-tempo environment will require deliberate rather than ad hoc approaches. It will also require some different aspects of operational learning than the US has employed in the past. Given the importance of operational learning, the last section of this report details lessons and best practices for operational learning that can be planned for and used for more effective CHMR during a LSCO.

Pursuing CHMR as the fourth offset

In this section, we have made the case that CHMR has the potential to serve as the fourth offset. CHMR can help the US address challenging operational dilemmas, often associated with LSCOs, in ways that reinforce US grand strategy, such as enabling freedom of action, strengthening alliances and coalitions, and reinforcing the rules-based international order—a framework that supports the US and its position and influence. We have also stressed that CHMR is about learning and adapting, which requires strong institutional and operational learning in practice. Fundamentally, CHMR promotes the effective and precise use of force in even the most challenging operational situations while also reducing the information operation arsenal of adversaries.

In the rest of the report, we examine specific operational CHMR challenges associated with LSCOs, and, consistent with military innovation best practices, we recommend ways DOD can begin addressing these challenges.

CONSTRUCTING THE CIVILIAN ENVIRONMENT

RAND's 2022 report *US Department of Defense Civilian Casualty Policies and Procedures: An Independent Assessment* uses the term *civilian environment* to describe a requirement for better anticipating the presence of civilians and the effect military operations can have on civilians.[47] This term captures an essential lesson from the past two decades: when military forces have a poor understanding of the location of civilians and civilian objects (including humanitarian sites and infrastructure), they are not able to fully consider the risks associated with military action. Although effective civilian harm mitigation does not consist solely of improving this understanding of the civilian environment, history shows that militaries cannot mitigate harm to civilians to the full extent possible without it.

The CHMR-AP notes that "elements of civilian harm mitigation exist throughout joint doctrine, but DOD doctrine generally has not sought to define the 'civilian environment' as such and to describe how it can be affected by military operations." This report seeks to help fill this gap by illustrating past lessons and applying those lessons to help inform DOD's efforts to construct the civilian environment in a way that maximally supports CHMR.

What is the civilian environment? DOD Joint Publication 5-0 was updated in July 2024 to give an initial definition: "The factors within the operational environment that relate to civilians and their communities, including the civilian population and the personnel, organizations, resources, infrastructure, essential services, and systems on which civilian life depends."[48]

We consider this initial definition to be less than optimal for the purposes of CHMR and describing the civilian population. For example, consider the term *factor*. The *Cambridge Dictionary* defines *factor* as "a fact or situation that influences the result of something."[49] A connotation of this definition is that a factor is relevant because it contributes to something else. Another term would be preferable to describe the relationship between the civilian environment and the overall operational environment, such as referring to the civilian environment as a *component* or an *aspect* of the operational environment. We are also concerned about an explicit listing of specific things that collectively make up dimensions of the civilian environment because this list could limit the inclusion of other factors that are also critical to civilians. Finally, we consider the description "on which civilian life depends" to be too narrow. International law of course upholds the protection of the lives of civilians, but it also works to promote elements that sustain the quality of life—such as the protection of cultural heritage.

Considering these concerns, we use an alternative definition of *civilian environment*: "The component of the operational environment encompassing the civilian population and the components, conditions, and factors that sustain it." This definition includes details such as where civilians are, how they might

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[47] Michael J. McNerney et al., *US Department of Defense Civilian Casualty Policies and Procedures: An Independent Assessment*, RAND, 2022, https://www.rand.org/pubs/research_reports/RRA418-1.html.

[48] Joint Publication 5-0 also states the following: "Identify all relevant factors to civilians and their communities, including the civilian population, personnel, organizations, resources, infrastructure, essential services, and other systems. Provide the information essential for a clear understanding of how they may affect and be affected by US and multinational operations." Joint Publication 5-0, Dec. 1, 2020, incorporating Change 1, July 1, 2024, *Joint Planning*.

[49] *Cambridge Dictionary Online*, s.v., "Factor," accessed July 25, 2024, https://dictionary.cambridge.org/us/dictionary/english/factor.

move when conflict comes to them, what purposes structures serve for civilians, the presence of infrastructure and other factors critical to the quality and sustainment of their daily lives, and humanitarian locations and activities.

DOD has dedicated many resources to better understanding the overall operating environment, but to date those efforts have not been comprehensive. Although DOD has devoted significant intelligence and capability development to cultivating better awareness of threats and friendly forces, it has given less attention to understanding the details of the civilian environment. For example, in the previous section, we discussed the Second Offset strategy in the 1970s, in which the US military developed precision-guided munitions and new intelligence and surveillance capabilities, leading to the "new American way of war," as exemplified by Operation Desert Storm. This new way of war leveraged a strong and shared understanding of the operating environment, enabling rapid identification and engagement of threats by a joint force that also needed to coordinate maneuver and deconflict friendly locations.

Historical approaches to the civilian environment

The two-dimensional approach to constructing the operating environment, focused on threats and friendly forces, is reflected in military doctrine, training, networks and data links, and intelligence requirements and capabilities. That said, there have been attempts over time to improve the US military's understanding of components of the civilian environment. These efforts are instructive as we consider how to build out the third dimension—the civilian component of the operating environment—in an effective way.

The following are examples of previous attempts to reduce civilian harm during recent conflicts.

Lists. In its major combat operations in Iraq in 2003, the US military first made a list of protected sites, called a no-strike list (NSL). This list included hospitals, museums, mosques, schools, and hazards such as dams. These locations could not be attacked unless such an action was specifically approved (for example, if a hospital was found to have lost its legal protected status and represented a valid military target). Over time, the NSL was expanded through a process known as humanitarian notification and deconfliction, in which humanitarian entities operating in the area would notify the US military (sometimes through a moderator, such as the United Nations). In the case of static locations, these notifications were routinely added to the NSL. For dynamic movements, such as humanitarian convoys, the NSL was not configured to accept mobile tracks, so this information was not retained.

Imagery. In the late 1990s, there was an Air Force–led effort to improve estimates of civilian casualties and damage to structures. This effort resulted in software that modeled expected weapon effects given weapon type, size, aircraft approach, and altitude. Originally called Bugsplat, this capability was first deployed in Iraq during major combat operations in 2003.[50] This software was used in conjunction with imagery of civilian structures to both anticipate harm to civilians and find options to mitigate such harm.

Imagery began to be used a few years later in Iraq to allow rapid dynamic fires while reducing their effects on civilians. Individual units conducted operational

[50] Bradley Graham, "Military Turns to Software to Cut Civilian Casualties," *Washington Post*, Feb. 20, 2023, https://www.washingtonpost.com/archive/politics/2003/02/21/military-turns-to-software-to-cut-civilian-casualties/af3e06a3-e2b2-4258-b511-31a3425bde31/.

planning to consider civilian harm in the planning stage, starting with imagery of civilian areas and coding each structure with a numerical value as a shorthand for rapid coordination. If dynamic fires were needed, this imagery and shorthand facilitated engagements in which all involved in the engagement decision knew exactly what location was being targeted.

Civilian components, conditions, and factors. As operations in Iraq shifted from major combat to counterinsurgency, additional means were used to gain a better understanding of the operational environment. Members of the Civil Affairs community provided valuable information about civilians and components, conditions, and factors important to the civilian population. For example, they identified locations of critical infrastructure and what condition that infrastructure was in. They also mapped conditions related to sewer, water, electricity, and trash. These efforts informed individual brigades as they conducted operational planning. Some brigades described using this information as a form of nonkinetic targeting, helping them prioritize their efforts and resources in conjunction with kinetic military operations.

The Army's Human Terrain System (HTS) was another effort to broadly improve understanding of the civilian environment. HTS was established in 2005, when the US Army deployed external expert capabilities not native within the force, such as archaeology, anthropology, and sociology, to help the force understand the local population and culture. Each HTS element was embedded within a brigade and focused on supporting the brigade's operational plans. HTS teams were also deployed to Afghanistan. After considerable controversy about the cost (about $725 million) and effectiveness, the Army canceled the program in 2014.

Similarly, DOD has developed frameworks for trying to understand aspects of the civilian component of the operational environment, including PMESII-PT (political, military, economic, social, information, infrastructure, physical environment, and time) and ASCOPE (areas, structures, capabilities, organizations, people, and events). These frameworks are intended to support planning processes that consider elements of the civilian population, and they generally seek to understand opportunities for influence as well as potential grievances that may hinder the mission.

Lessons from history

These historical efforts had two key limitations: (1) they were not comprehensive—they were aimed only at certain civilian activities or entities or were limited in geographic scope (e.g., a Brigade Civil Affairs team or HIT), and (2) they were not promulgated widely. As a result, some operational decision-makers had access to this information, but many did not. Therefore, operational decisions were often not informed by information about the civilian environment, and more civilian harm occurred as a result.

The lack of a complete picture of the civilian environment at the echelon of operational decision-making introduces several types of risk to civilians. For example, anticipating and mitigating collateral damage when civilians are in the vicinity of a valid military target can occur only if civilian presence is recognized. A lack of understanding of the civilian environment also increases the risk of misidentification. For example, in military data links, if the identity of an entity is unknown, an assessment that it represents a threat is simply additional information. Conversely, suppose the entity has already been identified as a civilian presence or friendly force. In that case, information suggesting a threat creates

an identification conflict that must then be resolved through additional scrutiny. The movement of large groups of people away from conflict and toward safety or humanitarian aid also creates a challenge when there is no clear understanding of the human environment, particularly when a force is unaware of these movements. For all these reasons and more, a poor understanding of the civilian environment increases the risk of civilian harm and, in some cases, can increase the risk to mission effectiveness. We provide specific examples in the next section of this report, "Mitigation of Civilian Harm."

As we discuss the civilian environment, we need to reflect on three questions: what purposes will the civilian environment serve, what types of data will be required, and what steps need to be taken to operationalize the civilian environment? This section serves as a starting point for answering those questions.

Purposes of the civilian environment

History has shown that effective CHMR represents a comprehensive approach that we describe as a CHMR life cycle (see Figure 1 shown previously). This life cycle reflects care in mitigating risks to civilians, with steps being taken at all points in the planning and use of military force, including learning loops, so that militaries can adapt and improve to overcome challenges.

Aspects of the civilian environment can inform each point of the life cycle:

- **Mission and mandate.** Designing and gaining needed capabilities and authorities to conduct operations in ways that consider the protection of civilians from the outset. This can involve integrating assessments of the civilian environment into operational plans and using them to develop and evaluate various courses of action. Aspects of the civilian environment can also inform the types of intelligence and mitigation measures that would be most effective in an operation, affecting the types of forces and platforms assigned to an operation. This assessment can also consider potential movements of civilians at various phases of the conflict, how both kinetic operations and consolidation efforts should plan for changes in civilian densities and behaviors over time, and how cumulative effects of military operations can affect dependencies of civilians on critical infrastructure and other factors.
- **Planning.** At the strategic down to the tactical level, conducting planning that factors in risks to civilians and includes feasible steps and alternatives to help mitigate risks. For example, military forces should be aware of civilian presence and patterns of movement, factor in critical infrastructure and humanitarian efforts in the area, and consider alternative courses of action and their effects on civilians.
- **Operational execution.** Performing targeting processes that promote accurate target identification and delivery of lethal effects while seeking ways to minimize civilian harm and reverberating effects. This includes disseminating critical elements of the civilian environment to those involved in operational decision-making so that movements and engagement decisions can factor in possible effects on civilians.

- **Assessment.** Considering all available information to determine the best estimate of civilian harm caused by the use of force. It is also important to identify causes, trends, and patterns of harm. This includes providing information regarding the civilian environment to enable more informed and accurate assessments of whether or how civilian harm occurred.
- **Response.** Working to mitigate the tragic consequences of civilian harm by, for example, providing urgent medical care, providing compensation to victims, and acknowledging and apologizing for this harm. Knowledge of the civilian environment can inform decisions regarding the most effective response to various situations. Relevant information would include the availability of medical care and the needs of local communities that could be addressed through a community-focused response.
- **Learning and adapting.** Using assessments, including analysis of patterns of harm and trend data, to identify operational refinements that could better protect civilians. These assessments might also identify institutional changes that could help address observed challenges. Knowledge of the civilian environment can inform lessons, such as types of targets or operating environments that entail different types of risks, as well as mitigation measures that can be put in place to reduce those risks. This can include operational adaptations, requirements for new capabilities, and training and doctrinal changes.
- **Institutional capacity.** Addressing observed challenges and requirements across the military institution (e.g., doctrine, training, and materiel solutions) to strengthen the ability to protect civilians over time. This can include creating and revising requirements for the construction and dissemination of the civilian environment, including networks, data links, and integration of civilian information into specific combat systems. It can also include integrating the civilian environment into DOD activities more broadly by creating a "civilian environment enterprise" (which we discuss in the final section of this report).

Data required for the civilian environment

Information about the civilian environment can come from many sources:

- **Operational and intelligence reporting.** Both intelligence and operational channels can identify elements of the civilian population. These efforts can include sending teams of military personnel to determine the location and usage of structures, sending teams of military personnel to map critical infrastructure, or dedicating intelligence collection and analysis resources to generate civilian environment information for specific areas of interest. The civilian population may face active threats and risks from other actors. It is critical to understand these threats and risks because they are a key part of the human environment and will be a driver of civilian behavior, including movement and the taking up of arms.

- **Maps and online resources.** Structures and their functions are often included in maps of local areas. Specialized information, such as critical infrastructure, can be found in special-purpose maps made for governments and municipalities. Population characteristics and population density can also be found in online resources. In addition to population density, the military should also consider the density of structures and of infrastructure. Maps can also show major routes of egress for civilian populations if conflict comes to their neighborhood. Beyond just understanding the location of critical infrastructure, it is important to understand interdependencies among infrastructural elements, which could be harder to find in open-source materials. Urban planning experts often talk about cities as a "system of systems," meaning they often depend on each other for optimal functioning. These interdependencies must be understood to ensure that cascading effects can be anticipated and mitigated.
- **Friendly government and community leaders (including political, economic, religious, ethnic, and cultural leaders).** Friendly government entities (especially when fighting within an ally or partner territory) and community leaders can also provide information regarding the civilian environment, including the functions and uses of specific structures. Often, they can also provide information about whether certain structures are currently in use or have been abandoned (e.g., because of migration or because residents were pushed out by combatants in the area). These people can also help the military understand the informal power structures that could be helpful or harmful (e.g., organized crime, resistance movements, community protection organizations, and emergency services). Formal and informal communication networks should be mapped and analyzed. Because public communication may be degraded during a conflict, understanding informal networks and those who control them, or seek to, is also important.
- **Humanitarian and international organizations.** Humanitarian and international organizations operating in conflict areas often report their activities and locations to deconflict with militaries and avert attack and disruption of their services. Information from these organizations may be reported directly to militaries and governments or indirectly through an intermediary, such as the United Nations, for safety and impartiality reasons (i.e., because these organizations do not wish to be seen as informants to either side). The United Nations Office for the Coordination of Humanitarian Affairs often provides information regarding humanitarian activities, which are protected by international law, to parties to the conflict in areas affected by armed conflict. UNESCO (the United Nations Educational, Scientific, and Cultural Organization) maintains a list of cultural heritage sites, which are also protected by international law.
- **Civilian country and regional experts.** Just as the military has experts on numerous topics, civilian entities do as well. Some in academia and nongovernmental

organizations (NGOs), both international and local, have spent their whole careers studying a specific country or region, have deep ties to the government and other power influencers, and may be able to assist the military by providing expert insight, facilitating a more fulsome understanding of the civilian environment, and conducting analysis of data related to the civilian environment.

How the civilian environment can be operationalized for CHMR

Having discussed various ways the civilian environment can inform CHMR across the different points of the CHMR life cycle, we will now examine how information about the civilian environment can be incorporated into key elements of preparation, planning, and operations.

Informing operational planning. Details of the civilian environment can inform operational plans and the evaluation of different courses of action. This can include considering the potential effects on civilians and civilian objects from single actions—such as an attack or an advance of forces into an area—or from a larger campaign.

Improving situational awareness in operations. The US military leverages data links, networks, and combat systems to develop a common operational picture (COP) and provide situational awareness in support of decision-making. Inclusion of the civilian environment in this COP would improve situational awareness and better inform decisions. Although many current military networks focus on combatants (both threats and friendly forces), the inclusion of civilian and humanitarian information would provide a more complete picture of the operating environment.

Improving positive identification (PID). Improved information on the civilian environment can be leveraged to improve PID: the determination that entities are or are not valid military targets. One source of PID is pattern-of-life analysis—that is, surveillance of individuals within a population over time to better understand context and to help discern patterns and behaviors. One consideration in pattern-of-life analysis is observing associations, such as locations or individuals a person has regularly visited. Historically, these potential associations in conflict zones tend to be threat based. However, civilian environment information can be used just as effectively to inform PID determinations, which seek to integrate many information sources to improve the quality of decisions. However, because this process includes primarily threat-based intelligence, it can result in cognitive bias that can contribute to the misidentification of civilians as valid military targets. Including civilian information could help address such bias and help protect against such misidentifications, which can result in attacks on both humanitarian organizations and civilians whose interactions with such organizations may have been overlooked or ignored.

Consider, for example, the 2021 Kabul airstrike that killed an aid worker, two other adults, and seven children. The alleged ISIS-K target (the aid worker) had visited and worked at a US-funded NGO building for several hours during the day, among other stops, but this aspect of the civilian environment was not recognized in the decision-making process. Had this been understood, the tragic strike might have been averted.[51] (This incident is discussed in more detail in the next section of this report.)

[51] Similarly, the aid worker visited a Taliban-controlled police station, something that is unlikely for an ISIS-K operative because the Taliban and ISIS-K have a hostile relationship with each other. See, for example, Asfandyar Mir, "The ISIS-K Resurgence," Wilson Center, Oct. 8, 2021.

Improving deconfliction with NSL and restricted target list (RTL) entities. Information on the civilian environment should include civilian entities and hazards on the NSL and RTL. At the same time, the civilian environment analysis can help maintain and curate those lists. Both the building and the curating of the NSL can be simplified because of the potentially higher fidelity and standardized nature of information obtained through the civilian environment, validated through other means as appropriate. Making this information broadly available to operating forces can also strengthen deconfliction processes, making forces aware that planned attacks may be in proximity to, or possibly targeting, entities on the list. In addition, this information can help forces develop precautionary measures or recognize that a misidentification may have occurred.

Anticipating, mitigating, and assessing indirect effects. Civilian harm can be both direct—harm to civilians and civilian objects as an immediate outcome of an attack—and indirect. Indirect effects of an attack can be wide-ranging, including the destruction of homes and other property, the degradation of infrastructure critical to the well-being of the civilian population, and the loss of health care and the ability to respond to health crises. Through understanding the civilian environment, forces can manage and mitigate these issues by anticipating potential indirect effects and by analyzing the possible effects of various options on civilians and on the components, conditions, and factors that sustain the civilian population. Better understanding these potential effects allows more informed consideration of mitigation options, including consideration of operational alternatives. A detailed understanding of the civilian environment over time also enables a more effective assessment of indirect effects, with a diverse set of data sources giving additional insight into changes—especially degradations—in the civilian environment overall. Such assessments can then inform response steps, helping forces determine what actions might be the most useful to respond to civilian harm, and helping them communicate humanitarian needs and priorities to entities providing humanitarian assistance during and after the conflict.

Using an enterprise approach. The Army has devoted considerable resources to developing an enterprise approach to the operational environment. According to Army documentation, these efforts are largely focused on developing a better understanding of the component of the operational environment related to threats. That said, the Army's model is instructive and could be leveraged to create a "civilian environment enterprise."

The Army's Operational Environment Enterprise, administered by the Training and Doctrine Command's G-2, offers a range of activities and resources for the force to enhance its understanding of threats in the operational environment. These resources include ODIN (a database of threat vehicles); training regarding target recognition and threat capabilities; practical support in designing realistic opposing forces for exercises, simulations, and wargames; and courses and videos for Professional Military Education.

These capabilities are not focused on creating the threat component of the operational environment. Serving this purpose instead are the many DOD processes devoted to collecting, analyzing, identifying, and disseminating threat information. The Army's Operational Environment Enterprise illustrates that much more can be done than simply creating a civilian environment picture to support operational planning and execution. Although this broader enterprise approach is not directed as part of the CHMR-AP, the CHMR-AP does state that "Joint Staff, in coordination with USD(I&S), USD(A&S),

and military departments" would all have a role in establishing and maintaining an enterprise approach to the civilian environment.[52]

Pursuing a civilian environment protocol. In this section, we see that civilian groups are an essential source of information for developing the civilian environment. DOD can acquire and aggregate this information in many ways, but these civilian groups sometimes have a vested interest in providing such information themselves. For example, humanitarian groups provide information regarding their identity, activities, and location in support of humanitarian notification, and organizations such as the United Nations provide data on protected areas, such as cultural heritage sites. The development of a standard protocol that defines structured data elements and formats for sharing and processing information about the civilian environment would make it easier for organizations to share their information effectively while also making it easier for DOD and other militaries to receive and process this information.

Role of civilian environment teams

A key element of the CHMR-AP's approach to developing the civilian environment is the creation of civilian environment teams (CETs). These teams are envisioned to be, when at full strength, four individuals at each operational combatant command, with others possible at supporting commands. The CHMR-AP describes their role as follows:

- "Civilian Environment Teams will help illuminate critical aspects of the civilian environment for military commanders."
- CETs are "composed of intelligence professionals; experts in human terrain, civilian infrastructure, and urban systems; and civil engineers—to assist commanders in understanding the effects of friendly and adversary actions on the civilian environment."
- "Combatant commands establish Civilian Environment Teams to leverage existing analytical production related to the civilian environment, conduct analyses, and create products that provide comprehensive perspectives on the civilian environment, including potential second- and third-order effects in the operational environment during planning and the joint targeting process. Civilian Environment Teams will consider information from a variety of sources, including, but not limited to, the intelligence community, open-source, civil society, and foreign governments."
- "Civilian Environment Teams [will be incorporated] into current joint targeting processes."[53]

In addition to describing the functions of the CETs, the CHMR-AP discusses the role of the services and other organizations contributing to the civilian environment:

- "Joint Staff, in coordination with USD(I&S), USD(A&S), and military departments, ensures information about the civilian environment from relevant databases is integrated into Mission Command Systems to achieve unified situational awareness, and that Mission Command Systems are able to

[52] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.
[53] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.

capture the digital footprint of operations to the data management platform developed in Objective 6 of this action plan in order to support future reviews, inquiries, and investigations."

- "USD(A&S), in coordination with USD(I&S), develops guidance related to the development and fielding of intelligence sensors and other battlespace awareness capabilities to enable enhanced understanding of the civilian environment during the joint targeting process."[54]

This language suggests that the construction of the civilian environment involves two fundamental contributions: those from the rest of DOD (which feature contributions from the Intelligence Community, intelligence sensors, and battlespace awareness capabilities) and those from the CETs. Based on the descriptions above, the CETs are designed to analyze, generate, and package specific data that are then provided to the supported operational force. In these processes, CETs are called on to "consider information from a variety of sources."[55] The skill sets and the language used to describe them ("consider information," "conduct analyses," "create products") all suggest efforts that are localized and narrow in scope.[56]

There appears to be a risk of the CET repeating mistakes that have been made in similar efforts over the last three decades. As described, the resulting civilian environment will be narrow in scope and have no streamlined way to be disseminated to all relevant networks and data links. Because the CHMR-AP conception of the CET is just a starting point for the CET's eventual functions, we recommend additional steps for supporting the construction of the civilian environment in ways that are needed to support CHMR. The CET must also be able to draw broadly from disparate datasets, as discussed above, and to oversee and ensure the inclusion of these data in Mission Command Systems and related networks. These teams can also leverage resources and tools from DOD, taking an enterprise approach to the civilian environment.

Key considerations of the civilian environment

As we discuss the civilian environment, some principles are worthy of consideration.

No two battle spaces are alike. Even within a state, the urban environments in which a force operates are likely to be very different. For this reason, forces must have a well-defined process, backed by a strong analytical framework, to apply to each possible battle space—a process that ensures effective gathering, analysis, and dissemination of information systems and command.

The civilian environment is fluid. The civilian environment is complicated and ever changing, even in times of peace. In times of conflict, specific locations can become contested, and the civilian environment can change rapidly. Civilian environment information and analysis reflect only snapshots in time. Just as intelligence reports and analysis of the enemy forces must constantly be updated and reviewed as more information becomes available, so must information and analysis on the civilian environment.

54 Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.
55 Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.
56 Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.

Gendered analysis is a critical component. Conflict affects people differently depending on their age and gender. Civilian environment information and data collection should consider this fact and seek to understand the gendered and age-related effects of conflict on the population. To do so, militaries need data that are, when possible, disaggregated by sex and age. For example, when such data were available during ISAF operations in Afghanistan, analysis showed that the specific types of attacks and targets had strong effects on the proportion of casualties that were women and children, as well as the proportion of those killed versus wounded. Understanding how civilians live in and through conflict and crisis is critical to inform analysis of the civilian environment to anticipate and address gendered effects of harm to civilians. For example, in addition to gender considerations, conflict has a disproportionate effect on populations already at risk, including under-resourced, sick, pregnant, disabled, or older people. This fact is particularly critical to consider when, for example, civilians are being asked to leave an area where operations are about to take place. Many of these at-risk populations may be unable to do so.

Civilians have agency. They are not simply transformed into inactive victims when conflict comes to their doorstep. They are active participants in their world even during conflict or crisis. However, even the simplest daily tasks can become dangerous or deadly for those living through conflict, and this reality can drive their behavior. Being able to anticipate such behaviors will help forces improve their planning overall—for example, how could migration of civilians from a specific area influence military plans? And how should this movement be factored into civilian harm mitigation efforts?

Civilians are not a monolithic entity. Civilians in an area of operation may have different economic, social, cultural, ethnic, religious, or political affiliations, possibly affecting the way they behave in a conflict. Some may choose to support the opposing force, while others may not. Some may have means to leave their homes, and others may not. Some may go willingly, and others may refuse. Understanding the factors that influence different sectors of the population can contribute to a better understanding of the civilian environment. In addition, informal power networks may exist among these various groups, another possible influence on their behavior.

The information environment is critical to civilian survival. However, it will likely be degraded, contested, unsecure, and flooded with mis- and disinformation. Understanding the information environment, who has control or influence, and whom civilians are turning to and trusting for critical information on survival is critical to CHMR.

MITIGATION OF CIVILIAN HARM

In this section, we discuss steps that military forces can take to strengthen the mitigation of civilian harm considering lessons from US operations. Previous analysis has identified risk factors that are seen consistently in instances of civilian harm. CNA has analyzed more than 2,000 real-world cases of civilian harm from the past two decades. These cases revealed a general pattern in which civilian harm incidents tended to conform to the Swiss cheese model of causality. As noted earlier in this report, this model holds that in a complex system, multiple factors or processes collectively keep accidents, or failures, from occurring. But each of those factors or processes has flaws, which can be considered holes in a slice of cheese. When those holes line up during a single incident, an accident occurs.

Instead of civilian harm incidents having a single cause, we found that multiple failures collectively lead to an attack with unanticipated civilian harm. We have observed four general types of failure ("holes" in the slices of Swiss cheese) that collectively contribute to civilian harm:

- **Breakdowns in communication and command and control (C2).** Often in civilian harm incidents, someone knows critical details that would have stopped the engagement if they had been shared more broadly.
- **Poor understanding of the civilian environment.** Militaries devote intelligence and capability development to cultivate better awareness of threats and friendly forces, but less attention is given to understanding the details of the civilian environment, which creates risk to civilians.
- **Cognitive bias and false assumptions.** Civilian harm can also result from misinformed decisions based on assumptions without evidence.
- **Not exploring mitigation measures.** There are often options for better mitigating harm to civilians, but forces do not always consider these options in practice.

Failures that collectively contribute to civilian harm are illustrated in Figure 6.

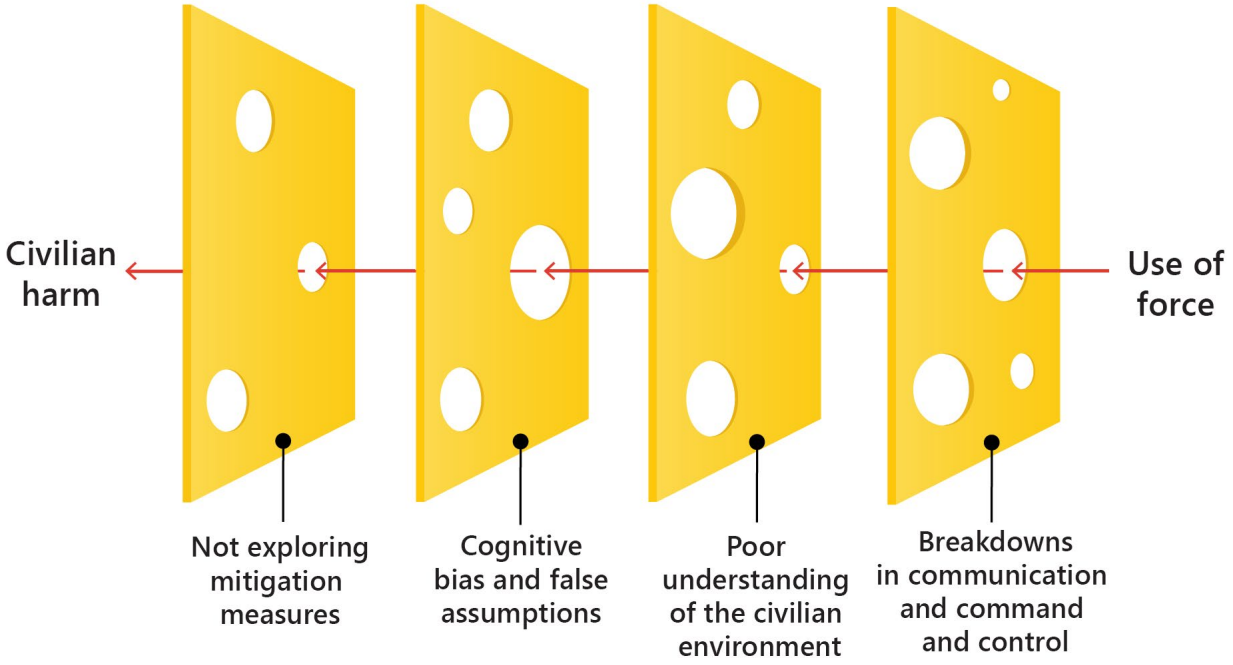
In this section, we first detail each of these civilian harm risk factors, providing past operational examples. We then discuss how those risk factors can manifest, and in some cases can be exacerbated, in the context of LSCOs. Next, we provide recommendations for how they can be addressed proactively in DOD institutions and processes—representing institutional learning—to mitigate civilian harm more effectively during LSCOs.

As we discuss these root causes and mitigation approaches, we note that they explicitly address Objectives 4 and 5 of the CHMR-AP:

- Objective 4: "Improve knowledge of the civilian environment and civilian harm mitigation capabilities and processes throughout the joint targeting process so that DOD is more effectively prepared to mitigate and respond to civilian harm in any future crisis or conflict."[57]
- Objective 5: "Incorporate deliberate and systemic measures to mitigate the risks of target misidentification. This includes addressing cognitive biases, such as confirmation bias."[58]

[57] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.
[58] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.

Figure 6. Contributing factors to civilian harm



Source: CNA.

As we consider applying these data and lessons to LSCOs, we note that the available data on civilian harm are mainly from the past two decades of US and ally/partner operations. This dataset has two limitations. First, operations over this time frame consist mainly of counterterrorism and counterinsurgency operations. The US has not engaged in true LSCOs against a near-peer competitor since World War II, and because many factors have changed since then, those older operations do not offer strong lessons for CHMR today. As we identify causal factors and challenges regarding civilian harm, we recognize that certain aspects of civilian harm risks are not captured here. Therefore, we recommend that DOD conduct extensive experimentation, exercises, and wargames to refine our findings. This project does not represent the end but rather an informed starting point of a sustained process for DOD to prepare to effectively mitigate civilian harm in LSCOs.

That said, CNA's work on civilian harm mitigation and causal factors emerged from earlier research on a different kind of combat identification challenge: fratricide. CNA, in collaboration with the services and joint organizations, worked for more than a decade on understanding and improving combat identification to enable effective long-range engagements while reducing the risk of fratricide. CNA's work on understanding the mechanisms of fratricide, both in exercises and in major combat operations in Iraq in 2003, showed that fratricide is typically a result of several simultaneous failures—following the Swiss cheese model—including deficiencies in the friendly component of the operational environment and

communication breakdowns that prevent important information regarding the identity of friendly forces from informing the engagement decision. In light of these commonalities, in this section, we have included a representative example of fratricide in our discussion of those two causal factors. These factors are seen in both major combat and lower intensity conflict, which suggests that to a certain extent, combat identification challenges have common characteristics across all types of operations, regardless of the operating environment or even whether the entities are friendly or civilian.

Second, the instances of civilian harm from US operations over the past 20 years are primarily cases of unintentional harm—in other words, cases in which civilian harm was not a deliberate consequence. In the context of LSCOs, the US will likely need to make targeting decisions that anticipate harm to civilians as a proportional and acceptable cost of those engagements. Consistent with law and policy, because of the importance of the intended target, the potential for civilian harm will at times be anticipated and accepted in the operational decision to engage. That said, the recommended actions identified in this section will help mitigate these cases of anticipated harm in many ways, including the following:

- By better understanding the civilian environment. In the past 20 years of operations, US forces sometimes had such a poor understanding of whether civilians were present that they lacked the knowledge that a proportionality decision was necessary. A better understanding of the civilian environment will inform and improve proportionality decisions.
- By developing more effective operational planning and tactics so that dilemmas regarding trade-offs between operational imperatives and civilian harm mitigation can be managed.
- By developing new tools and capabilities that will support more effective mitigation, especially in the challenging context of LSCOs.

Next, we discuss each of the four civilian harm risk factors and how they will likely manifest in the context of LSCOs.

Breakdowns in communication and C2

During military operations, communicating details is critical for effective decision-making. Therefore, doctrine gives specific formats for key operational processes—for example, the nine-line brief for close air support—and military systems and networks aim to provide a COP to offer situational awareness and inform operational decisions.

Despite these deliberate efforts, miscommunications can happen, and they often contribute to civilian harm incidents. For example, someone involved in the engagement decision might know critical details that would likely have stopped the engagement if these details had been shared more broadly. These details can vary in nature. For example, the information may be that the intended target is a civilian, that civilians are present, that the activity being observed is not in fact hostile, or that the location being targeted is different from the intended target. Civilian harm can result from such breakdowns in C2. Because details are not being shared effectively among all those involved in decisions to use force, risks cannot be effectively mitigated. Next, we discuss several cases of these miscommunications and how they contributed to civilian harm.

Médecins Sans Frontières (MSF) hospital strike, October 3, 2015. A communication breakdown contributed to this incident, in which an AC-130 mistakenly attacked an MSF hospital in Kunduz, Afghanistan, where US forces were embedded

with partner Afghan forces. At the time, a Taliban offensive endangered Afghan government facilities. US ground forces called for close air support, and an AC-130 responded. The ground controller included details about the intended attack, such as the location in coordinates and the appearance of the facility (a "T-shaped" building). When the AC-130 examined the location of the coordinates, it was an open field. The AC-130 crew found a building 400 meters away that matched the description (T-shaped) from the ground controller, and after further discussion, the ground controller confirmed that the AC-130 crew were cleared to attack. The AC-130 fired 211 105-mm shells at the target, both the building and individuals in the area, during five passes. The overall attack lasted one hour and 15 minutes. Only later was it discovered that the building was not the intended target (an Afghan prison under siege by the Taliban) but a hospital run by MSF. The miscommunication between the ground controller and the aircrew was a key contributor to this tragic case in which the US mistakenly attacked a hospital, killing 42 civilians and destroying the area's only trauma center.

Uruzgan helicopter strike, February 21, 2010. US special forces were inserted into Uruzgan, Afghanistan, in the early morning to capture a high-value individual responsible for an improvised explosive device (IED) network. US ground forces were supported by an AC-130 and a Predator remotely piloted aircraft (RPA). While waiting for daylight, when the capture operation was scheduled to occur, the ground forces received signals intelligence (SIGINT) indicating "join together, hide your weapons, and wait for daylight when the aircraft [the AC-130] will be gone." The SIGINT was nondirectional; when the Predator crew noticed a convoy of three vehicles moving south, they correlated those vehicles with the SIGINT and decided that they were likely to be the threat. The vehicles then moved to a westbound road and continued traveling throughout the morning, observed by the Predator imagery analyst and crew. Because of the C2 structure, observations made by the imagery analyst were passed to the crew but not to the forces on the ground. Thus, the ground forces were unaware that (1) at least one child was in the group (which would have potentially affected the decision-making process) and (2) the vehicles were moving away from the location of the ground forces. The ground force commander, believing that the vehicles were close by and an imminent threat, directed attack helicopters to strike the convoy. Because critical information was not shared among the imagery analyst, the RPA crew, and the ground commander, the ground forces did not realize that the convoy was not in fact an imminent threat. The attack resulted in 27 civilians killed (including 4 women and 1 child) and 12 wounded.

Kabul drone strike, August 29, 2021. During the evacuation in summer 2021 in Afghanistan, a suicide bomber killed 13 US servicemembers and many Afghan evacuees at Kabul airport. The US devoted intelligence collection to finding and disrupting additional threats during the evacuation. Through RPA full-motion video (FMV), a vehicle was observed that matched a suspected vehicle type in intelligence reporting, and its movement through Kabul correlated with locations of past and suspected threat activity, including an ISIS-K safe house used for planning future attacks. At the suspected safe house, the vehicle stopped, and the driver handed over a black bag to the house's occupants. Intelligence analysts saw that the vehicle carried containers and assessed them to be possible explosives. When the vehicle stopped at a residence, an attack was approved based on an imminent threat of future attacks on the airport. One Reaper RPA conducted the attack with another in overwatch. The attack destroyed the vehicle, and it was assessed as a successful strike.

However, according to additional information that became available over the following weeks, the driver was not a threat but rather a humanitarian worker from a US-funded NGO. His family members were also killed as they moved toward the car as the missile impacted. The incident resulted in 10 civilian casualties. A key contributor to the incident was a miscommunication regarding the confidence of the information about the vehicle and driver, leading to identification of the vehicle as a threat and approval of the attack.

Fratricide: F-14 strike on US special forces, April 6, 2003. In a case of fratricide during major combat operations in Iraq, an F-14 pilot was talking to a special forces ground controller who called in close air support because US forces were in contact with Iraqi forces. The ground controller described the enemy position as being at a "T-intersection." In fact, the enemy location was not at a T-intersection but a four-way crossing. Because the controller could see only three of the four parts of the intersection, it appeared to be a T-intersection from his position. The pilot found a T-intersection with ground forces and assumed that they were hostile forces. The controller approved the engagement under the false impression that they were talking about the same location, and the pilot struck the forces at the T-intersection. Unfortunately, the engaged location was not the intended target but rather the location of US special forces, along with partner Kurdish forces and accompanying civilians. The strike killed 19 Kurdish partner forces (Peshmerga) and civilians and wounded three US Army Special Forces.[59]

LSCO risk factors for breakdowns in communication and C2

The operational context of LSCOs exacerbates the risk of breakdowns in communication and C2. For example, over the past 20 years of operations, US forces have largely enjoyed unrestricted and secure operating domains and communications. This situation is unlikely to continue in the context of LSCOs. US forces should expect anti-access capabilities, denial of communications and data links, and the potential loss of secure communications, including disruption of position, navigation, and timing. One technique for overcoming communication breakdowns is *over*communicating, as recommended by General Stanley McChrystal, but such overcommunication may not be possible during LSCOs.

Rather, communications during LSCOs will involve a heavier reliance on decentralization and mission command. These features increase the risk of the breakdowns described here. Ways to mitigate this risk include frontloading relevant information at the start of the mission and developing tools to enhance the tactical-level recognition and exploitation of available local information. For example, if a unit has FMV but is unable to get feedback and processing, exploitation, and dissemination support from reach-back or higher echelons, automated processing and identification of relevant information—such as checking navigation and detecting individuals moving in FMV—could help. Capabilities such as Talon Silence can also help ensure that units know where they are located even when communications, data links, and space-based resources, such as GPS, are denied.[60]

[59] Nathan Lowrey, "The Battle for Debecka Crossroads," *Veritas* 1, no. 1 (2005); Congressional Research Service, *Iraq War: Defense Program Implications for Congress*, CRS Report, June 4, 2003.

[60] Talon Silence is a means of developing navigational, time, and position data in communications-denied environments. Talon Silence "exploits space-based radio frequency (RF) signals of opportunity (no a priori knowledge) and uses time difference of arrival calculations between a ground reference system (GRS) and an airborne reference system (ARS) to a real time alt-navigation solution." Department of the Air Force, "Examples, Air Force Tactical Exploitation of National Capabilities," accessed July 24, 2024, https://www.airforcetencap.com/projects.

Poor understanding of the civilian environment

DOD has dedicated many resources to better understanding the operating environment overall. For example, in support of the Second Offset strategy in the 1970s, the US military developed precision-guided munitions and new intelligence and surveillance capabilities, which led to the "new American way of war," as exemplified in Operation Desert Storm. This new way of war leveraged a strong and shared understanding of the operating environment, enabling rapid identification and engagement of threats by a joint force that also needs to coordinate maneuver and deconflict friendly locations.

Although DOD has devoted significant intelligence and capability development to cultivating better awareness of threats and friendly forces, less attention has been given to understanding the details of the civilian environment, as discussed in the previous section of this report. The civilian environment includes details such as where civilians are, how they might move if conflict comes to them, what purposes structures serve for civilians, the presence of infrastructure and how critical it is to civilians' daily lives, and humanitarian locations and activities. In the absence of these details, risks to civilians cannot fully be identified, considered, and mitigated in engagement decisions.

The lack of a complete picture of the civilian environment at the echelon of operational decision-making introduces several types of risks to civilians. For example, anticipating and mitigating collateral damage when civilians are in the vicinity of a valid military target can happen only if that vicinity is recognized. A lack of understanding of the civilian environment also increases the risk of misidentification, as discussed in the previous section. For all these reasons, a poor understanding of the civilian environment increases the risk of civilian harm, as demonstrated in the following examples.

MSF hospital strike, October 3, 2015. A poor understanding of the civilian environment was a contributing factor in the attack on the MSF hospital described previously. This medical facility, with coordinates, was included in a list of facilities that MSF provided to US and Afghan forces as part of humanitarian notification—a process whereby humanitarian organizations willingly share their locations and activities to facilitate protection and needed access—just three days before the strike. There were MSF flags on the roof of the hospital, as well as a logo visible from the air. This information was included in the US NSL and held at the Resolute Support headquarters; however, because NSL data are not typically shared over tactical data links, neither the AC-130 that attacked the hospital nor ground forces had access to the NSL. The AC-130 lacked an overall operational picture containing civilian objects such as hospitals. In addition, the crew members were unfamiliar with the area and thus lacked personal knowledge of what functions buildings served.

Kabul drone strike, August 29, 2021. In this incident, the suspected vehicle visited several locations as it was observed. Two of these locations were associated with the US-funded NGO that the driver worked for, suggesting that the activity the driver was involved in was not nefarious, but no one involved in the targeting decision was aware of that information. This oversight was particularly notable because another part of the US government—the US Agency for International Development (USAID)—was very aware of these locations because it sponsored these entities. But this information was not included in a COP or in intelligence channels informing operational decisions.

Uruzgan helicopter strike, February 21, 2010. In this incident, the ground forces were unaware that the vehicle convoy was traveling away from its location. They were also unaware of the limited civilian roads present in the mountainous area. The convoy's vehicles, which were exiting the area, had no path to flank and reapproach the ground force location. Knowing these details could have helped the ground forces recognize that the convoy did not represent an imminent threat.

Fratricide: F-14 strike on US special forces, April 6, 2003. The effect of a lack of an accurate operational picture is also often observed in fratricide incidents. In a case of fratricide during major combat operations in Iraq, US special forces engaged by an F-14 were digitally reporting their own position and information using Blue Force Tracking. This information was reported over the Integrated Broadcast System and available on the Global Command and Control System. However, this information was not moved to tactical data links, such as Link 16, which would have made it available to the tactical aircraft making engagement decisions. Thus, the friendly position was not universally available in a COP, despite friendly forces actively transmitting their information.

LSCO risk factors for poor understanding of the civilian environment

In the previous section, we discussed how constructing the civilian environment is a broad enabler for CHMR. Here, we discuss specific factors regarding mitigation of civilian harm during a LSCO. The potential density and scale of LSCOs will further challenge DOD's ability to develop and manage an accurate picture of the civilian environment. The density of urban areas, the number and likely dispersion of protected entities within the urban environment, and the interconnected and likely embedded nature of critical infrastructure pose significant challenges for characterizing and disseminating critical aspects of the civilian environment effectively. Obtaining an accurate operational picture can be further complicated by movements of the population, including migration and evacuation before and during conflicts. The interconnectedness of the population and critical infrastructure can also change dynamically as the population moves and as infrastructure is disrupted or destroyed.

Information sources for constructing the civilian environment will also likely be contested during LSCOs. Although much information from open sources and humanitarian organizations will be accurate, it may be challenging to disentangle misinformation and disinformation from the truth. That said, adversaries can be a unique source of accurate information, including properties of the civilian environment and incidents of civilian harm.

Properties of LSCOs will also emphasize the importance of sharing the civilian environment among different tactical networks. Developing an accurate picture of the civilian environment is not enough; critical elements of that environment must also be shared with different echelons to support operational planning and decision-making. This requirement for the timely dissemination of the civilian environment is further underscored by the possibility of adversary forces using civilians and civilian objects as shields, the likely high density of fires requiring collateral damage estimates and deconfliction, and the need to rapidly employ defensive fires in LSCOs.

Cognitive bias and false assumptions

Civilian harm can also result from decisions based on assumptions made without evidence. These assumptions can be introduced by individuals involved in the decision-making process. They can also be embedded in operational processes. Such assumptions can reflect cognitive bias, in which subjective judgments differ from reality in a systematic way. Cognitive bias takes various forms. Perhaps the most common is confirmation bias, in which a person views information and evidence through the lens of a theory or assumption that they already hold. A historical example is the construction of the Tower of Pisa: despite the tower leaning even before construction was finished, the confidence in the workmanship and the sufficiency of the foundation was so strong that this self-evident flaw was regarded as of little consequence.

Overall, human decisions can be skewed and in conflict with clear evidence because human thinking processes tend to take shortcuts, observing subsets of available information and leaping to expected—but not valid—conclusions. Regarding civilian harm, these biases can manifest in several ways, including the assumption of hostile intent, the presumption that no civilians are present, the use of leading language, and biases implicit in military processes. In this section, we cover these issues in more detail and then discuss a common bias across civilian harm incidents: that current US military processes completely address civilian harm risks if followed and that nothing more can be done.

Assuming hostile intent

Civilian harm can result when neutral behavior is interpreted as hostile. Examples include the following:

- In the strike on the MSF hospital, the aircrew concluded that the hospital must be the intended target because the structure was the same shape as the described target and because the aircrew observed armed people walking around in the area (they were armed guards guarding the hospital).
- On July 6, 2008, a wedding party in Afghanistan happened to be walking through a remote area where a high-value individual was previously located. The presence of a group of people in this remote area was regarded as not a coincidence, and they were attacked in the belief that they were a hostile force. As a result, up to 47 civilians were killed, including the bride.

Assuming no civilians are present

The second incident in the previous bulleted list is also an example of the common mistaken assumption that no civilians are present, leading to civilian harm. Other examples include the following:

- An engagement on an individual in a car led to the partial destruction of the vehicle, but the individual was unaffected. A reattack decision failed to consider civilian first responders moving to the vehicle; they were killed during the reattack.

- Soldiers in a forward operating base observed individuals on a nearby mountain and concluded that they were hostile. The commander reasoned that no good people would be in the area. As a result, five teenage girls were killed while in the area to collect hay for their animals.
- Two individuals who were positively identified as Taliban combatants ran into a building. Moments later, two individuals ran out of the building and were engaged by air-to-ground fire. The two engaged individuals were a mother and her child fleeing the compound after being forced out by the two combatants.

In past operations, air-ground teams sometimes assumed that no civilians were present instead of working to determine whether this assumption was correct. In Afghanistan, commanders stressed in command guidance that this assumption was not valid; for example, in 2011, the commander of the ISAF issued a Tactical Directive stating, "We must assume that civilians are present unless we can establish otherwise."[61]

This false assumption that no civilians were present was particularly a factor when air-to-ground engagements targeted civilian structures. Observing the outside of a building for minutes or even hours and not seeing activity does not establish that no civilians are in the building. Women and children were particularly more likely to stay in these structures and be unobserved. As a result, in Afghanistan, attacks on civilian structures resulted in a higher proportion of casualties being women and children compared with other types of targets.

Using leading or imprecise language

Cognitive biases can also influence how individuals discuss tactical situations. In Afghanistan, this phenomenon was referred to as "leading language": the use of terms and descriptions that push group decision-making toward engagement. Examples include the following:

- A three-vehicle convoy drove along an isolated mountain road, away from friendly forces. The Predator crew described the convoy as "flanking" the US force position. Because of this description and other leading language, the convoy was engaged as an imminent threat, leading to dozens of civilian casualties.
- An Apache crew observed two individuals digging around a wall and characterized the activity as "suspicious digging." Based on this characterization, the individuals were considered a threat and were engaged. Later, they were found to have been civilians repairing a local walking path.

Another kind of leading language, an inaccurate description of the current level of threat, has led to civilian harm in air incidents. Examples include the following:

- In some cases, ground forces stated that they faced an "imminent threat," which was taken to mean that aircrews needed to provide immediate fires to help avoid US or coalition casualties from enemy fire. However, the threat was a future threat—for example, with a timeline of 24 to 48 hours—which meant that aircrews had time to better consider ways to mitigate harm to civilians while meeting the mission objective.

[61] Roger Lane and Himayu Shiotani, *Opportunities to Strengthen Military Policies and Practices to Reduce Civilian Harm from Explosive Weapons*, UNIDIR, 2019, https://unidir.org/wp-content/uploads/2023/05/food-for-thought-en-821.pdf.

- In other cases, an immediate threat to ground forces existed for a time and then ended (e.g., opposing forces fled when they saw airplanes or were attacked from the air), but ground forces then directed supporting air assets to eliminate the threat. Because they did not communicate this change in the situation to their supporting air assets, the air support continued to operate under the belief that an immediate threat existed, employing less restrictive rules of engagement and not taking time to find ways to mitigate harm to civilians.

Building biases into military processes and procedures

Biases that increase risk to civilians can also be built into operational processes and procedures. For example, the practice of declaring an area as non–dual use can lead to the conclusion that all individuals in the area are combatants, even when individuals walk across the area of designation but do not enter any structures. This assumption has been challenged at times when an individual was identified as a woman, but a man anywhere in the area was assumed to be a combatant.

A clear example of bias built into military processes is escalation of force (EOF). In EOF situations in Iraq, Afghanistan, and Syria, it was commonly assumed that individuals or drivers of vehicles were a threat if they did not respond to warnings, even when the warnings were not clear to the civilian population or were delivered at very long range with little hope of them being observed. This common practice was consistent with DOD's definition of *EOF*: "sequential actions that begin with nonlethal force measures (visual signals to include flags, spotlights, lasers and pyrotechnics) and may graduate to lethal measures (direct action) to include warning, disabling, or deadly shots to defeat a threat and protect the force." This issue was not simply the result of a lack of training. A flawed conception of EOF itself contributed to higher risks to civilians in checkpoint operations.

The term *EOF* has been used in various operational environments, including peacekeeping operations in Bosnia as well as counterinsurgency and counterterrorism environments in Iraq, Afghanistan, and Syria. However, this term collectively describes two different processes:

- **Minimal-force EOF, in which US forces respond to exhibited hostile intent or hostile action.** The response aims to apply the minimal required force to deter the threat. This type of EOF is seen at a large scale (e.g., riots) and at a small scale (e.g., an individual throwing stones at US forces).
- **Potential-threat EOF, in which US forces use escalating measures against an unidentified individual or vehicle to determine whether an individual has hostile intent.** This type of EOF is seen, for example, when a car approaches a checkpoint (e.g., are they a civilian or a terrorist with a vehicle-borne IED?) or when an individual approaches US forces at a checkpoint or on an objective.

The DOD definition of *EOF*, which accurately captures minimal-force EOF but not potential-threat EOF, led to US forces having an operational approach and set of tools that were a mismatch for checkpoints and other cases of EOF (e.g., EOF employed by aircraft against unidentified vehicles) in Iraq, Afghanistan, and Syria. This mismatch led to significant civilian harm in those theaters.

Assuming that nothing more can be done to mitigate civilian harm

A common bias in military forces is also seen consistently in conversations among military personnel and in DOD assessments across various US operations: the belief that current US military processes completely address civilian harm risks and that nothing more can be done. This view was evident at all echelons, from the joint force commander down to tactical units. For example, Lieutenant General Stephen Townsend, commander of Operation Inherent Resolve (OIR), authored an article asserting that "there has never been a more precise air campaign in the history of armed conflict."[62] This assertion that everything possible to mitigate harm was being done has also been made many times at the tactical level across US operations.

As we discuss in the section "Not Exploring Mitigation Measures," there have often been feasible opportunities to do more to mitigate civilian harm, but these opportunities were not recognized at the time.[63] An essential starting point is recognizing that more is possible. We unpack some of these possibilities below.

Assuming that when civilian harm happens, DOD knows about it

Another commonly held belief among US military personnel, seen consistently in DOD assessments, is that if civilian harm happens, DOD knows about it. For example, in discussions in support of the 2018 Joint Staff Civilian Casualty Review, all of the military officers involved with OIR insisted that because of the effectiveness of US military intelligence and surveillance capabilities, they always knew whether civilian harm occurred during an operation.[64]

This misconception is not unique to OIR—it is our experience that this belief is common among military forces overall. However, the data clearly counter this belief. Historically, DOD first responded to reports of civilian harm with denials, sincerely not believing that such harm occurred based on the incomplete information available. Later, DOD acknowledged the harm when further facts came in and an investigation confirmed that civilian harm occurred.

Inaccurate conclusions about civilian harm were such a chronic problem that in 2011, CNA worked with then-ISAF commander John Allen on an alternative approach to public affairs regarding such harm. The approach, referred to as "be fast and not wrong," acknowledged that the first information available may be inaccurate, and it emphasized messaging that avoided a denial until other facts came in. (We discuss this approach later in this report.) The false belief that "when civilian harm happens, we know" does more than just play havoc with strategic communications and messaging; it also creates a deeper problem with mitigation of civilian harm. If US forces fail to recognize that civilian harm occurs, this short-circuits any learning and adaptation that could happen when there is an understanding that an operation resulted in civilian harm. Considering external information is also crucial in tracking and assessments of civilian harm. At the same time,

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[62] Stephen Townsend, "Reports of Civilian Casualties in the War Against ISIS Are Vastly Inflated," *Foreign Policy*, Sept. 15, 2017, https://foreignpolicy.com/2017/09/15/reports-of-civilian-casualties-from-coalition-strikes-on-isis-are-vastly-inflated-lt-gen-townsend-cjtf-oir.

[63] For example, the RAND report on Raqqa and civilian harm discusses unexploited opportunities for better mitigating harm in the Raqqa campaign in OIR. Similarly, in the *Joint Chiefs of Staff CIVCAS Study* in 2018, the analysts found that the civilian harm rate in OIR was significantly higher than was observed in Afghanistan, refuting the claim of OIR being the most precise air campaign. Michael J. McNerney et al., *Understanding Civilian Harm in Raqqa and Its Implications for Future Conflicts*, RAND, Mar. 31, 2022.

[64] Department of Defense, *Joint Chiefs of Staff CIVCAS Study*, 2018, https://www.jcs.mil/Portals/36/Documents/Civilian%20Casualty%20Review%20Report%20Redacted.pdf.

assessments should be shared with those involved in an operation so that they can better understand what happened.[65]

LSCO risk factors for cognitive bias and false assumptions

The nature of LSCOs, especially the possibility of degraded communications, suggests a need for decentralization and mission command. But this shift—involving less emphasis on planned, analytical courses of action and more reliance on intuition—increases the risk of cognitive bias. This proclivity to use intuition, and the resulting vulnerability to cognitive bias, may be exacerbated by adversaries' use of deceptive capabilities and tactics to challenge discrimination and create operational dilemmas. Deception can also bait friendly forces to cause mass casualties and create a perception of significant civilian losses. This perception could force the military to use alternative approaches for its operations or could encourage restraint.

During a LSCO, the cognitive bias of "when civilian harm happens, we know," combined with a chronic problem with detecting civilian harm when it happens, can reduce the imperative to look for more effective means of mitigation. This sentiment can be reinforced by the belief that "there's nothing more we can do." Education regarding a comprehensive approach to CHMR and all that is possible would be helpful both for tactical leaders and senior leaders of a joint task force or combatant command and also for those planning for or leading a LSCO.

Not exploring mitigation measures

The US has invested in capabilities, processes, and professionalization that advance the effective use of force, including many features that help mitigate civilian harm. Such features include a range of intelligence capabilities, a targeting process that considers collateral effects (including the formal Collateral Damage Estimation process), precision capabilities involving a variety of munitions and delivery platforms, and doctrine and operational processes for the repeatable and safe delivery of lethal and nonlethal effects. All of these features are in addition to the system that DOD has implemented to operationalize the Law of Armed Conflict in current practice.

Over the past 20 years of operations, DOD has learned that it is possible to better mitigate harm to civilians while maintaining effectiveness. Forces can consider several options for better mitigating harm to civilians, such as exercising tactical patience, exploring operational alternatives, and shaping the environment to reduce risk to civilians. Although these options are not always feasible, failing to consider them can lead to missed opportunities for avoiding harm to civilians. Next, we discuss three areas of opportunity for mitigating civilian harm: tactics, tools and capabilities, and learning.

[65] This also raises the real but often underappreciated issue of moral injury of US forces who are haunted by civilian harm caused during operations they were involved in. This issue has not been tracked systematically by DOD, but we have had many conversations with individuals who expressed distress from their involvement—and in some cases, from the uncertainty of never receiving the final results of assessments or investigations.

Tactics: creative but ad hoc and inconsistent

Given a new problem in the crucible of conflict, US forces often find creative and imaginative solutions, as demonstrated by operations in Iraq, Afghanistan, and Syria. Such practices included the following:

- A clear-hold-build approach to urban operations that mitigated risks to civilians, seen first in Ramadi, Iraq, in 2005. This approach was a direct response to concerns about civilian harm in Fallujah I and II.
- Air-to-ground integration in Sadr City, Iraq, featuring tight, decentralized integration of organic and Echelon-Above-Division air assets to enable responsive and precise fires in an urban environment where civilian harm was a strategic consideration.
- The development of the Shift Cold tactic, in which an alternative location free from civilian harm risks was identified during the targeting process. After weapons release, if civilians were observed in the target area, the munition could be redirected to the alternative location to mitigate harm to civilians.
- The development of tactical patience, in which forces considered the tactical situation and friendly force safety and, if the situation permitted, took additional time to confirm positive identification and potential effects on civilians.
- The search for operational alternatives, in which forces considered a range of options to meet mission objectives while also mitigating the risk to civilians to the maximum extent possible.
- Attempts to shape the operation by looking for ways to reduce risks to civilians in planning and operations.

All these practices advanced the ability of US forces to mitigate civilian harm. However, these measures were generally developed in the field in response to the operational imperative to reduce risks to civilians. As a result, they were not consistently followed by all forces in theater. Also, because these approaches were operational adaptations and not established in service- or joint-level doctrine and training, they were often not sustained over time or necessarily transferred from one theater to another.

Tools and capabilities: a lack of options

The creative development of tactics in the field is positive in that it reflects a commitment of operational forces to find ways to mitigate harm to civilians. However, these tactics have been limited by the capabilities of US forces; for example, Shift Cold was feasible only for laser-guided bombs. Aside from those for low-yield weapons, very few capabilities were fielded specifically to help forces mitigate harm to civilians. For example, it would have been feasible to have a GPS-guided bomb with two aim points: the target and a "minimize civilian harm" alternative location, with the pilot or controller switching from the first to the second aim point upon command. The only reason that the Shift Cold tactic was available for only laser-guided bombs was that DOD did not seek to acquire that capability more broadly.

There are a few examples of capabilities being brought to theater to strengthen mitigation of civilian harm. Special operating forces used a bright green light from loitering aircraft to signal the presence of US forces to help de-escalate situations and avoid the need to use force. Similarly, US forces were

issued green laser dazzlers to get the attention of drivers at checkpoints. However, the dazzlers proved to be of limited effectiveness because of the way they were designed and used. For example, the laser dazzlers were green because this color provided the highest power output for the Argon laser powering the device, but human factors were not considered. In the field, soldiers would wave the dazzlers around to get the attention of drivers and indicate them to stop, but civilians seeing the green light drove forward, thinking that "green means go" and were shot when they advanced. In contrast, Air Force security personnel tended to have paintball guns, which proved effective at getting cars to consistently stop with nonlethal outcomes. However, these were issued only within the Air Force.

Learning: inconsistent operationally, weak institutionally

Learning is the engine of effective CHMR, in which forces identify specific risks to civilians and develop operational adaptations to lower these risks while maintaining effectiveness. Unfortunately, that learning engine was often in low gear or even in neutral for some US operations, including the first few years in Afghanistan, the campaigns in Iraq and Syria against ISIS, and Operation Resolute Support in Afghanistan starting in 2015. The learning process for checkpoints in Iraq between 2004 and 2006 led to a decrease in civilian deaths, which was a positive step, and it led to the first instance in which tracking and learning were used systematically to mitigate civilian harm in operations.

This adaptive learning approach was used comprehensively for all types of operations for the first time in Afghanistan starting in 2009. Before then, US and international forces struggled to control levels of civilian harm. In 2006, General David Barno issued his "Barno 12" rules, and then Generals Dan McNeal and David McKiernan issued Tactical Directives in 2007 and 2008, respectively, to provide command guidance to help forces reduce civilian harm. However, this command guidance did not appear to be effective, with increasing incidents of civilian harm and mounting host nation and international pressure. Analysis of ISAF data showed that under the next three commanding generals, Stanley McChrystal, David Petraeus, and John Allen, forces were able to successfully reduce civilian harm. What was the difference? These later leaders had the benefit of understanding the root causes of civilian harm and could tailor their guidance and approach accordingly. The earlier guidance was well meant but aimed to address issues that turned out not to be the main factors leading to civilian harm.

In later operations countering ISIS in Iraq and Syria, the US and coalition forces tracked civilian harm, but this tracking was not accompanied by analysis to identify opportunities for mitigation. Over the years of the campaign against ISIS, the rate of civilian harm increased year after year, which was recorded in the tracking cell data, but the data did not influence the conduct of the campaign. This process was effectively like a car in neutral: the engine could run, but the power was not transmitted to the wheels to create forward progress. Similar trends were observed in Afghanistan operations under Resolute Support.

Although operational learning was inconsistent over the past two decades, institutional learning—wherein DOD incorporated changes to doctrine, training, materiel capabilities, organizational changes, and so forth—was consistently weak. For instance, from 2009 to 2012, senior DOD leadership had a sustained focus on the issue of civilian harm as part of the Joint Chiefs of Staff CIVCAS (civilian casualty) Working Group. Those efforts were intended to support mitigation of civilian harm in Afghanistan.

However, the only institutional outcome of that four-year effort was a Joint Center for Operational Analysis paper observing cross-cutting lessons and offering recommendations issued in early 2013, and those recommendations were not implemented. In addition, both the Joint Civilian Casualty Study (2010) and the Joint Chiefs of Staff CIVCAS Review (2018) recommended institutional changes that were not addressed. As a result, DOD as an institution did not learn from identified lessons, and similar problems were observed in operations in Afghanistan and later in Syria.

To promote and accelerate learning, DOD issued the CHMR-AP; created the CHMR Steering Committee, the Civilian Protection Center of Excellence, and Civilian Harm Assessment Cells; and established CHMR officers. These are all tools that DOD can leverage as it seeks to improve its overall capability to mitigate and respond to civilian harm.

LSCO risk factors for not exploring mitigation measures

The characteristics of LSCOs are very different from those of operations that the US has been involved with in recent history. Even historical operations that were comparable in terms of intensity—for example, in World War II—are difficult to compare with a modern LSCO considering the dramatic advances in weaponry, sensors, and networks. The characteristics of a multidomain operation, especially in the context of an urban environment, a near-peer threat, and a lack of domain or communication superiority, will shape the specific nature of mitigation tactics and tools.

Regarding tactics, even in past counterterrorism and counterinsurgency operations with generally similar features, mitigation tactics were most effective when tailored to the threat, the specific environment, the mission, and the capabilities of the force. Although some general tactics and approaches for CHMR will remain valid—just as the targeting cycle is a general approach that can be translated to many kinds of operations—there will also be a need for experimentation to create a tailored set of tactics for CHMR in LSCOs. These tactics can be further refined and adapted for specific operational plans and contexts.

Similarly, modern warfare often includes unscrupulous combatants seeking to create dilemmas for militaries by collocating with civilians and civilian objects. By complicating the distinction between combatants and noncombatants, these adversaries challenge the effective use of force. At the same time, because of the nature of LSCOs, the US will need to have strong and rapid offensive capabilities as well as strong defenses, including counterfire capabilities. In addition, US forces will likely be required to seize control of territory and operate without areas of sanctuary, which will mean increased self-defense considerations and the requirement to mass forces and fires. These circumstances all increase the risks to civilians unless specific measures are taken to mitigate these risks. As a result, tailored tools and capabilities will need to be developed to preserve the effectiveness of operations while also reducing risks to civilians in these higher risk situations. For example, capabilities to improve situational awareness of the civilian environment can inform planning and even tactical battles, enabling maneuvers that reduce collateral effects from exchanges of fire. Likewise, additional tools could provide a wider range of options for dealing with specific target types or for neutralizing attacks in ways that do not endanger civilians near or in the field of fire.

LSCOs that are multinational or partnered may collectively lack mitigation measures because some militaries may have specific mitigation options that others lack. This situation can be a challenge but also

an opportunity if an effort is made to understand the coalition-wide mitigation capabilities and manage them so that they can be allocated and used efficiently across the multinational force. However, this approach will require the US to work with allies and partners to develop consensus regarding what CHMR is. For example, NATO, with its Human Security and Protection of Civilians policy, views civilian protection differently, so such differences will need to be proactively addressed.

We also note a systemic weakness in institutional learning. Yet during LSCOs, we assert in this report that widespread actions will need to occur across DOD as an institution, including with the services and their train-and-equip functions (which we have not observed in the previous two decades), and DOD will need to monitor and evaluate this progress to ensure that these steps align with, and will effectively address, the particular challenges present in LSCOs.

CHMR ASSESSMENTS DURING A LSCO

The US military conducts civilian harm assessments for the following purposes:[66]

- To assess whether civilian harm resulted from US military operations.
- To identify and document the causes of civilian harm.
- To enable learning that improves DOD's operational and institutional capability, capacity, and readiness to mitigate and respond to civilian harm.
- To support information requirements of military and civilian leadership, including to inform planning and decision-making during ongoing operations and to fulfill external reporting requirements.
- To enable acknowledgments and other appropriate responses to civilians harmed by US military operations.
- To enable timely responses to reports from outside DOD that civilian harm may have resulted from US military operations.

Objective 7 of the CHMR-AP is devoted to establishing DOD-wide procedures for civilian harm assessments and investigations. Although the CHMR-AP notes that civilian harm assessment and investigation practices "have been applied inconsistently across DOD,"[67] the actions contained in CHMR-AP Objective 7 are intended not only to approve future assessments and investigations but also to establish DOD-wide capabilities and procedures that can be applied across the full spectrum of operations.

As we consider the operational context of LSCOs, as well as insights into the challenges that this operational context poses for assessing civilian harm, we have three initial conclusions:

- Given the scale of civilian harm, commands will likely need to assess civilian harm at the macro level rather than incident level, and new assessment methods will need to be developed to address this need. At the same time, it will still be important to preserve the capability to conduct incident-level assessments when deemed necessary.
- Commands will face numerous challenges in collecting information about civilian harm from traditional information sources and in aggregating information about their own operations to correlate with this information. Alternative data sources and methods will need to be developed to address this need.
- Assessing civilian harm from cyber, space, and information warfare is virtually unprecedented, and new approaches will need to be developed to fill this need.

When we consider the application of civilian harm assessments in high-intensity conflict, one particular concern is how to conduct these assessments at the macro level. Such operations will be extremely challenging to assess on an incident-by-incident basis, particularly given the scale of operations and restricted access to many of the data sources and methodologies that DOD has used in the past to inform civilian harm assessments.

[66] Department of Defense Instruction (DODI) 3000.17, Dec. 2023, *Civilian Harm Mitigation and Response*.

[67] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*, p. 20.

Utility of incident-specific versus macro-level assessments

The DODI on CHMR includes the following guidance: "Civilian harm assessments will be conducted at the most detailed scale practicable given mission requirements, the availability of resources, and other operational factors, consistent with CCDR [combatant commander] guidance."[68] The DODI goes on to say the following (quoted):

> For example, civilian harm assessments may be conducted for:
>
> (1) An individual operation (e.g., an air-to-ground strike against a single target).
>
> (2) A set of connected operations (e.g., a large-scale raid or assault that involves the use of fire and maneuver).
>
> (3) A sequence of operations conducted in a given area of operations.
>
> (4) A still broader series of operations occurring over a longer time frame.[69]

In this report, we refer to the example of an individual operation described above in (1) as an "incident-specific assessment" and the broader scope of assessments described above in (2) to (4) as "macro-level assessments."

During high-intensity operations, operating forces should expect to experience a trade-off between the practicality and the value of conducting incident-specific assessments.

In this section, we consider in turn the value of incident-specific versus macro-level assessments for each of the purposes of civilian harm assessments laid out at the start of this section. Based on our analysis, we conclude that macro-level assessments offer significant value in addition to incident-specific assessments. We expect that during certain conflicts, there will always be concerning high-profile incidents for which incident-specific assessments should be conducted. At the same time, macro-level assessments also provide significant utility for those instances when incident-specific assessments cannot be conducted.

1. **Assess whether civilian harm resulted from US military operations.**
   - **Incident-specific assessment:** Provides details on whether civilian harm occurred on a case-by-case basis. For example, when a single airstrike was taken, were any civilians killed or injured? If so, how many? Which civilian objects were damaged or destroyed?
   - **Macro-level assessment:** Provides information about whether civilian harm resulted from operations, including a rough estimate of the numbers of civilian casualties that occurred or the destruction that resulted.
2. **Identify and document the causes of civilian harm.**
   - **Incident-specific assessment:** Allows root-cause analysis of the factors that contributed to civilian harm during a specific tactical incident.
   - **Macro-level assessment:** Allows more generalized analysis of the ways in which civilian harm occurred during a broader

[68] Department of Defense Instruction (DODI) 3000.17, Dec. 2023, *Civilian Harm Mitigation and Response*.

[69] Department of Defense Instruction (DODI) 3000.17, Dec. 2023, *Civilian Harm Mitigation and Response*.

operation. For example, an assessment might say, "Ground forces operating in a dense urban environment required close air support to defend against adversary attacks, which unfortunately killed civilians and destroyed civilian objects."

3. **Enable learning that improves DOD's operational and institutional capability, capacity, and readiness to mitigate and respond to civilian harm.**
   - **Incident-specific assessment:** Provides specific data on the incident that can be used to inform operational adjustments and changes to institutional approaches when analyzed in light of other related incidents. For example, data may include the causes identified in #2 and their relationship to other factors, such as identity of the forces, capabilities employed, operational environment, and operational practices.
   - **Macro-level assessment:** Provides more general operational data that can be used to inform operational adjustments and changes to institutional approaches. Such data might identify generally when and where civilian harm occurred and during what types of operations. The data might also identify operational trends over time.
4. **Support information requirements of military and civilian leadership, including to inform planning and decision-making in ongoing operations and to fulfill external reporting requirements.**
   - **Incident-specific assessment:** Provides information regarding specific civilian harm incidents and related data, such as that identified in #2 and #3. This information can be leveraged by military and civilian leaders.
   - **Macro-level assessment:** Provides information regarding the scale of civilian harm in different types of operations. This information can be leveraged by military and civilian leaders.
5. **Enable acknowledgments and other appropriate responses to civilians harmed by US military operations.**
   - **Incident-specific assessment:** Enables individual or community-level responses to specific incidents, such as condolence payments, medical care, repairs to a damaged structure, and individual acknowledgment of harm experienced.
   - **Macro-level assessment:** Enables broader community- or region-directed responses to operations, such as humanitarian aid, ordnance removal, or commemorative memorials, as well as public acknowledgment of harm experienced.
6. **Enable timely responses to reports from outside DOD that civilian harm may have resulted from US military operations.**
   - **Incident-specific assessment:** Facilitates release of information regarding a specific incident.
   - **Macro-level assessment:** Facilitates release of information regarding overall harm to civilians and related macro-level trends that may have occurred during an operation.

Past practices for assessing civilian harm

Past DOD practices to assess civilian harm arose in the context of the past 20 years of counterinsurgency and counterterrorism operations conducted primarily in the US Central Command area of responsibility. The exact details of these processes have evolved somewhat during different operations and over time. But consistently, DOD has taken a bottom-up approach to assessing civilian harm at the incident level, with estimates of overall casualties from an operation made based on the summation of incident-specific assessments. To date, these processes have almost exclusively been applied for civilian casualties, as opposed to the more general concept of civilian harm as defined by DOD in MIL-STD-882E:

> Civilian casualties (i.e., death or injury of civilians) and damage to or destruction of civilian objects not constituting military objectives under the law of war resulting from military operations during the conduct of hostilities. Other adverse effects on the civilian population, and the personnel, organizations, resources, infrastructure, essential services, and systems on which civilian life depends are also considered in CHMR efforts to the extent practicable.[70]

A 2022 RAND report documented DOD's assessment process, which has evolved over the past 10 to 20 years[71] and which we summarize here, adding our own characterizations and past research:[72]

1. An incident of possible civilian casualties occurs and is reported by US or coalition members (self-reporting or via a combat assessment) or by an external source, such as an NGO, residents, or the media.

2. An assessment is initiated to determine whether civilian casualties resulted from operations conducted by US military forces. As the RAND study notes, this process varies to some extent across commands,[73] but it usually takes the form of a first-impression report or an initial assessment that contains the five Ws (who, what, where, when, and why).

3. If more information is needed, the command opens a civilian casualty assessment report (CCAR) that contains further information and documentation about the incident.

4. The CCAR assesses whether the report of civilian casualties is credible. In this case, the term *credible* is intended to indicate that civilian casualties "more likely than not resulted" from US operations, although previous analysis[74] has called into question the application of this standard. If the report is assessed to be credible, the commander may initiate a more "extensive investigation to find additional facts about the incident and to

[70] MIL-STD-882E, "Department of Defense Standard Practice, System Safety," released Sept. 27, 2023, is the first formal DOD document to provide a definition of *civilian harm*. For the purposes of this study, unless otherwise directed by the sponsor or until DOD releases an alternative definition, we plan to use this definition.

[71] McNerney et al., *US Department of Defense Civilian Casualty Policies and Procedures*, pp. 10–11.

[72] For example, Larry Lewis, *Drone Strikes in Pakistan: Reasons to Assess Civilian Casualties*, COP-2014-U-007345-Final, CNA, Apr. 2014.

[73] McNerney et al., *US Department of Defense Civilian Casualty Policies and Procedures*, p. 11.

[74] Joint Chiefs of Staff, *Civilian Casualty Review Report*, 2018; McNerney et al. *US Department of Defense Civilian Casualty Policies and Procedures*, p. 11.

make relevant recommendations."[75] However, as the 2022 RAND report notes, an investigation "can also be directed independently of a CCAR,"[76] and there is no requirement for an investigation to be conducted in response to a CIVCAS incident.

5. Once a determination is made, the command decides how it will report or share information about the incident, including with the public. Notably, since 2018, DOD has been required by law to release an annual report on civilian casualties resulting from US military operations. Therefore, public release of incident-specific civilian harm information on at least an annual basis has become a standardized process.[77] When civilian casualties are assessed to have occurred, the command may also consider options for responding to those affected.

The approach to civilian harm assessments that DOD lays out in the CHMR-AP and the DODI on CHMR bears a strong resemblance to this process, with some notable distinctions. Beyond the standardized process that will be established DOD-wide, there is significant reason to believe that past practice will need to be improved upon and further tailored at the combatant command level for civilian harm assessments to be conducted effectively during high-intensity conflict. More work is needed to understand what data sources can be leveraged and what analytic methods might better support assessment processes in such situations. In the next section, we address these possible data sources and analytic methods.

Sources and methods for civilian harm assessments

Data sources and methods that the US military uses to assess potential civilian harm often differ significantly from those used by external parties, as the 2022 RAND report notes:

> The US military relies primarily on operational data (e.g., records of whether it conducted an operation in a given location on a given day), intelligence reporting, overhead imagery, and information from ground forces (where available), as well as some information provided by third parties. Third-party groups—which do not have access to DOD's operational data except when the military releases that information—conduct open-source conflict monitoring by leveraging local news, social media sites, and footage of incidents posted to YouTube or other outlets. NGOs (such as Human Rights Watch and Amnesty International) and international organizations (such as the United Nations Assistance Mission in Afghanistan) frequently conduct in-person interviews with victims, witnesses, medical personnel, local authorities, or community leaders to try to verify reports of civilian harm.[78]

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[75] McNerney et al., *US Department of Defense Civilian Casualty Policies and Procedures*, p. 13.
[76] McNerney et al., *US Department of Defense Civilian Casualty Policies and Procedures*, p. 13.
[77] *National Defense Authorization Act*, Section 1057, 2018, as amended.
[78] McNerney et al., *US Department of Defense Civilian Casualty Policies and Procedures*, p. 14.

Historically, DOD has leveraged operational data, information from combat assessments—including collateral damage assessments—and (at times) reports from external organizations to inform CIVCAS assessments. However, a significant amount of data that are available to and exploitable by DOD has not typically been included in these assessments. These data include commercial satellite imagery, social media scraping, and local reports and records from incident witnesses and the surrounding community. In this regard, important insights can be drawn from the data sources and methods used by external organizations to monitor civilian harm outcomes of conflict, and additional data from DOD and other US government sources can be leveraged to help DOD further understand the outcomes of US military operations.

To this end, the CNA study team engaged with several organizations that conduct conflict monitoring, including those that focus on civilian casualties, atrocities, and other operational outcomes that affect civilians. Table 1 lists these organizations, their analytic focus, and the sources and methods that they leverage when conducting analyses of possible civilian harm and related issues.

A few examples further illustrate how these organizations conduct their work. The Yale Conflict Observatory research team uses activity-based intelligence (ABI) to fuse open-source intelligence (OSINT) and remote sensor data. In a recent effort to assess communities in Darfur that were suspected to have been razed to the ground by fire, the Yale team relies on publicly available thermal sensor data from NASA to cue locations, uses commercial satellite imagery (ranging from high to medium or low resolution) to assess the situation (also using open-source information), and conducts a damage assessment of the area. The team submits the assessment to the State Department for review, appropriate governmental use, and potential publication.[79] To verify gathered OSINT, the Yale team leverages a deep understanding of the underlying information environment and cross-verification using geolocation. To establish confidence in this type of information and to maintain its replicability, the Yale team adheres to the Berkeley Protocol on Digital Open Source Investigations.[80]

Airwars conducts daily monitoring of local-language media and social media sites for CIVCAS claims. Beginning with a cue from the public domain that provides some information about a specific incident (e.g., a fatality or injury from an explosive weapon), Airwars catalogs the available information, collects further information from a wide range of sources (e.g., news agencies, social media sites, YouTube footage, and individual posts to X (formerly Twitter)), and uses its extensive knowledge of the information environment in a geographic area to evaluate the source's credibility, primarily based on its proximity to the incident. The Airwars team then aggregates the information, analyzes it (including by looking for geographic cues that can help confirm or refute the authenticity of the information), evaluates the degree of consensus among all the sources, and identifies any information that may support

[79] Hannah Mark, "'Absolutely Harrowing': Yale Public Health Researchers Use Social Media Posts and Satellite Images to Corroborate Human Rights Atrocities in Sudan," *Yale Daily News*, Sept. 18, 2023, accessed Oct. 27, 2023, https://yaledailynews.com/blog/2023/09/18/absolutely-harrowing-yale-public-health-researchers-use-social-media-posts-and-satellite-images-to-corroborate-human-rights-atrocities-in-sudan/; CNA study team, conversation with Yale Conflict Observatory research team, Sept. 11, 2023.

[80] Berkeley Human Rights Center, "Berkeley Protocol on Open Source Investigations," accessed Oct. 26, 2023, https://humanrights.berkeley.edu/berkeley-protocol-digital-open-source-investigations.

Table 1. Sources and methods used by conflict-monitoring organizations to assess civilian harm and other operational outcomes

Organization	Focus of assessments	Source(s)	Methods
United Nations[a]	Civilian harm	Spot reports[b] Open-source imagery Publicly released materials (e.g., drone footage, military intelligence) Local information sources (e.g., death certificates, law enforcement reports) Remote interviews with incident witnesses Evidence collected on site	Onsite investigation of supposed civilian harm as soon as possible, combined with collation and aggregation of sources
Airwars[c]	Civilian casualties	Public domain information (e.g., social media) plus subsequent credibility assessment contained within a geographic area Geolocation using open-source information (e.g., Google Maps) Local informants (e.g., journalists, activists)	Source aggregation and provisional assessment of likely civilian casualties using grading system
Yale Conflict Observatory[d]	Atrocities	Open-source intelligence (OSINT) (e.g., social media, media reporting) Remote sensor data, including from satellite imagery	Fusion activity-based intelligence (ABI)[e] method that combines OSINT with remote sensor data to draw out patterns
Armed Conflict Location and Event Data Project (ACLED)[f]	Political violence incidents	Traditional media International institution and NGO reports Local partner data Validated/vetted "new media" sources (e.g., X (formerly Twitter), Telegram, WhatsApp)	Aggregation of sources using country- and region-specific sourcing strategy that prioritizes local news sources[g]

Source: CNA.

[a] CNA study team, conversation with former United Nations war crimes investigator and former staff member of the UN Assistance Mission in Afghanistan, Sept. 8, 2023.

[b] These reports are filed by on-the-scene individuals, such as NGO workers and local officials.

[c] Airwars, "Who We Are," accessed Oct. 27, 2023, https://airwars.org/about/team/.

[d] CNA study team, conversation with Yale Conflict Observatory research team, Sept. 11, 2023; see also Yale School of Public Health, "Conflict Observatory," https://medicine.yale.edu/lab/khoshnood/conflict-observatory/.

[e] *ABI* is "an analysis methodology which rapidly integrates data from multiple [types of intelligence] and sources around the interactions of people, events and activities, in order to discover relevant patterns, determine and identify change, and characterize those patterns to drive collection and create decision advantage." Reference: Chandler P. Atwood, "Activity-Based Intelligence: Revolutionizing Military Intelligence Analysis," *Joint Forces Quarterly* 77 (2015).

[f] ACLED, "Quick Guide to ACLED Data," accessed Oct. 27, 2023, https://acleddata.com/resources/quick-guide-to-acled-data/.

[g] ACLED, "FAQs: ACLED Sourcing Methodology," accessed Oct. 26, 2023, https://acleddata.com/acleddatanew/wp-content/uploads/dlm_uploads/2023/03/FAQs_ACLED-Sourcing-Methodology.pdf.

attribution to a specific actor. Based on that analysis, Airwars publishes a provisional assessment using the following grading system: "confirmed," "fair," "weak," "contested," "discounted," and "no civilian harm reported."[81]

In addition to the sources and methods used by external conflict-monitoring organizations, DOD has access to other sources of information on the civilian environment that have not previously been leveraged for civilian harm assessments. For example, in support of the National Geospatial-Intelligence Agency's Human Geography Program, Oak Ridge National Laboratory has developed population density tables that incorporate global population density data, as well as techniques to assess building types based on unclassified information from a variety of sources, including building footprints.[82] Likewise, the defense intelligence enterprise aggregates a great deal of information on civilian objects to inform no-strike lists, and these data can be used similarly to inform civilian harm assessments. Taken together, civilian environment data already being gathered by DOD could have enormous potential to aid civilian harm assessments, particularly when combined with other analytic techniques for detecting civilian harm, such as examining satellite imagery.

Conclusion

In assessing civilian harm, DOD can leverage these various data sources and methods alongside other classified sources and data that have historically informed such assessments. As discussed at the start of this section, compelling evidence suggests that commands may need to rely primarily on macro-level assessments of civilian harm during high-intensity operations, rather than incident-specific assessments, and that these macro-level assessments can still be quite important to fulfilling command objectives. Evidence also suggests that novel data sources will likely need to be leveraged for both macro-level and individual-level assessments of civilian harm, given anticipated challenges in collecting information on civilian harm through traditional means and aggregating operations data. Some of these data sources will be more useful for incident-specific assessments, while others can be applied for either incident-specific or macro-level assessments.

[81] Airwars, "Methodology," accessed Oct. 27, 2023, https://airwars.org/about/methodology/; CNA study team, conversation with Airwars, Oct. 11, 2023.

[82] Oak Ridge National Laboratory (ORNL), "Population Density Tables," accessed Oct. 27, 2023, https://pdt.ornl.gov/login; CNA study team, conversation with ORNL researchers, Aug. 14, 2023.

RESPONSE DURING A LSCO

In this section, we give a brief history and recent lessons regarding civilian harm response, create a menu of options for response, and then discuss how DOD might think about planning for response during a LSCO. The need for this is called out in the 2022 CHMR-AP, which pledges to "review DOD guidance on responding to civilian harm, including through, but not limited to, condolences and public acknowledgment of harm, and update guidance and implementation processes, as appropriate."[83] The CHMR-AP necessarily broadens the aperture to consider individual and communal responses that can more effectively recognize, acknowledge, and address civilian harm. Objective 8 of the CHMR-AP calls for establishing a "holistic response framework":

> [Through the framework,] DOD will ensure the availability of a diverse menu of response options to respond to individuals and communities affected by US military operations—including public and private acknowledgment of harm, condolence payments, medical care, repairs to damaged structures and infrastructure, ordnance removal, and locally held commemorative events or symbols. These options will allow commanders to craft tailored responses based on consultations with affected individuals and communities, which are contextually and culturally appropriate.[84]

Establishing a holistic response framework requires three distinct channels through which DOD will work toward this goal, as noted in the CHMR-AP: "DOD will draw on existing authorities, pursue new DOD authorities, and, as appropriate, coordinate with other US departments and agencies to offer appropriate US government responses." Each piece is critical, and we discuss possible ways forward in this section.

This section seeks to better understand how common characteristics of LSCOs may challenge DOD's current understanding of best responses to civilian harm, require it to think creatively and across the interagency, and require it to solicit input from allies and partners. This section begins with a brief history and recent lessons and then offers a menu of options for response. It then discusses how DOD might plan for response during a LSCO. Ultimately, our recommendations focus on what DOD can and should do to create the conditions for success in future LSCOs. (More details on authorities to support response strategies can be found in the Appendix: Authorities for Response.)

History and key lessons

The ISAF operating in Afghanistan from 2001 to 2014 made important and incremental progress in responding to civilian harm. ISAF leadership viewed responding to such harm as a strategic and operational imperative and identified two key goals following coalition-caused civilian casualties: (1) to provide some form of redress for losses incurred and (2) to provide a form of apology and explanation of what happened. To complete these operational goals, ISAF broadened the menu of possible responses and executed culturally appropriate, civilian-centered, and strategic measures, some of which were novel response mechanisms, processes,

[83] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.

[84] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.

and practices for US forces. The history of ISAF's civilian harm responses, and lessons learned from the force's experiences, provides important scaffolding as DOD considers response options during LSCOs. Critically, ISAF considered civilian harm response as an integral part of the operation planning and execution process.

ISAF's key response-related activities included the following:

- Determining ground truth through battle damage assessments (BDAs), which were focused on assessing the effects of operations on civilian populations. BDAs typically included photos, statements from locals, and physical evidence, when possible, to build story boards that were then used to convince local leaders of the facts.
- Developing CIVCAS "battledrills," preplanned procedures that were exercised any time civilian harm was suspected.
- Identifying, preoperationally, community leaders for key leader engagements (KLEs).
- Sharing information on upcoming operations with village elders, provincial governors, and local leaders of Afghan National Security Forces prior to operations.
- Partnering with community leaders and building trust ahead of operations.
- Providing medical care to civilians harmed.
- Undertaking host nation KLEs and apologizing to families (which could include participating in Pashtunwali customs and attending funerals).
- Providing compensation or solatia payments (in the form of cash payments, food, goats, or other culturally acceptable compensation).
- Conducting supportive information operations.

During the past 20 years, the US has developed a broader understanding of response to civilian harm. This understanding is codified in the CHMR-AP, which notes, "DOD will also improve its ability to consistently and appropriately acknowledge and respond to civilian harm when it occurs and to treat those who are harmed with dignity and respect."[85] This statement makes clear that civilian harm response is no longer seen as just ad hoc, ex gratia payments; rather, it is about acknowledging *and* responding to civilian harm in a way that considers the needs and wants of victims and survivors. As we see from research into current authorities (available in the appendix), myriad options are available. However, none is perfectly fit for purpose, and many are complex to access or implement, requiring liaison capacity with other government entities or NGOs. This capacity does not currently exist. Therefore, like the other components of CHMR, planning and building institutional capacity are critical for effectively responding to civilian harm during a LSCO. Following are a few lessons that we consider to be critical to success in future LSCOs.

First, as the wars in Iraq and Afghanistan continued, the US identified lessons about the importance of strategic communications. In numerous documented cases, US officials refuted allegations of civilian harm only to receive additional information that required them to issue revised statements, walking back original denials and acknowledging civilian harm. Such instances followed the May 2009 bombing

[85] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.

of Bala Balouk village in Afghanistan[86] and the October 2015 Kunduz hospital airstrike.[87] These incidents harmed the credibility and legitimacy of the missions. In the context of the CHMR-AP, civilian harm response importantly includes the strategic communications required to acknowledge that civilian harm may have happened, explain how it will be assessed or investigated, and then provide transparent outcomes of those assessments and investigations. The approach of being "fast and not wrong" when acknowledging incidents of possible civilian harm was first coined by ISAF units who saw the inherent trade-off between completeness and timeliness and also recognized the importance of getting out in front of the incidents in the information environment.

Furthermore, ISAF had success with conducting KLEs when providing condolence payments. Many units believed that direct KLE was essential to defusing incidents at the tactical level. In response to the number of stakeholders in some local areas (e.g., local government officials, interagency partners), ISAF also developed tailored solutions to conducting KLEs in its local areas. Strategic communications with local leaders will be critical, especially during LSCOs when options to reach victims and survivors may be limited. This critical aspect of CHMR must be further developed to identify alternative options to authentically acknowledging incidents of civilian harm and engaging with civilian populations.

In addition, lessons learned from coalition operations in Afghanistan emphasize the importance of coordination with allies and partners on CHMR, especially response. In Afghanistan, different coalition partners of ISAF had entirely different national laws, policy guidance, and ad hoc approaches to compensating civilians who were harmed, which created confusion for civilians who were seeking a response and made the response process of one coalition partner interoperable with another's. The US will need to remain in lockstep with its allies and partners and work with them during the operational planning stage to ensure the clarity and interoperability of response measures and capabilities.

Next, there is already precedent for a broader response. In addition to ex gratia payments, the US has previously used other mechanisms to acknowledge victims and survivors, such as the provision of medical care and livelihood assistance. It is important to note that in this way, US government responses were already broader than those of DOD authorities for solatia and condolence payments, including programs and funding outside DOD (e.g., through congressionally appropriated USAID programs). However, these programs took time to fund and create, and during a LSCO with a compressed timeline, there is unlikely to be time to "start from scratch." However, as noted above, much of what already exists may not be fit for purpose, may need to be amended, or may require new options to be considered.

In addition, keeping comprehensive and accurate data regarding the execution of CHMR remains paramount to reduce redundancies, allow for equitable response measures among allies and partners who are responding to the same civilian population, and tailor response measures to specific communities or civilian populations that may have been affected by previous civilian harm incidents. Managing data was an issue for ISAF because data were not accurately collected about KLEs that went

[86] Hamid Shalizi and Peter Graff, "US Strikes Killed 140 Villagers: Afghan Probe," Reuters, May 16, 2009, https://www.reuters.com/article/us-afghanistan-civilians-idUSTRE54E22V20090516/.

[87] Thomas Gibbons-Neff, "US Military Struggles to Explain How It Wound Up Bombing Doctors Without Borders Hospital," *Washington Post*, Oct. 5, 2015, https://www.washingtonpost.com/news/checkpoint/wp/2015/10/05/afghan-forces-requested-airstrike-that-hit-hospital-in-kunduz/.

poorly. At times, lessons learned and feedback from individual units were not captured by higher headquarters, leaving future units in the dark about the history of CHMR and the community's reaction to ISAF's previous response attempts.

Finally, during a LSCO, the US will likely have to consider much different timing arrangements for acknowledgment and response processes than it has in the past 20 years of counterinsurgency and counterterror operations. For example, although the US has taken the steps to institutionalize condolence payments, it may be too challenging to administer such a program during an active LSCO. This does not mean it is impossible to have meaningful acknowledgment and response mechanisms. It means that the options and the time horizon that the US worked on in Afghanistan may look very different during a LSCO; for example, certain types of responses, including condolence payments and other individual assistance, may need to be provided post-conflict. We discuss this topic more in the next subsection.

Options for response

The CHMR-AP outlines several ways of responding to civilian harm, including privately and publicly acknowledging allegations of such harm, making ex gratia payments, providing medical care, repairing damaged structures and infrastructure, removing ordnance, and holding local commemorative events or erecting symbols such as memorials. An evolved understanding of response to civilian harm recognizes that civilians are not a monolithic group and may have different expectations for individuals and communities. Furthermore, the use of one type of response does not preclude the use of another, and in some cases, different response options can be used in concert as feasible to provide a more comprehensive and culturally appropriate response for civilians and communities.

Here, we offer a menu of possible responses during a LSCO to allow the US military and other involved agencies agility and flexibility. We discuss these alternatives with the characteristics of a LSCO in mind in order to expand the discussion of the traditional response options outlined in the CHMR-AP. This list is not exhaustive, and alternatives will need to be considered depending on the actual conflict.

Public statements and acknowledgments

How the US communicates publicly about and acknowledges allegations of civilian harm, whether in allied/partner countries or adversary territory, is critical for several reasons. We know that dis- and misinformation are and will continue to be features of current and future armed conflicts. Proactively shaping the narrative—from before the conflict begins, through active combat operations when harm is alleged to have happened, and even post-conflict—will be crucial in matching the broader narrative of the US being a leader in a rules-based international order. Transparent messaging about the care taken to avoid civilian harm during operations must be followed by timely strategic communications that avoid denials of alleged harms before assessments are made, acknowledge that the US may not always know when it causes harm, and communicate that harm will be transparently assessed, investigated, and responded to when possible.

Private acknowledgments

Private acknowledgments to individuals or to communities of victims and survivors can also be important. Helping those affected understand what happened and why, and whether changes are being made to ensure that the harm incident in question does not happen again, can be reparative for some. Acknowledgments may be more challenging during

a LSCO because they require a certain level of security to ensure the protection of the force and the civilians, human resources, and access to civilian populations. However, by thinking creatively and working closely with the governments of its allies and partners, the US could overcome such challenges. For example, local interlocutors and technological solutions, such as web-based platforms and mobile phones, could aid communications. Although a face-to-face engagement is always preferred to show the seriousness of the acknowledgment, other options may be more feasible during LSCOs. Private acknowledgments are often paired with condolence payments or other community assistance.

Locally held commemorative events or symbols

Locally held commemorative events or symbols such as memorials can also be restorative for victims and survivors. These longer term efforts are not likely to be possible during a LSCO, but it is essential to recognize their role in CHMR. Some lessons can be learned from previous conflicts, and it is essential to involve other actors (e.g., the State Department, USAID, and local civil-society groups) in planning and execution because these groups have deep knowledge and expertise engaging with affected communities.

Condolence payments

The most well-known and often used form of CHMR during the past two decades is the condolence payment. A condolence payment is a symbolic payment made ex gratia—without admitting fault—to victims and survivors of US-caused civilian harm. Making these payments in their current form during a LSCO will be challenging. In June 2020, as a requirement under Section 1213 of the National Defense Authorization Act, DOD issued the "Interim Regulations for Condolence or Sympathy Payments to Friendly Civilians for Injury or Loss That Is Incident to Military Operations." The regulations provide a procedural process for the US military to make condolence payments. Although it may be challenging for the US to administer condolence payments during a LSCO, there may be new ways they could be administered, either through online payment systems, through existing ally and partner government systems, or during post-conflict reconstruction.

Medical care

In past conflicts, the US has provided medical care to victims and survivors of US-caused civilian harm incidents in its field hospitals. The US has deployed the US Navy ships *Mercy* and *Comfort* to assist civilians needing acute critical care or aid during natural disasters. Although there are both DOD authorities and precedents for this type of response, providing such care would likely be challenging during a LSCO. In particular, *Mercy* and *Comfort* are likely to be already deployed and be at capacity caring for wounded soldiers. Thus, there may be minimal capacity to provide medical care to civilian populations. This does not mean that no options exist. For example, there may be creative ways to provide US support to local hospitals to prepare them for surge capacity for civilian populations, such as providing them with adequate medical equipment that reflects the unique medical needs of women and children.

Facilitating access to basic needs

In both human-caused and natural disasters, the US military has supported humanitarian organizations in efforts to ease the suffering of civilian populations. Although the US military does not lead these operations (unless expressly requested), it can provide logistical support as needed and requested.

An example is the US military's work on the Gaza pier. When providing this type of support, the US military must coordinate its efforts with those of humanitarian actors to ensure that humanitarians and aid recipients are not endangered.

Ordnance mapping and removal

Unexploded ordnance (UXO) affects civilians living in zones of conflict for years or decades after the conflict ends. Mapping the use of weapons that pose an ongoing threat to civilians, such as cluster munitions and landmines, prevents harm by providing information that will allow for more efficient removal of UXO as soon as the active conflict is over. Establishing a program to remove UXO and mapping the use of ordnance must be done before the conflict begins and in coordination with allies, partners, and the host nation of the conflict to allow for the effective removal of UXO post-conflict.

State- or community-level reconstruction and development

Post-conflict, large amounts of funding will be needed for reconstruction and development, including rebuilding structures and critical infrastructure. The US spent 20-plus years working to stabilize, reconstruct, and develop Afghanistan and Iraq. Although the political and socioeconomic situation in those two countries is very different from that in US allies and partners, and even US adversaries, the Special Inspector General for Afghanistan Reconstruction identified seven lessons learned for the US government regarding this type of work. These lessons should be taken into account in future response efforts of this kind.[88] Key lessons include the following: (1) post-conflict reconstruction and development should consider state-, community-, and individual-level programming depending on the situation and the state the US is working with; (2) lessons learned over the last two decades should be considered in the development of any post-conflict reconstruction programs; and (3) post-conflict programs should be led by ally and partner nations.

Considerations in planning for LSCO response options

During the wars in Iraq and Afghanistan, DOD's early response to civilian harm was ad hoc, was incident-specific, and varied across different theaters and commands—sometimes even within commands. Although it evolved over time to be more systematic (operational learning), it struggled to become systemic (institutional learning). The CHMR-AP seeks to address this shortcoming, making it clear that response is critical across DOD.

Response during a LSCO—when the US is likely to be operating near or among ally and partner civilians—will require a more deliberate and comprehensive approach based on institutional capacity driven by the last two decades of operational learning. Based on the current understanding of the characteristics of a LSCO, as defined earlier in this report, the CHMR is likely to be very different and more challenging, requiring more advanced planning, coordination, and creativity. In addition, novel methods of response may require new authorities and leveraging of capabilities across the interagency that have not been used for civilian harm response before. These response options and related authorities, capabilities, and guidance will need to be planned and developed in advance and be in place before commencing operations.

When large-scale civilian harm is expected, DOD will need to figure out how to respond to more

[88] Special Inspector General for Afghanistan Reconstruction, What We Need to Learn: Lessons from Twenty Years of Afghanistan Reconstruction, Report 21-46-LL, https://www.sigar.mil/pdf/lessonslearned/SIGAR-21-46-LL.pdf#page=17.

incidents of civilian harm and how to do so in a more challenging and less permissive environment compounded by degraded command and control, adversarial use of disinformation, and a lack of access to affected civilian populations. For example, with high-intensity operations across all domains, fewer human resources will likely be available to focus on response.

Given the possible lack of access to populations harmed, instead of providing immediate response, it could be more critical for the US to focus on keeping well-documented information on incidents of civilian harm. These data could then be used to support the host nation better as it provides more immediate assistance. This information could also help the US respond when the operational tempo slows and populations become accessible again. These challenges must be recognized now so that they can be overcome through advanced planning. Failing to consider these challenges could result in unprecedented civilian harm and very few practical options for the US government to respond to these incidents. Below are some issues that must be considered.

Operating in the territory of an ally or partner

Operating in the sovereign territory of an ally or partner will create challenges and political sensitivities. In Afghanistan, incidents of civilian harm sometimes severely curtailed the US ability to conduct operations and troop freedom of movement due to national-level sensitivities about civilian harm. During a LSCO, the civilians at risk will be the citizens of the ally or partner nation. In Ukraine, for example, even as the country is fighting what many consider an "existential war" against Russia, the government is very concerned about the level of civilian harm caused by its actions and those of Russia. During a LSCO, the US may also find itself in a situation in which the ally or partner host country is highly concerned about civilian harm, and the US should prepare for this. It is essential to acknowledge and leverage that many US allies and partners already have advanced national resilience and emergency preparedness capabilities. The US must start talking to allies and partners now—those whose territory might be involved during a LSCO—about resilience, emergency response, and what the US can do to pre-emptively support or bolster their existing capabilities to better plan for response.

Challenges in assessing a possible high number of individual incidents

One of the critical tenets of responding to civilian harm is the ability to assess whether and what type of harm happened and to whom. In the past 20 years, with a slower operational tempo, the US was often able to assess individual cases of civilian harm. Individual assessments may be impossible during a LSCO, especially with degraded freedom of movement into adversary and allied territory. Individual assessments are not the only way to understand what civilian harm is happening in a rapidly changing and chaotic theater. It might be possible to leverage advanced capabilities, such as AI and machine learning, to detect and intake allegations of civilian harm. There may also be opportunities to collaborate with the Intelligence Community to draw estimates of civilian harm based on this community's multilayered intelligence of the civilian environment.

There are also ways to create links with local partners (e.g., government officials, police, civil-society groups, individuals involved in national emergency preparedness, or first-responder groups) in order to communicate with communities, open cases, and

try to understand the effect of operations on the civilian population. These options will require the US to evolve its current practices and approaches and leverage novel options in a LSCO environment. As the US tries to understand what operational realities may exist, it also must understand how those realities affect its ability to respond to harm.

Mis- and disinformation in the battlespace

In future conflicts, false and nefarious information is likely to remain prolific in the information space. US adversaries are engaged in this type of mis- and disinformation dissemination and amplification and have proved themselves very adept. The conflicts in Ukraine and Gaza illustrate the use of mis- and disinformation to shape narratives and sway public opinion. The US must work with allies and partners to be sure they are communicating quickly and transparently about what is happening—including civilian harm and response. Adversaries and other spoilers will seek to use civilian harm—especially in the adversary space, where it will be highly challenging to credibly refute stories—to damage US and ally/partner reputations and influence the narrative of war, including sowing discontent about the war effort in ally and partner countries.

Although it may not be possible to assess the level of civilian harm on a case-by-case basis, the US must ensure a fast, accurate, and constant narrative that notes the following:

1. The US understands that its operations are likely causing some level of civilian harm, but civilian harm is never its intent, and when civilian harm happens, the US regrets it and will seek to address it when possible.
2. The US is trying as best it can under the circumstances to assess what is happening and document incidents of civilian harm so it can better avoid such harm in the future and respond to it when feasible and possible (including post-conflict).
3. The US and its allies and partners follow the rules-based international order, which includes adhering to international human rights and humanitarian law.
4. The US and its allies are also documenting possible civilian harm by adversaries in allied and partner countries for post-conflict accountability.

Civilian harm strategic communications playbook

For successful strategic communications about civilian harm, messages should be repeated and reinforced frequently. There are two general types of communications regarding civilian harm: responding to specific allegations and maintaining a positive strategic narrative. These messages can be reinforced by the creation and implementation of a Civilian Harm Strategic Communications Playbook that details these two types of communication, which are discussed in the next subsections. Although during a LSCO the US will not have the ability to respond to every allegation, historically some allegations became very public and consequential. As a result, even during a LSCO, the ability to respond to specific allegations will be critical.

Responding to specific allegations

In the case of responding to specific allegations of civilian harm, initial press conferences or statements should rely on a prewritten public affairs release

regarding the allegations. The body of such communications should be drafted even before the operation to ensure preparedness for unexpected allegations. When an allegation is received, any known details about it can be inserted, and the message released rapidly.

These initial communications should "be fast and not wrong."[89] That is, a military command should respond promptly to any allegations, even if they simply state that allegations will be investigated. At the same time, care should be taken to report only details that are known for certain, such as the details of the allegation itself, to avoid the need for retractions. This includes avoiding an immediate and broad denial of an incident without complete and accurate information (which historically is rare). Releasing possibly incomplete or inaccurate information can potentially lead to changes in the official story, which can be viewed as a cover-up to avoid embarrassment, undermining the credibility of the US or a multinational coalition.

After the completion of an assessment or investigation that includes both military information and open-source and other external information, a subsequent press release would ideally summarize the conclusions of the investigation, including a general description of what happened, whether civilian harm occurred, whether the coalition was responsible, and the estimated civilian toll. If the coalition was responsible, this information would be accompanied by an apology aimed at affected civilians and a brief explanation of what steps are being taken to avoid such incidents in the future. The latter does not need to be detailed but could simply be a statement such as "we have revised our guidance to better avoid civilian casualties in these kinds of operations." Of course, this statement should be made only if it is true.

This press release with apology and explanation could be accompanied by several steps to alleviate human suffering from the incident. US and international forces found operational benefits from this practice, which helped distinguish military forces from armed opposition groups that had little regard for the lives or welfare of the population.

Maintaining a general narrative about CHMR efforts

In addition to responding to allegations, it is also helpful to communicate regularly through press conferences regarding the campaign and what steps the US or multinational coalition is taking to mitigate and respond to civilian harm. Useful themes to emphasize include the significant practical efforts the US is making, concern for the welfare of civilians and humanitarian conditions in areas of operations, and a commitment to positive long-term outcomes for the population. Mentioning specific initiatives in each of these areas can be helpful.

Repetition is an important part of effective communications. A weekly or biweekly press conference can focus on one or more of the themes mentioned above, with specific details and examples reinforcing the overall theme. For example, a press conference on practical steps to mitigate civilian harm could repeat many of the points made during a recent press conference while also giving details about a specific incident and steps being taken to learn from the incident. Inclusion of other steps further demonstrates the US commitment to learn and improve. Likewise, a press conference on humanitarian conditions could discuss specific examples of mitigation measures around essential services, as well as planned efforts by the US, coalition partners, and potentially the host nation to address humanitarian conditions. Press statements can also stress the US desire for a rapid and effective

[89] *Fast and not wrong* is a term CNA coined when we worked with ISAF in 2011 to improve its ability to manage information operations related to civilian harm allegations. This term contrasts with the *first with the truth* approach, which emphasized speed but did not consider the detection challenges US forces face regarding civilian harm.

peace process to provide long-term relief to civilians threatened by the conflict. These statements can also be opportunities to highlight violations of international law or other actions that endanger civilians—for example, collocating enemy locations with NGO positions, masquerading structures or forces as humanitarian elements, and launching seemingly disproportionate attacks with high levels of civilian harm.

Civilians dispersed across the theater

In peacetime, civilians are distributed across the state in urban, suburban, and rural areas. During a LSCO, they are likely to move sporadically in search of basic needs or physical safety. Troops will likely encounter large flows of civilians who may be in various states of illness and injury, without access to necessities such as food, water, and shelter. Although it is the primary responsibility of the host nation to create safe spaces where civilians can access shelter and necessities, the US should prepare its ground troops for a very different situation than what they are used to. Troops may need to bring additional medical supplies, including supplies that respond to medical conditions specific to women and children. They might also need to direct civilians to safety and have some way to communicate with them (if languages are different, civilians may require pocket cards, leaflets, or other aids). These are all things the US and its allies and partners should consider during operational planning. There will be mass chaos, and part of countering that chaos is communicating with the local population, including by working closely with the ally or partner government through their existing systems or bolstering their capabilities when necessary.

Deep operations into a hostile country

During a LSCO, there are likely to be deep operations to damage or degrade adversary capabilities and shape the environment. These operations may also create movements of internally displaced people in the adversary country. Some of those people may be trying to flee their country when it is waging a war or have no role or interest in the conflict. According to the Law of Armed Conflict, these civilians must be protected. They may choose to move to a specific location near a border for safety, and they may be caught or held there by their government, with little to no ability to meet basic needs. The US should game out what options are or could be available to help those caught in these types of situations. These options could include air drops of essential aid, logistical support to NGOs already providing this support, or construction of a pier (as in Gaza) to allow for the flow of essential supplies.

Integrating response planning throughout the CHMR life cycle

DOD must think broadly about response throughout the CHMR life cycle. Although CHMR has a temporal element (i.e., it happens after harm is caused), that does not mean that it cannot be planned for and included in all aspects of the life cycle, starting in mission and mandate discussions and continuing through the planning and learning phases. Here, we consider various steps throughout the life cycle that could be considered. These steps are not exhaustive.

Mission and mandate

- Feasible response options must be approved and operationalized (ideally, they are developed before this stage in the institutional capacity-building work of the CHMR-AP).

- Response should be considered as part of courses of action, and strategic guidance must be incorporated and resourced to respond to incidents of civilian harm. As a result, forces must be allocated and capabilities and resources committed to enable options for effective response.
- Strong interagency communications and coordination channels must be prepared and employed to facilitate response execution and information sharing about the civilian population, especially with USAID and the State Department.
- US actors should also be discussing and managing expectations regarding response with allies and partners. Discussions should include legal limitations to responding and mapping national-level policies and procedures that are already in place (internal planning on resilience, disaster response, and emergency response as well as information gathering and sharing capabilities) to understand the effects of operations on civilians.
- The US should work with allies and partners to understand response expectations and options, including the possibility of adding the US response as an element of the bilateral forces agreement. For example, if operating as part of a coalition, the US should establish data-sharing channels focused on tracking civilian harm incidents, assessments, and responses provided to civilian populations. These channels may be more appropriate to establish with an ally or partner if they have advanced systems (e.g., public messaging and public-facing intake systems) that can be bolstered.

Planning

- During planning, the US should work to identify all available communication channels with civilian populations, including radio, television, social media, and telephone, and plan to leverage redundant communications to communicate with civilian populations about civilian harm incidents, including releasing civilian casualty reports. One approach could be establishing partnerships with private-sector satellite communications companies to increase the likelihood of internet connectivity for civilian populations.
- The State Department could also expand required country-level or regional-level assessments to include response methods beyond ex gratia payments. These assessments could inform the menu of options that are culturally appropriate for civilian populations.
- All commanders should be trained to leverage all available response options and provide adequate guidance for each type of response option, including how to conduct KLEs and acknowledge incidents of possible civilian harm.

Operational execution

- Leverage communication channels with civilians to collect information on civilian harm incidents to inform assessments and response.
- To the extent possible, advise local populations on procedures and operational practices leveraged to mitigate civilian harm.

Assessment

- Establish virtual communications with local leaders to acknowledge civilian suffering and confirm that an assessment is underway.
- Reach out to other organizations to seek additional information concerning possible incidents of civilian harm. This outreach could include international NGOs and any interagency organizations operating in the area. As part of this outreach, DOD should collect as much information as possible on the next of kin of the harmed or injured as well as relatives engaged as part of the response process.

Response

- Plan to respond to incidents of civilian harm when US or coalition forces are involved—even if it is not yet entirely clear who caused the harm—through public acknowledgment and key leader engagement, if possible.
- Ensure that the message is broadcast across redundant communication platforms and, if possible, delivered virtually to next of kin, relatives, or community leaders of those affected if ground forces presence is limited.
- In public messaging about incidents of civilian harm, provide the same level of detail as that provided to the relatives and community leaders of those affected.
- Ensure that public messaging is standardized and that the personally identifiable information of individuals affected is safeguarded.
- If the force responsible for the harm is known, ensure that civilians are made aware of this. If possible, a spokesperson from that force should acknowledge the harm and apologize.
- Be "fast and not wrong" when publicly and privately acknowledging civilian harm in the direct aftermath of operations and providing updates on incidents publicly as details come to light.
- Consult with key community leaders of affected communities to confirm the desire for a US government response and identify appropriate response measures.

Learning and adapting

- Require reporting of response in the DOD-wide CHMR data-management platform to include details regarding methods, authorities, and capabilities leveraged as well as lessons identified.
- Track response data and trends over time and adjust guidance to commanders as needed for more effective implementation.

ADDITIONAL TOPICS FOR CHMR IN LSCO

In this section, we discuss the following additional topics that are critical for an effective CHMR approach during a LSCO:

- Lessons for Civilian Harm Assessment Cells (CHACs) and operational learning for CHMR
- The organization of an operational headquarters for CHMR
- CHMR metrics and operational analysis considerations
- CHMR approach to nonlethal and nonkinetic measures

We address each topic in turn.

Lessons for CHACs and operational learning for CHMR

Although we have made the point that institutional learning will be critical for effective CHMR during a LSCO, we do not discount the importance of operational learning. In this section, we examine lessons for how to promote operational learning through functions intended for CHACs as well as how they should be leveraged to guide military adaptations.

Effective mitigation of civilian harm: ISAF operations in Afghanistan

Several case studies show effective civilian harm mitigation, such as the African Union Mission in Somalia's (AMISOM's) restriction on indirect fire and US refinements to reduce checkpoint killings in Iraq. That said, the efforts by the ISAF to reduce civilian harm in its operations in Afghanistan over a period of years (2009 to 2013) illustrate the mitigation of risks to civilians in a broader range of operations and through a strong, sustained effort. This case study, unlike others, features the ability to adapt the mitigation effort to different areas of risk to civilians as they emerge or change over time. The ISAF CHMR effort had three key functions: civilian harm tracking, longitudinal analysis, and military implementation.

Civilian harm tracking

Beginning in 2006, ISAF began to take steps to reduce civilian harm through changes in guidance, such as the "Barno 12" rules and several Tactical Directives regarding the conduct of airstrikes. However, these initial steps proved ineffective in mitigating civilian harm. Meanwhile, US and ISAF leadership became increasingly concerned about civilian harm and the effects it was having on the operation overall. For example, General David Petraeus, then serving as commander of US Central Command, described civilian harm as becoming "toxic" to the campaign overall, risking strategic success.

The foundation for a more deliberate approach to CHMR began when ISAF began to track alleged and confirmed instances of civilian harm. The tracking cell, housed at the command headquarters, was originally created in 2008 by then ISAF commander General David McKiernan to help counter what he viewed as unfounded allegations of civilian harm. In 2009, ISAF increased manning to the tracking cell (then called the Civilian Casualty Tracking Cell (CCTC)) and began tracking ISAF-caused civilian harm. The CCTC created a process of formally assessing potential incidents of civilian harm and tracking incidents it assessed as "confirmed" or credible. Although not perfect, this deliberate process of assessing potential incidents and tracking what were believed to be a confirmed set of incidents was foundational to the progress ISAF made.

Longitudinal analysis

In May 2009, US marines supported the Afghan military and police in an operation in Bala Balouk, in Farah province. When Afghan forces were ambushed, the Marine Corps unit called in air support to blunt the ambush and then to attack retreating enemy forces. At least one of the airstrikes possibly caused civilian harm, with estimates of casualties ranging from 26 (the official US estimate) to more than a hundred (the Afghan government estimate). One of the recommendations in the official investigation was that a joint organization should examine the lessons from this incident to improve learning. Acting on this recommendation, the chairman of the Joint Chiefs of Staff requested that the Joint Center for Operational Analysis (JCOA) examine this incident and identify lessons. JCOA first analyzed the single incident and then expanded its analysis to about 75 incidents of civilian harm that occurred in Afghanistan between the beginning of 2007 and mid-2009. This work was the first instance of military data being used to understand the causal factors of civilian harm (i.e., why civilians were harmed during military operations). This work also began the development of new tactics, command guidance, and procedures that were tailored to address those causal factors.

Over the next several years, JCOA continued to analyze instances of civilian harm using CCTC and operational data. This analysis performed the following functions:

- Provided quality control for information contained in the civilian harm tracker database.
- Calculated metrics and trends for civilian harm overall and for various types of operations.
- Determined root causes of civilian harm to better understand how it occurred.
- Identified recurring patterns that represented types of operations, tactics, or common mistakes that increased risk to civilians.
- Recommended mitigation measures to address root causes and recurring patterns.
- Recommended improvements to reporting, tracking (including amends), and investigatory processes.

Military implementation

Neither civilian harm tracking nor longitudinal analysis would have changed the risk to civilians had the new, tailored measures derived from longitudinal analysis not been implemented in military practice. This implementation was driven by commanders and their intent to reduce the civilian tolls of their operations, starting with General Stanley McChrystal in 2009 and followed by Generals David Petraeus and John Allen. These senior leaders, along with their Commander's Action Group (CAG), ensured that key steps were taken to make changes to military operations to better mitigate risk to civilians. They also monitored key trends regarding civilian harm to ensure that progress was being made and mitigated areas of emerging risks when they emerged.

Results of ISAF approach

These three components working in concert enabled ISAF forces to take practical, focused steps to reduce the risk to civilians. These changes included a modified ISAF Tactical Directive and new guidance for escalation of force (EOF) for checkpoints, among many other measures. Analysis found that these steps were effective in reducing civilian harm: civilian casualties dropped by 20 percent in the first year, with further reductions in subsequent years. This decrease was not a result of curtailing operations. Rather, ISAF used an adaptive approach to identify and monitor risks to civilians and to find ways to

mitigate them when possible. This approach involved operational adjustments to many types of missions, including deliberate and dynamic airstrikes, ground operations, night raids, indirect fire, and checkpoints.

This adaptive approach proved to be effective: there was an overall reduction in the rate of civilian casualties per operation, meaning that military operations continued but with a lower risk to civilians. Military data also indicated that this reduction in civilian harm through this adaptive process did not sacrifice mission effectiveness or endanger military forces. In fact, both mission effectiveness and force protection were enhanced.

Approach not seen in more recent operations

Although these positive results in protecting civilians were seen in ISAF operations, similar results have not been observed in more recent operations, such as in counter-ISIS operations in Iraq and Syria and in NATO's Resolute Support operation in Afghanistan. Although both operations featured civilian harm tracking, longitudinal analysis was not conducted in stride to support mitigation. Rather, this analysis was performed only after operations were completed. During both operations, the rate of civilian harm increased from year to year, showing that risks to civilians were not being effectively mitigated. This outcome is a function of the CHMR approach not being integrated into the operational headquarters structure and processes in these operations.

Organizing an operational headquarters for CHMR

Given these findings about the inconsistency of civilian harm data being integrated into ongoing military operations, what can be done within military organizations to strengthen the mitigation of civilian harm and avoid the insufficient protection of civilians seen in more recent operations? Here, we discuss steps military organizations can take to facilitate effective CHMR, considering the three steps outlined above: civilian harm tracking, longitudinal analysis, and military implementation.

Civilian harm tracking

Over the last 20 years, tracking civilian harm has increasingly become a standard practice and expectation for militaries. The first dedicated effort to track civilian casualties was carried out by US forces in Iraq in late 2004 to understand and address a rise in checkpoint shootings. Tracking has since become a regular practice in US and coalition operations (e.g., in Iraq, Afghanistan, and Syria; by AMISOM in Somalia; and by the Saudi coalition in Yemen). The importance of tracking civilian harm is shown by the United Nations secretary general's Protection of Civilians agenda and by the international Political Declaration on the Use of Explosive Weapons in Populated Areas, both of which expressly call for militaries to track civilian harm.

What is civilian harm tracking? It is the process by which militaries determine, to the best of their ability, the level of civilian harm resulting from their operations using all available information and then keep a record of this harm. This process involves tracking and assessing harm to civilians caused by the use of force in military operations, including direct effects on civilians (i.e., civilians killed and wounded) as well as effects on civilian objects, such as property damage, damage to protected entities (e.g., hospitals and cultural sites), and harm to humanitarian actors in the area of operations. The force may also be asked to track other objects of interest to the command leadership as a commander's critical information requirement (CCIR). An example would be setting risks to critical infrastructure as something to monitor.

The DOD's CHMR-AP defines entities called CHACs. CHACs are envisioned to have the role of tracking and assessing functions. We propose that CHACs contain two teams: the Civilian Harm Tracking Cell (CHTC) and the Longitudinal Assessment Cell (LAC).[90] Given the nature of their missions, these two teams will need to work closely with each other to carry out CHAC functions and to promote practical mitigation in military operations.

Tracking of civilian harm starts with the function of the CHTC. The size of the cell can vary based on operational tempo and the frequency of civilian harm allegations, but cells have typically had about four to five personnel in past operations. If the CHTC is not a standing organization, personnel in the CHAC can be military augmentees if they are provided training prior to their deployment. The CHTC lead could be an Army operations research/systems analyst or equivalent—someone who is able to mentor and manage the team. The cell members will require IT and communications capabilities to allow them to coordinate with both internal forces and external organizations regarding information about civilian harm and to work with both unclassified and sensitive data.

The CHTC should receive all reports and other associated information regarding potential civilian harm incidents—both those reported internally and those reported externally. The CHTC tracks these incidents collectively in a database or spreadsheet. Each incident is then assessed to determine whether it can be "confirmed." *Confirmed* does not mean that there is absolute proof that harm occurred but rather that the evidence is credible, sometimes expressed as "more likely than not." The results of the assessments inform the creation of a list of confirmed civilian harm incidents. This list is then used for longitudinal analysis.

Longitudinal analysis of civilian harm

As mentioned in the previous section, it is an emerging expectation for militaries to track civilian harm. But tracking harm is only the first step of effective CHMR. If militaries do not then analyze and learn from the data they are tracking, there is little value in tracking harm. The next step after tracking civilian harm is longitudinal analysis. The establishment of a LAC enables analysis of civilian harm, which can lead to effective CHMR.

For ISAF's CHMR efforts, the duties of the LAC were performed largely remotely from the US by an analytic team hosted by DOD's JCOA, led by CNA. In a discussion with CNA, General McChrystal agreed with this approach, stating that headquarters in operational areas should be kept to a minimum size when possible and that a reach-back staff arrangement was a good solution. Thus, the LAC does not need to be located within the command headquarters. The LAC staff should be fairly senior, do not need to be military personnel, and must include experts in analyzing civilian harm incidents. One option is to have this function centralized within the force; for example, in the US, the newly announced Civilian Protection Center of Excellence could serve as the LAC (or the convener of a group of experts) for operations.

The LAC uses information regarding civilian harm incidents combined with operational data to determine several kinds of information:

- **General trends regarding civilian harm statistics.** How many civilians were estimated to be killed or wounded? How have those numbers changed over time?
- **Calculation of civilian harm rates.** What is the risk of civilian harm from operations? Has that risk increased or decreased over time?

[90] *Longitudinal assessment* is an internal process in which a military force analyzes data (such as on civilian harm) in its area of operations for the purpose of operational learning.

- **Trends for specific types of civilian harm.** What kinds of operations contributed to civilian harm? Do specific types of operations carry a greater risk to civilians?

LAC analysis also includes the determination of root causes of civilian harm incidents, the identification of recurring patterns of harm, and the development of mitigation strategies. This analysis can inform both operational and institutional learning and adaptation. For example, based on identified factors that contribute to civilian harm, the LAC identifies and recommends the following:

- **Mitigations in operations.** What operational changes can be made to reduce risks to civilians overall? Are any changes to specific types of operations needed? What steps can the higher headquarters take to mitigate risks to civilians?
- **Institutional mitigations.** Could certain changes to doctrine, training, or materiel capabilities help the military force be better prepared to mitigate civilian harm?

We suggest that the LAC is best suited to help the CHAC work most closely with elements of the command headquarters responsible for implementing potential mitigation steps. Next, we discuss these elements of headquarters involved in the implementation process.

Military implementation of mitigation steps

In the ISAF example, progress was enabled by senior commanders and their personal commitment to reduce harm to civilians. These commanders took the following steps:

- Stressed the importance of protecting civilians to their forces.
- Demanded data regarding civilian harm to better understand how their mitigation efforts were working.
- Looked for ways to better mitigate harm and put those into practice.
- Made civilian harm incidents a commander's CCIR (requiring mandatory reporting to the commanding officer).
- Looked for opportunities to improve training of their forces and to introduce new capabilities that would strengthen CHMR.
- Demanded investigations and assessments to try to learn from mistakes.

But relying on senior leaders to perform all these functions is not a dependable solution. As was seen in both Operation Inherent Resolve (OIR) in Iraq and Syria and the Resolute Support operation in Afghanistan, different senior leaders may choose not to directly manage CHMR efforts for their command. Recognizing that senior leaders cannot be expected to directly carry a broad range of responsibilities—nor should they be required to—joint doctrine lays out organizational guidelines for military headquarters along with leaders' responsibilities. Some functional areas are largely contained within a certain staff section—such as operations. Other areas have cross-cutting responsibilities. For these areas, doctrine suggests organizational models for managing these cross-cutting areas.

Per Joint Doctrine 3-0, working groups can be created to "facilitate cross-functional coordination, synchronization, planning and information sharing between principal staff directorates" (such as intelligence, operations, and planning). One way to institutionalize the best practices observed in ISAF commanders is to create a CHMR working group (CHMR WG) that brings in key stakeholders and includes responsibilities for those stakeholders

regarding CHMR. This CHMR WG should include representatives from the following groups:

- **CHTC.** To represent the tracking process for civilian harm, including gathering, collating, and assessing internal and external allegations.
- **LAC.** To represent the longitudinal analysis effort and to share emerging trends, root causes, and recommended mitigation efforts that can be taken in the context of operations. The LAC also monitors for relevant CHMR lessons and gaps in military institutions.
- **CAG.** To keep the commander updated regarding current CHMR issues and to convey back to the commander recommended actions for promoting CHMR in the force.
- **J2 (intelligence).** To represent capabilities and processes that are relevant to targeting, identification, and deconfliction. This should include the maintenance and effective use of the NSL for humanitarian deconfliction.
- **J3 (operations).** To represent ongoing and upcoming operations and find ways to promote CHMR in those operations.
- **J5 (planning).** To represent planning efforts in order to make CHMR an integral part of operational planning and find ways to improve CHMR within the planning process.
- **J6 (communications).** To represent the maintaining and refining of digital networks and communications for situational awareness and deconfliction.
- **J7 (training).** To represent training requirements and initiatives to reinforce and improve CHMR.
- **J9 (CIV-MIL).** To inform the group regarding civilian-military coordination, including general concerns and information regarding specific allegations of civilian harm.
- **Public affairs.** To consider how the issue of civilian harm is discussed and how to respond to specific allegations, assessment findings, and investigation results.
- **Judge advocate general (JAG).** To monitor for the need for investigations, to represent the findings of investigations, and to look for ways to reinforce compliance with international law during operations.
- **USAID.** To inform the group regarding humanitarian activities in the area of operations (including issues of access, interference, and protection as well as ways to improve coordination and situational awareness), to respond to allegations of attacks on humanitarian actors, and to contribute to amends as appropriate.
- **Coalition representatives.** In a coalition operation, there need to be data-sharing agreements in place and established procedures for sharing the results of individual incidents and periodic trend reporting across coalition members. In addition, it would be valuable to have one or multiple representatives involved in this overall CHMR WG. It may also be valuable to have a separate coalition CHMR WG to focus on coalition dimensions of CHMR—specifically, making sure all coalition

members are aware of allegations and confirmed incidents; considering trends and mitigation steps; and discussing coalition roles, authorities, and restrictions related to civilian harm mitigation.

- **Partner representatives.** In a partnered operation, there need to be data-sharing agreements in place as well. The role of the partner in the CHMR WG will depend on the nature of the partner and of the partnership, but it should be a goal to involve the partner in mitigation efforts as much as is feasible.

The CHMR WG should meet periodically (no less than once a month and more often if warranted by the operational tempo and frequency of civilian harm incidents). The group's meeting agenda should include the overall scale of civilian harm (including trends), significant new incidents or allegations of civilian harm (including cases involving humanitarian actors or medical facilities) and how these incidents or allegations should be addressed, potential steps to improve the mitigation of civilian harm, and whether steps are needed to improve the quality or timeliness of the civilian harm tracking and longitudinal analysis.

Certain members of the CHMR WG can also meet periodically as sub–working groups (sub-WGs) to manage certain issues in more depth. We suggest three sub-WGs at a minimum, though others may be helpful as well:

- **CHMR-data sub-WG.** Data and reporting requirements for civilian harm can be managed by a CHMR-data sub-WG consisting of representatives from the CHTC, the LAC, the J2, the J3, the CAG, USAID (for data on humanitarian entities and activities), and coalition representatives if applicable. This sub-WG could be led by a representative of the LAC.
- **CHMR-PA sub-WG.** Public affairs (PA) and transparency can be managed by a CHMR-PA sub-WG led by a representative of the CAG and consisting of representatives from the CHTC, the LAC, the J3, public affairs, the JAG, and USAID.
- **CHMR-HND sub-WG.** Humanitarian notification and deconfliction (HND), and the related protection of medical facilities and critical infrastructure, can be managed by a CHMR-HND sub-WG led by a representative of USAID and consisting of representatives from the CHTC, the LAC, the J2, the J3, the J9, the JAG, coalition representatives if applicable, and the CAG.

Steps to improve CHMR should include how to improve the integration of information in military decision-making. When incidents are noted by the LAC, the CHMR WG can consider how military processes can be adapted to reduce the risk of similar incidents in the future. Similarly, when the LAC notes a pattern of repeated incidents or lessons, the WG can identify ways to address that pattern and reduce the consequent risk to civilians.

The commander should meet with the CHMR WG periodically with the meeting agenda including the four issues discussed previously. This meeting would give the commander an opportunity to better understand levels of and trends in civilian harm and, if necessary, take additional steps to strengthen the protection of civilians. The CHMR WG should be written into operational plans for major operations, ensuring that organizational requirements for CHMR are built into planning and force requirement decisions and included in educational programs for senior military leaders (for example, in the US, the Capstone and Pinnacle programs). When possible, this WG should be established before the beginning of operations to incorporate CHMR considerations into overall mission, mandate, and

planning considerations, reflecting the need for a comprehensive approach to CHMR.

CHMR metrics and operational analysis considerations

When CNA worked with ISAF and US operational commanders and forces in Afghanistan to increase the effectiveness of CHMR efforts, it quickly became apparent that metrics were needed. These metrics served several purposes. The first was to aid understanding of whether progress was being made through CHMR efforts to reduce civilian harm tolls. This metric enabled commanders to glance at operational trends and get an understanding of where progress was being made and what areas needed further effort. For example, the fact that civilian casualties had dropped 20 percent in 2010 versus 2009 was helpful information, and additional metrics underscored that this trend reflected real progress.

The second purpose was to inform operational analysis and advising efforts. For example, if certain trends did not improve for a particular operation type (e.g., dynamic fixed-wing air operations), analytical efforts could seek to better understand what the causes were and to inform decisions about where to devote additional mitigation efforts. For example, CNA was monitoring CIVCAS data on a monthly basis, and in January 2011, we observed sharp increases in two types of civilian harm. We validated the trend data and then forwarded this information to the ISAF commander's CAG, which independently validated the trend. We recommended several mitigation steps, and ISAF acted on them. In subsequent months, we observed that the two types of civilian harm decreased.

Following are the metrics in use:

- Overall number of operations
- Civilians killed/wounded/total
- Number of incidents in which civilians were harmed ("civilian harm incidents")
- Average number of civilians harmed per incident (civilians harmed/incident)
- Rate of civilian harm incidents per total operations (the percentage of operations causing civilian harm)[91]

These metrics have also been used for historical purposes. For example, during the 2018 Joint Chiefs of Staff Civilian Casualty Review, the study team considered metrics such as the rate of civilian harm incidents per total operations for OIR compared with this rate in previous air operations in Afghanistan. This comparison helped to provide additional context about the relative risk to civilians across these different operations.

The utility of metrics was amplified by analysis identifying root causes. These root causes could be determined overall, but there was also utility in examining subgroups, such as deliberate air operations, dynamic air operations, close air support, rotary-wing operations, ground operations, raids, artillery fire, and checkpoint operations (also referred to as EOF). This root-cause analysis was the basis for determining specific, focused mitigation measures that could be implemented in operational tactics, standard operating procedures, and command guidance.

[91] A slightly modified version of these metrics is described in a later CNA report, along with the analysis process for the proposed purpose of supporting the US national counterterrorism campaign. In 2013, the US issued its Counterterrorism Presidential Policy Guidance, and the last section contained a requirement for a lessons-learned process—the report suggested an approach the US could use to satisfy that guidance. Although this approach was not implemented for counterterrorism operations, parts of this report were the basis of Section 4 of the 2016 executive order on civilian casualties. See Lewis, *Improving Lethal Action*.

Although metrics can also provide insights for a LSCO, the high intensity of a LSCO may preclude the ability to track individual incidents in which civilian harm occurred. As a result, the incident-based metrics we have used historically cannot be used during a LSCO—at least not overall. But it is still possible to employ a more limited set of metrics to monitor risks to civilians. In the assessments section of this report, we recommend the development of tools to improve the ability to estimate harm to civilians at larger scales, such as in a region or during an overall operation. Using this ability, we can modify the metrics as follows to eliminate the need for the number of incidents causing civilian harm:

- Overall number of operations (e.g., number of strikes or attacks)
- Estimated civilians killed/wounded/total
- Rate of civilians harmed per operation (average number of civilians harmed/incident)

Although this approach clearly offers less fidelity in terms of information on civilian harm, this information can be monitored over time to determine trends. For example, are there significant increases in overall civilian harm or in the rate of civilians harmed per operation as the operation continues? Or are there increases at various stages or areas? If so, analysis can be done to aid understanding of those changes, and if feasible, mitigation steps can be identified to reduce risks to civilians in operations.

Expertise informed by analysis of civilian harm at the incident level can enable more effective monitoring and mitigation efforts. Although the information available during an operation may be limited, insights from past operations and from exercises and experiments that feature instrumentation, data collection, and analysis can be carried over to enhance operational support in stride. This effect was seen previously during Operation Iraqi Freedom in 2003: although data collection was limited, some data were collected from systems and analyzed to understand risks of fratricide. Additional insights could be drawn from that limited data by drawing on previous analysis of exercises, which allowed higher fidelity observations and root-cause analysis. Therefore, real-time monitoring and mitigation efforts during a LSCO should both employ metrics as described above and leverage insights drawn from analysis of past operations and from exercises and experiments.

Considering nonlethal and nonkinetic approaches in CHMR

As the US pursues effective CHMR, it needs to consider the potential roles and impacts of nonlethal and nonkinetic methods. Historically, these two approaches have been poorly integrated into the CHMR approach. Here, we discuss some initial considerations for this integration.

Nonlethal approaches and CHMR

Nonlethal weapons and tools appear to offer a strong solution set for effective CHMR. But historically, nonlethal capabilities have not contributed significantly to mitigating civilian harm in US operations. The initial promise of nonlethal capabilities was seen when Lieutenant General Anthony Zinni was leading the US withdrawal of forces from Somalia in 1995 and requested nonlethal capabilities to support that operation.[92] A year later, based on that recognition of the potential importance of nonlethal capabilities, General Charles C. Krulak, then-commandant of the Marine Corps,

[92] Department of Defense, "History," Joint Intermediate Force Capabilities Office, accessed July 24, 2024, https://jnlwp.defense.gov/About/History/.

offered to provide leadership for DOD's program for nonlethal capabilities.[93] The program, previously known as the Joint Non-Lethal Weapons Directorate (JNLWD), was renamed in 2020 as the DOD Joint Intermediate Force Capabilities Office (JIFCO). The name change reflects the idea that these nonlethal capabilities represent a middle ground "between presence and lethal effects."[94]

The then-JNLWD developed several nonlethal capabilities that were available during counterinsurgency operations in Iraq and Afghanistan. Perhaps the most pressing and relevant operational application for nonlethal approaches in those operations was checkpoints, also known as EOF, where troops struggled to differentiate between civilians and terrorists seeking to cause them harm. JNLWD brought several systems into operational theaters to give US forces additional tools for more successful differentiation and de-escalation at checkpoints.

However, the JNLWD tools in-theater tended to be optimized for stopping vehicles at long distances. This capability was not generally useful for US forces because it was intended to arrest forward movement of a suspect vehicle at a safe distance, but US forces typically could not distinguish between the vehicle of a suspected terrorist and civilian vehicles at these distances. Such tools were added to the often unused EOF toolkits, containing batons, plastic shields, and knee pads. These tools were optimized for situations in which forces faced a known threat at close distances and wanted to employ minimal force—meaning that these tools were not useful for mitigating harm to civilians because this was not a situation that US forces generally encountered at checkpoints. Rather, most EOF encounters at checkpoints that caused civilian harm were between these two distances, where US forces generally lacked effective tools for de-escalation but were forced to act before short-range tools could be used.

This situation illustrates a key principle for nonlethal weapons. For the purpose of CHMR, it is not enough for DOD to have nonlethal capabilities in its inventory or to have an office for nonlethal tools. DOD must identify specific operational dilemmas that create risks to civilians and then acquire and field capabilities that address those dilemmas. The relative absence of nonlethal capabilities as critical CHMR tools indicates that this type of requirements-driven process has not led DOD's approach to nonlethal capabilities to date.

In terms of LSCOs, there is an opportunity to explore the potential roles of nonlethal capabilities—or, as they are now referred to, intermediate force capabilities—in these operations. LSCOs are not currently a focus area for JIFCO, but if JIFCO developed solutions for LSCO-specific operational dilemmas, these solutions could be valuable additions to the set of tools and capabilities available to US forces for effective CHMR.[95]

Nonkinetic approaches and CHMR

In addition to nonlethal capabilities, nonkinetic approaches are a potential way to create effects on adversaries that may not impose the same risks on civilians as physical munitions. That said, it is not true that nonkinetic approaches pose no risks to civilians. Here, we consider two important nonkinetic approaches to LSCOs: cyber and space operations. How should these operations be integrated into DOD's CHMR ecosystem?

[93] Wendell B. Leimbach, Jr., "The Commandant's Guidance for the DOD Non-Lethal Weapons Program," *Marine Corps Gazette,* May 2020, https://www.mca-marines.org/wp-content/uploads/The-Commandant%e2%80%99s-Guidance-for-the-DOD-Non-Lethal-Weapons-Program.pdf.

[94] Department of Defense, "History," Joint Intermediate Force Capabilities Office.

[95] Department of Defense, "History," Joint Intermediate Force Capabilities Office.

This integration includes three components:

- Ensuring that cyber and space operations follow CHMR principles regarding the mitigation and management of risks to civilians, including response to potential harm.
- Folding cyber and space operations and their operational outcomes into the larger learning process of CHMR.
- Allowing US forces to explore operational alternatives that include but are not limited to cyber or space operations.

Next, we take a closer look at each of these components for both cyber and space operations.

Cyber

Cyber operations, both defensive and offensive, play an increasingly important role in US warfighting. Per the 2023 DOD cyber strategy, "cyberspace operations represent an indispensable element of US and Allied military strength and form a core component of integrated deterrence."[96] The strategy also notes how "the People's Republic of China (PRC) and Russia have embraced malicious cyber activity as a means to counter US conventional military power and degrade the combat capability of the Joint Force."[97] Because of this near-peer emphasis on cyber capabilities that can disrupt US warfighting and preparedness, one of the DOD cyber missions involves cyberattacks "disrupting and degrading malicious cyber actors' capabilities and supporting ecosystems."[98]

The first component of CHMR in cyber operations is that these operations should follow CHMR principles regarding the mitigation and management of risks to civilians, including response to potential harm. Those involved in planning and executing cyber operations therefore need to be familiar with the steps in the CHMR life cycle:

- **Mission and mandate.** Assessing the risks to civilians and designing and gaining needed capabilities and authorities to conduct cyber operations in ways that consider mitigation of civilian harm from the outset.
- **Planning.** At the strategic down to the tactical level, conducting cyber operation planning that factors in risks to civilians and includes feasible steps and alternatives to help mitigate risks.
- **Operational execution.** Taking steps to promote accurate identification and delivery of intended effects from the cyber operation while seeking ways to minimize direct civilian harm as well as indirect harm, such as impacts on essential services or critical data.
- **Assessment.** Considering all available information to determine the best estimate of civilian harm caused by a cyber operation. It is also important to identify causes, trends, and patterns of harm.
- **Response.** Working to mitigate the tragic consequences of civilian harm by, for example, providing urgent medical care, archiving and restoring critical data, and acknowledging and apologizing for this harm.
- **Learning and adapting.** Using assessments, including analysis of patterns of harm and trend data, to identify operational refinements that could better mitigate

[96] Department of Defense, *2023 Cyber Strategy Summary*, 2023, https://media.defense.gov/2023/Sep/12/2003299076/-1/-1/1/2023_DOD_Cyber_Strategy_Summary.PDF.

[97] Department of Defense, *2023 Cyber Strategy Summary*.

[98] Department of Defense, *2023 Cyber Strategy Summary*.

harm to civilians in cyber operations. These assessments might also identify institutional requirements that could help address observed challenges.

- **Institutional capacity.** Addressing observed challenges and requirements across the military institution (e.g., doctrine, training, and materiel solutions) to strengthen the ability to mitigate harm during cyber operations.

Based on lessons from the Swiss cheese model, some additional actions could also be taken, including the following:

- Ensuring that the organization deciding to conduct an offensive cyber operation is aware of any potential information indicating civilian functions or the protected status of the server or data of interest. Here are key questions to ask: Does the cyber decision-making process include the opportunity to communicate such details? Do training and the command and control architecture support such communication?
- Providing an operational picture of the civilian environment to inform cyber operations. This could include consideration of the likely effects of the operation, including possible effects on protected entities, such as hospitals, critical infrastructure, and physical hazards (e.g., dams and nuclear power plants). This should also include consideration of sensitive information. For example, could the operation cause a loss of sensitive or critical information, such as banking information, medical records, or property records? In addition, is protected digital information present, such as digital cultural heritage information?
  - This raises the point of how to include digital entities and characteristics in the civilian environment. For example, should cyber operations be guided by a more complete picture of civilian systems and services? Should there be a digital way to notify armed actors regarding the civilian nature or protected status of digital systems or data? This topic deserves further investigation.
- Checking for cognitive bias and false assumptions. For example, if an operation is launched against a particular server that has been used for adversarial attacks, is that server an adversary asset, or is it a dual-use server that has been compromised and is being used by the adversary as a third party?

The second component of CHMR in cyber is incorporating operational outcomes into the larger learning process of CHMR. For cyber operations, as for all operations, there is a post-operational assessment of outcomes. Given the systematic propensity of US postattack assessments to miss civilian harm, it is highly likely that cyber operations underestimate, and at times completely miss, harm they have caused to civilians. The best approach for addressing this detection problem is to consider both internal and external reports of civilian harm. This is one of the functions the CHACs are intended to serve. Thus, organizations conducting cyber operations in an area where a CHAC is assigned should provide a notice to the CHAC indicating basic information that can be available for correlation if an external report regarding civilian harm is received. Classification may

limit the available details, but even providing a date, time, and coordinates of the physical location(s) where potential effects might manifest can serve as a starting point for any assessments that might be needed.

The third component of CHMR in cyber operations is being able to exercise the best practice of exploring operational alternatives. With this practice, multiple approaches are considered in terms of their various risks (including risks to mission, risks to forces, and risks to civilians), and the optimal choice is selected in a way that manages these collective risks. This practice can be challenging for cyber operations when planning and operational execution are maintained at different echelons and classifications than other potential alternatives. One potential way to address this problem is to adopt approaches taken in Tactical Exploitation of National Capabilities (TENCAP) efforts. For example, Talon Thresher is a TENCAP program that integrates national capabilities and "operates at multiple classification levels to provide a comprehensive, integrated and tactically relevant air picture with analytic tools to identify and understand theater air operations."[99] This illustrates the feasibility of sharing information and awareness at multiple classification levels. In the same way, a tool could be developed to allow the sharing of planning for a cyber operation—especially one that may have a significant risk of civilian harm—and allow other operating forces that are potentially able to create the intended effects to collaborate across classification levels and echelons, as well as crowd-source the best approach to use.[100]

Space

Space and cyber operations share several characteristics. For example, they feature nonkinetic effects, and they often operate at higher classifications than other aspects of military operations. As such, the observations we made about cyber operations can also apply to space operations. That said, currently the US has only one officially acknowledged space weapon: the Counter Communications System (CCS). The CCS is designed to "disrupt enemy satellite communications" through the use of a ground-based jamming system. If the CCS is employed, the result could be broad disruptions of services, which could degrade near-peer threats but also have negative effects on the civilian population. These effects include the following:

- The loss of civilian communications, such as phone and internet services.
- The disruption of business transfers and banking transactions.
- Hazards to navigation in aircraft, maritime vessels, and (increasingly in the future) autonomous ground vehicles.[101]

As the space domain becomes more contested, it will be important to incorporate the steps of the CHMR life cycle in operations that deliver effects on space entities such as satellites. From a CHMR perspective, it is critical that decision-makers for such large-scale space operations consider and assess likely effects on the civilian population when determining courses of action. It is also conceivable that civilian harm caused by widespread jamming and denial of satellite services could be mitigated by

[99] Department of the Air Force, "Examples, Air Force Tactical Exploitation of National Capabilities."

[100] This approach could be regarded as a human-decision-making version of the Navy's Cooperative Engagement Capability (CEC), which combines the sensors and weapons of multiple networked platforms to plan and execute the optimal attack. On CEC, see Department of the Navy, "CEC - Cooperative Engagement Capability," Oct. 14, 2021, https://www.navy.mil/Resources/Fact-Files/Display-FactFiles/Article/2166802/cec-cooperative-engagement-capability/.

[101] Marshall Shepherd, "Six Ways You Used Satellites Today and Didn't Know It," *Forbes*, Apr. 9, 2019, https://www.forbes.com/sites/marshallshepherd/2019/04/09/six-ways-you-used-satellites-today-and-didnt-know-it/.

providing alternatives for the most critical services. For example, it could be possible to work with a friendly host nation or with humanitarian entities to provide secure, reliable alternative communication options to enable continued medical services and essential services.

If DOD develops more localized space operations options, the steps for reporting operations to the relevant CHAC and considering the operational alternatives given above for cyber operations could be applied.

RECOMMENDATIONS

CHMR represents a new approach to military operations that features data-driven learning and adaptation, enabled by the development of the civilian environment, the development of new capabilities and tools, and an ability to both proactively and reactively deal with information operations at a scale the US has not yet experienced. This comprehensive approach to CHMR offers enhanced military effectiveness along with strengthened mitigation of civilian harm. Pursuing and adopting this approach is tantamount to a *new* "new American way of war," and it offers strategic advantages to the US that, considering the approaches and capabilities of near-peer countries, represents the opportunity for a strategic offset: the fourth offset.

Similar to the implementation of past strategic offsets, considerable time and resources will be necessary to effectively implement the fourth offset of CHMR and have it ready to practice in high-end warfighting. Here, we provide recommendations to help the US begin the process of implementing CHMR in the context of LSCOs. We begin with an overarching recommendation for a leader-directed monitoring and assessment approach to help guide and sustain needed progress. We then provide recommendations for the focus areas of the report to address observed gaps. Finally, because this effort will require a sustained analytic agenda to address many unanswered questions, we suggest some priority topics as a starting point for such an agenda.

LSCO progress report within the CHMR Steering Committee

This report discusses many areas in which DOD must make significant progress to effectively address the operational dilemmas posed by LSCOs and obtain the strategic advantages offered by CHMR. This section contains many recommendations for actions that need to be taken as first steps. But developing the capability to practice CHMR in a comprehensive way will take sustained efforts for a decade or more, consistent with past strategic offsets. A senior leader review, informed by periodic assessments of progress, can help ensure that preparation efforts are on track:

- The CHMR Steering Committee should direct and receive an annual review of progress, informed by an assessment of preparation efforts for CHMR in LSCOs.
- This assessment should include preparedness of DOD for CHMR in LSCO in doctrine, training, capabilities, and operational plans and processes; lessons learned from current operations; updates on military innovation and experimentation; and work with allies, partners, and others. The assessment should also include recommended actions to overcome gaps. A potential assessment framework for CHMR progress is shown in Figure 7.

Construction of the civilian environment

DOD can take the following actions to construct the civilian environment for effective CHMR during a LSCO:

- **Build an architecture and information-gathering process to support a robust understanding of the civilian environment.** To do so, DOD will need to collaborate with many stakeholders, including the US Intelligence Community,

US interagency partners (e.g., the State Department and USAID), NATO, the United Nations, civil-society groups, other governments, local communities and institutions (e.g., universities), and private industry.

- **Develop the ability to disseminate civilian environment information to support a wide set of DOD functions.** For example, better and more timely information on the civilian environment should feed into mission analysis, course of action (COA) development and selection, and other elements of operational planning, and it should support assessments, response, and learning. In addition, information on the civilian environment should improve operational execution decision-making in several crucial ways, including improving the target development/no-strike list process, improving pattern-of-life determinations, and integrating the information into the operational picture to help avoid misidentifications and inadvertent collateral

Figure 7. CHMR assessment framework

Strategic Goal	**Military adopts and maintains a comprehensive approach to CHMR**			
	CHMR READY	**CHMR PRACTICE**	**ADAPTING AND IMPROVING CHMR**	**PARTNERING IN CHMR**
Long-Term Outcomes	Military as an institution is prepared to effectively mitigate and respond to civilian harm	Military effectively mitigates and responds to civilian harm while maintaining or increasing overall effectiveness	Military develops new CONOPS and capabilities to strengthen CHMR and to adapt to changing military operational priorities	Military works with allies, partners, civil society, industry, and the international community in its approach to mitigate and respond to civilian harm
Short-Term Outcomes	**Preparedness** **Proficiency** **Culture/ethos**	**Mitigation** **Response** **Transparency**	**Adaptation** **Improvement**	**Partnership** **Promotion** **Capability**
Outputs	**Institutionalization (DOTMLPF-P)** **Operational plans and processes**	**Operational mitigation** **Assessment** **Learning and Accountability** **Response**	**Experimentation** **Evaluation** **Research**	**Coalitions** **Security cooperation** **Engagement**

Source: CNA.
Note: There are cross-focus area assumptions including the sufficiency of national law and policy, compliance with IHL/IHRL, and the general proficiency of forces and resources.

damage. To achieve these improvements, different echelons and units will require different levels and types of information. In addition, information on the civilian environment will need to be integrated into a broader understanding of the operational environment and systems that support mitigation and response efforts, including operational and tactical networks, data links, and combat systems.

- **Emphasize the dynamic nature of the civilian environment and ensure that solutions are fit for purpose.** During a LSCO, the civilian environment will be dynamic, changing rapidly at times. These changes could include the movement of the civilian population and damage to structures and critical infrastructure, creating new or heightened risks, threats, and vulnerabilities. Decisions regarding civilian harm (and relatedly, legal considerations of proportionality) should factor in those changes. The military force must have ways to detect such changes during operations and quickly disseminate them.
- **Create new protocols for disseminating civilian environment information across existing networks.** The dissemination of critical aspects of the civilian environment across different networks and data links will require new protocols, standards, and combat system modifications. For example, for the tactical data link (Link 16), the military standard MIL-STD-6016 will need Interface Change Proposals to modify messages, fields, and protocols—including modifications to identity fields, correlation protocols, and identity conflict resolution protocols. Likewise, standards, protocols, and technical capabilities for the transfer of civilian environment information among networks and data links should be developed.
- **Continue to adapt the composition and contributions of CETs.** Per the CHMR-AP, the CETs were first described as cells with staff expertise, created to provide analytic reports and advice to operational planning and joint targeting. Combatant commands are building these teams and experimenting with adaptations to best meet command-specific objectives. These teams would best serve the goal of creating a comprehensive civilian environment by including skill sets that aid the construction and dissemination of a rich civilian component of the operational environment. Necessary knowledge and practices include familiarity with the range of datasets pertinent to the civilian environment, data fusion to pull in these data as required, and effective dissemination to all users in both planning and operations.
- **Develop a DOD enterprise approach to the civilian environment.** The benefits of a robust civilian environment will be limited if DOD personnel lack familiarity with the kinds of information contained in it. We recommend that DOD take an enterprise approach that offers a range of resources and services for forces to enhance their understanding of the civilian component of the operational environment. Such resources and services could include training and educational materials regarding the different elements of the civilian environment and relative risks to civilians from military effects; various means for identifying components of the civilian environment; and practical support

to exercises, simulations, and wargames in designing realistic scenarios and operational dilemmas. This enterprise approach could also involve the creation of standard toolkits of capabilities (e.g., references, data fusion tools, and standard operating procedures and protocols) that the CETs could benefit from.

- **Pursue a civilian environment protocol.** Given that civilian groups have a vested interest in providing information themselves, DOD should explore the development of a standard protocol for information exchange among different parties. This protocol should define data elements, classes of information, and formats for the sharing and processing of civilian environment information. This initiative could also include allies and partners to incorporate their perspectives and requirements and to bolster their ability to construct the civilian environment in their own contexts.
- **Experiment and learn from this process.** The above recommendations for constructing the civilian environment should be pursued iteratively and then tested and refined through experimentation. For example, the services should plan and conduct exercises with scenarios and systems that include components of the civilian environment and then assess the sufficiency of this information to meet operational goals. These assessments should then inform subsequent efforts, both at the service level and more widely within DOD. Joint activities such as those used in the Joint Test and Evaluation program could also be leveraged to help promote rapid learning and progress on aspects such as the composition of the CETs, the processes and resources used to construct the civilian environment, the adequacy of a civilian environment protocol, and the effectiveness of materiel solutions.

Mitigation of civilian harm

Based on the kinds of challenges we have observed when civilian harm occurs and how these challenges relate to characteristics of LSCOs, we recommend a set of steps that DOD can take to prepare for the onerous civilian harm mitigation challenges that may arise in the context of LSCOs.

Prepare for degraded communications

US forces will need to operate with limited communications—those that are degraded, denied, or not secure. Operating effectively while mitigating harm to civilians will require preparation for such an environment. Such preparation should include the following:

- Exploring concepts of operations and capabilities for addressing risks in a communications-degraded environment, including loading information on the civilian environment before the mission, finding ways to push essential information through adversary jamming, and developing local networks holding critical civilian information to support small-unit actions.
- Practicing the use of mission command and decentralized authorities in exercises, including in a communications-degraded environment. Because mission command and decentralized authorities can be vulnerable to cognitive biases, this practice should be accompanied by training and education on common biases and how to avoid them in practice.

Address biases and false assumptions

The following steps can address common biases and false assumptions in planning, training, and operational processes in preparation for LSCOs:

- Red teams should review operational plans and processes because biases and false assumptions can be implicit in such cases. They should use a deliberate red-teaming approach to identify ways to mitigate those biases using wargames, exercises, and tabletop exercises.
- Training and exercises should emphasize avoiding the false assumptions and biases described previously.
- As the US pursues the use of AI in military planning and operations, there are concerns about bias in AI applications. Efforts to identify and mitigate bias should prioritize the three primary sources of bias observed to lead to civilian harm.
- Education regarding a comprehensive approach to CHMR and the benefits of CHMR would be helpful, both for tactical leaders and senior leaders heading a joint task force or combatant command and also for those planning for or leading a LSCO.

Develop CHMR tactics for LSCOs

Small groups have often been critical parts of past innovation efforts by the US military. Small groups can hold discussions within commands, invite speakers, and build a dialogue around solving specific operational dilemmas; all of these efforts have contributed to innovative approaches to other issues.

Commands and services should form CHMR LSCO innovation groups to explore new concepts or tactics for improving protection in LSCOs. Encouraging creativity and drawing on expertise across DOD can be achieved through speakers and conferences to help cross-pollinate ideas across multiple units and commands.

Addressing concerns about fratricide during Operation Desert Storm in 1991, DOD undertook significant efforts to develop joint tactics, techniques, and procedures (TTP) to enable safe and effective operations as a joint force. These efforts included instrumented exercises in which TTP were explored and analyzed to assess their effects on mission effectiveness, combat identification performance, and fratricide rates. After a decade, new TTP were employed during Iraq operations in 2003. This approach of leveraging exercises and evaluations can be used to develop operational approaches for effective CHMR in LSCOs.

Services and combatant commands should also undergo formal development of CHMR LSCO tactics. Tactics can be explored through exercises (including instrumented exercises for data collection and analysis), events in cooperation with CHMR LSCO innovation groups, and activities in the Joint Test and Evaluation program.

Develop CHMR tools and capabilities for LSCOs

DOD should identify opportunities for tools and capabilities to enhance CHMR during LSCOs in several ways:

- **Experimentation.** Capabilities can be identified by first considering the various mechanisms that lead to civilian harm and how they can occur in the context of LSCOs

and then proposing and experimenting with capabilities for mitigation in exercises, simulations, or wargames to refine ideas and develop requirements.

- **Competition.** DOD (or the services) can hold competitions similar to the X Prize for developing innovative ideas for new CHMR capabilities. Each year, the specific context could be tailored to address specific protection challenges for LSCOs.
- **Coalition capabilities.** DOD can work with allies and partners to encourage the development of capabilities and tools for protecting civilians. These capabilities can be adopted more broadly within a coalition or alliance (e.g., NATO), or a particular ally can offer distinctive protection capabilities as part of its contribution to coalition operations.

Assessments

Data sources available to CHACs

CHACs should have ready access to the following data sources to inform civilian harm assessments:

Incident-specific assessments

- Detailed operational data, including on operational fires conducted by US forces.
- Intelligence data used to inform operations, such as information that suggests why a given individual or object was targeted.
- Combat assessment data and reports.
- Any evidence collected on site after an incident.
- In-person or remote interviews with incident witnesses.

Both incident-specific and macro-level assessments

- Broader operational data, including on operational maneuvers and capabilities employed by US forces.
- No-strike lists and related defense intelligence data and analysis on civilian objects and other elements of the civilian environment.
- Military sensor data, including imagery and other types of information from satellites as well as airborne, land-based, and sea-based sensors.
- Population density tables and related defense intelligence data and analysis on population density, dynamics, and demographics.
- Media sources, including traditional media (e.g., newspapers, local news websites) and social and new media (e.g., X, WhatsApp, YouTube, and Facebook).
- Google Maps and other mapping software.
- Local information sources (e.g., death certificates, hospital records, and law enforcement reports).
- Information from local contacts (e.g., journalists, activists, and NGO workers).
- Reports from international institutions, NGOs, and other research organizations.

Analytic methods used by CHACs

CHACs should be equipped to employ the following analytic methods, which are relevant to both incident-specific and macro-level assessments:

- Conducting fusion activity–based intelligence that combines open-source intelligence, remote sensor data, and other types of information (including classified intelligence and operational data).
- Analyzing changes in the civilian environment (e.g., change detection from satellite imagery).
- Leveraging civilian environment data gathered by defense intelligence (e.g., population density tables, building types, and no-strike lists).
- Leveraging language abilities, regional expertise, and culture support to gather and analyze information—such as to examine local-language information sources or to understand and correlate information included within reports (e.g., location information).
- Evaluating sources using deep knowledge of the relevant information environment.

Skill sets of personnel assigned to CHACs

DOD has previously drafted guidelines for CHACs that include the following three requirements: they must consist of personnel with expertise in intelligence, joint fires, civil-military relations, and post-strike assessment and analysis; they must include personnel with an understanding of the language, region, and culture relevant to the area of operations; and they must have access to legal advice from command counsel.[102] Based on our research, we recommend that CHACs include personnel with the following capabilities, or that personnel assigned to CHACs be trained consistent with these capabilities, which are relevant to conducting both incident-specific and macro-level assessments:

- Collection and analysis of relevant information from a broad variety of sources, including satellite imagery, remote sensor data, local sources (e.g., local governments, hospitals, police, and civil-society groups), global population density and building type data, interviews with witnesses and local informants, and classified information, such as combat assessments and operational data.
- Open-source research, including state-of-the-art methods for conducting such research (e.g., social media scraping).
- Imagery exploitation techniques.
- Expertise in the relevant country or region, particularly in the location's geography, population density, language, and information environment.
- Knowledge of the commonly accepted standards for evaluating and verifying the validity of sources used in such research.

Additional skills and capabilities for CHMR assessments

Based on the likely pace and magnitude of civilian harm during a LSCO, we recommend that DOD develop additional assessment skills and capabilities for LSCOs, including the following:

- **Open-source investigations.** DOD should develop the ability to leverage open-source data to achieve a more comprehensive understanding of specific civilian harm

[102] Department of Defense Instruction (DODI) 3000.17, Dec. 2023, *Civilian Harm Mitigation and Response*.

incidents. DOD personnel with the requisite skills and tools could conduct these investigations, or DOD could partner with other organizations (e.g., academia or civil-society groups) to obtain this information.

- **Aggregate estimates and assessments.** DOD should develop the ability to obtain larger scale estimates of civilian harm from actions or operations in areas where individual collateral damage estimates are impractical or unlikely to be accurate in themselves. Similarly, DOD should develop the ability to estimate an approximate level of civilian harm at larger scales of military operations, both before (what the potential scale of harm might be) and after operations (a range of civilian harm that is likely to have occurred). Such efforts could leverage technologies such as population densities or change detection, or they could experiment with other methods.

Response

The US should take steps now to strengthen its ability to respond during a future LSCO, including its strategic communications capabilities and its ability to alleviate suffering caused by war.

Improve strategic communications

- Develop a strategic communications playbook that outlines the appropriate responsibilities and responses for CHMR. This report can serve as a starting point for that playbook.
- Train commanders and communications staff on how to communicate about CHMR during a LSCO, including the basics on acknowledging incidents of potential civilian harm and conducting KLEs.
- Exercise strategic communications on CHMR as part of all major exercises.

Focus on enabling humanitarian assistance to civilians suffering on both sides

- Consider ways to help affected civilians meet basic needs and to ease human suffering on both sides. USAID is well placed to lead this effort, but the agency may require logistical or other support from the US military.
- Work with allies and partners to plan now for flows of refugees and internally displaced people. Consider what support they will need, including spaces to gather and supplies, and establish critical relationships with the international NGO community, the United Nations, the State Department, and USAID.

Modernize the ex gratia payment system

- Finalize the "Interim Regulations for Condolence or Sympathy Payments to Friendly Civilians for Injury or Loss That Is Incident to Military Operations."
- Advocate for the passing of legislative proposal 2741 ("Payment of expenses to help respond to civilian harm"), which would greatly expand the government's ability to make payments to cover short-term assistance projects and "make payments for expenses for the purpose of expressing condolences or helping to alleviate or otherwise responding to civilian harm that has occurred in an area affected by an operation of the armed forces, a coalition

that includes the United States, or a military operation supporting the United States or such a coalition."[103] This legislation would allow for increased flexibility for funds to be used to support a range of possible responses, such as covering medical costs for injured civilians or covering the costs of reconstruction projects. This added flexibility will be crucial during a LSCO, when payments may look different or take place after the conflict.

- Ensure training for commanders and staff so they are aware of the relevant authority.
- Streamline case intake with the establishment of a public website.
- Discuss US authorities with allies and partners and establish collaboration with their existing systems and offices.

Establish an interagency working group on response to civilian harm to prepare for future response to civilian harm

- In 2016, the US issued an executive order on civilian casualties, establishing that civilian harm is an interagency issue. But implementation of this order has been weak, with no interagency process bringing coherency to its implementation, especially regarding responses to civilian harm. To address this issue, we recommend the establishment of an interagency working group on civilian harm response to develop ideas on how the US can effectively employ all its capabilities and authorities relevant to response. An effective LSCO response will need to be an interagency endeavor, and the military may not be in the lead or may not have the means or capacity in certain situations or areas of response. Establishing an interagency menu of options and the authorities now will enable fast and effective interagency responses during LSCOs.
- One of the initiatives of this interagency working group could be to compile recent and historical lessons on reconstruction and rebuilding, reviewing them for opportunities for civilian harm response in LSCOs. The ideas and solutions identified by this working group could also be applied as appropriate to operations for which the US is providing security cooperation to an ally or partner.

Develop discussions with alliances, allies, and partners to begin to understand what might be wanted or needed during LSCOs

- Establish bilateral and alliance-level discussions to focus on this issue. Topics could include building response capabilities now and determining how to integrate them into US capabilities.
- Determine what types of support and which authorities will be needed and prioritize them now. The US should consider funding for this type of work.

[103] *Amendments to Defense Research and Development Rapid Innovation Program*, Title 10, U.S. Code, Sec. 4061, https://ogc.osd.mil/Portals/99/OLC%20Proposals/FY%202025/29Mar2024Proposals.pdf?ver=1n2_LXCTde_yaLPbCbGm6w%3D%3D.

Operational learning: CHACs, operational headquarters, and metrics for CHMR

- Combatant commands and joint task forces should incorporate CHMR as a consideration into existing boards, bureaus, centers, cells, and working groups (B2C2WGs). They should also create new B2C2WG entities to support effective management of the CHMR approach during an operation, including the tracking of civilian harm, operational learning and adaptation, and response to civilian harm incidents and allegations.
- These B2C2WG developments should include data-sharing policies with coalition partners and potential host nation governments in planning efforts. These partners should also be included in the execution of these headquarters functions so they can understand and contribute to mitigation efforts.
- These headquarters processes should be supported by metrics and analysis to enable mitigation steps that optimally reduce risks to mission, risks to force, and risks to civilians.
- These headquarters processes should be tested and refined through exercises and wargames, both to find optimal approaches and to build practical experience before these steps are executed during a LSCO.

Nonlethal and nonkinetic capabilities and CHMR

- The JIFCO should develop intermediate force tools for a LSCO context and develop capabilities to address specific operational dilemmas presented by LSCOs. This way, US forces will gain additional tools and capabilities for effective CHMR during LSCOs.
- Cyber and space communities should consider the CHMR life cycle in the planning and execution of their operations, including learning from incidents of civilian harm and potentially adding requirements for capabilities that support more effective mitigation of such harm.
  - It will be important to construct and provide an operational picture of the civilian environment to ensure cyber operations consider risks to civilians.
  - This picture should support assessments of the likely effects of the operation, including possible harm to protected entities, such as hospitals, critical infrastructure, and physical hazards (e.g., dams and nuclear power plants).
- This picture should also include consideration of sensitive information. For example, could the operation cause a loss of sensitive or critical information, such as banking information, medical records, or property records? In addition, is protected digital information present, such as digital cultural heritage information?

- Consideration should also be given to how to include digital entities and characteristics in the civilian environment. For example, should cyber operations be guided by a more complete picture of civilian systems and services? Should there be a digital way to notify armed actors regarding the civilian nature or protected status of digital systems or data?
- Cyber and space operations operating at various echelons or classifications should be provided the same information available to CHACs. Capabilities analogous to TENCAP programs could report basic facts to support initial assessments of the feasibility of external reports of civilian harm.

CHMR analytic agenda for LSCOs

An analytic program is integral to comprehensive CHMR. CHMR is about learning and adapting, and military innovation has historically depended heavily on studies, often coupled with experimentation to test and refine new concepts. A robust analytic agenda is vital to CHMR being implemented successfully as a strategic offset. Such an agenda would fuel and guide necessary steps and identify areas in which course correction is needed. To start, we recommend these initial analytic areas of study:

- **Service-specific strategies for CHMR.** In the CHMR-AP and the CHMR DODI, the services are given many responsibilities for implementing CHMR. The development of a service-specific strategy for CHMR would help each service focus on needed efforts, particularly those consistent with its own responsibilities and operational domains. There is a precedent for this: when DOD issued an AI strategy in support of the Third Offset, each service created its own service-level AI strategy to guide implementation.
- **CHMR and cyber operations.** In this report, we created a framework for integrating the CHMR approach into cyber operations. A follow-on study could explore this topic in depth, including considerations such as the civilian environment, how to conduct estimates of civilian harm to inform COA selection, how to mitigate harm, and response options.
- **CHMR and nuclear operations.** Historically, nuclear weapon design and employment concepts have considered civilian harm. That said, there is an opportunity to apply the new comprehensive CHMR approach and lessons to the planning, employment, and design of nuclear weapons. A study that bridges nuclear operations with CHMR lessons and best practices could help ensure that the CHMR approach is integrated into all response options for LSCOs.
- **Large-scale estimation of civilian harm, for planning and before and after operations.** For example, in planning an operation, given an expected area of operations and a specific operational plan, what is an estimated range of civilian harm for that COA? And during and after an operation, using operational data and an understanding of the civilian environment, what is the expected scale of civilian harm, including casualties, damage to structures, and effects on infrastructure? Although this estimation capability is vital for conducting CHMR to scale, such as during a LSCO,

DOD lacks the means to generate such estimates. A study could examine this issue in depth and propose specific technologies and processes to make this functionality a natural part of DOD planning and operations.

- **CHMR strategies for specific operational dilemmas.** For example, studies could conduct deep dives into CHMR in future urban warfare, in maritime operations with civilian/commercial shipping and potential humanitarian aid, and in dense civilian areas with high-value targets.

APPENDIX: AUTHORITIES FOR RESPONSE

As noted earlier, Objective 8 of the *Civilian Harm Mitigation and Response Action Plan* (CHMR-AP) calls for establishing a "holistic response framework." This framework will make several objectives possible:

> [Through the framework,] DOD will ensure the availability of a diverse menu of response options to respond to individuals and communities affected by US military operations—including public and private acknowledgement of harm, condolence payments, medical care, repairs to damaged structures and infrastructure, ordnance removal, and locally held commemorative events or symbols. These options will allow commanders to craft tailored responses, based on consultations with affected individuals and communities, which are contextually and culturally appropriate.[104]

Although there are several major unknowns currently in DOD's effort to institutionalize this new approach to CHMR, chief among them is identifying the range of available DOD authorities that the US military has available to respond to civilian harm. Without designated authorities, as well as associated capabilities, the military's ability to respond to civilian harm may be quite limited. Therefore, through this study, in addition to assessing how the military could respond to civilian harm in high-intensity conflict, we also sought to help DOD address this more fundamental issue of authorities to better inform its overall approach.

This appendix contains a range of DOD authorities that the US military has available to respond to civilian harm. We conducted this analysis primarily using open-source information—including reports and articles on responding to civilian harm, the United States Code, and existing DOD policies and directives—supplemented by discussions with representatives of select combatant commands.

DOD authorities for response

To understand the range of responses commanders may consider, it is critical to properly identify all available and existing DOD authorities that *could* be utilized to respond to civilian harm (CHMR-AP Action 8.d.). These authorities include those that have been used in the past to respond to harm (such as Section 1213 for ex gratia payments) and existing DOD authorities that may not have been used before. (Table 2 summarizes the range of DOD authorities.) Responding to civilian harm through payments or other assistance is not required by US or international law and does equate to a formal reparation or an admission of guilt.[105] Prior to the June 2020 release of the Interim Regulations for Section 1213, which designates 1213 as the sole authority for the use of ex gratia payments incident to the use of force by the US military, ex gratia payments were made through two vehicles: solatia payments funded by the military unit's operations and maintenance accounts and ex gratia payments funded by the commander's Emergency Response Program.[106]

The rest of this section is organized by the type of response that requires authorization, such as

[104] Department of Defense, *Civilian Harm Mitigation and Response Action Plan*.
[105] McNerney et al., *US Department of Defense Civilian Casualty Policies and Procedures*.
[106] McNerney et al., *US Department of Defense Civilian Casualty Policies and Procedures*.

Table 2. Summary of relevant DOD authorities

DOD authority (including existing and proposed)	Related civilian harm response	Authorizes US military to undertake activities directly, to cover related expenses, or both?	Requires State Department approval or interagency coordination?	Relevant to individual- or community-level response?	Possible limitations for application to respond to civilian harm
1213: Authority for certain payments to redress injury and loss	Condolence payments	Cover related expenses of ex gratia payments	Requires country and regional assessments conducted in consultation with the relevant US Embassy country team	Individual	Directly applicable to responding to civilian harm
DODI 6025.23: Health care eligibility under the Secretarial Designee (SECDES) program and related special authorities	Medical care	Undertake activities directly	For care outside the contiguous US (OCONUS), requests from the State Department or other US government agencies will be considered on a reimbursable basis. Requests must be supported by the US ambassador to the country involved.	Individual	Seeking reimbursement for medical care to civilians injured as a result of US military operations could be viewed as insulting and callous; commanders would likely need to be authorized to give blanket waivers for reimbursement Seeking reimbursement for medical care can also be exceedingly laborious for the government and the recipients
1079b: Procedures for charging fees for care provided to civilians; retention and use of fees collected	Medical care	Cover related expenses through waiver	Not explicitly mentioned in the authority	Individual	Commanders would likely need to be authorized to give blanket waivers for reimbursement
1073d: Military medical treatment facilities	Medical care	Undertake activities directly	Not explicitly mentioned in the authority	Individual and community	Location specific to existing OCONUS medical treatment facilities across Europe, Guam, Guantanamo Bay, Korea, Japan, and Puerto Rico
401: Humanitarian and civic assistance provided in conjunction with military operations	Medical, surgical, dental, and veterinary care; rudimentary construction; well drilling; and repair of public facilities and transportation systems	Undertake activities directly	Specific approval from the secretary of state is required for the provision of assistance under this authority for any foreign country	Individual and community	Authority stipulates that medical, surgical, dental, and veterinary care be provided in areas that are rural and underserved by medical professionals; this does not account for the increasing conflict in urban settings

DOD authority (including existing and proposed)	Related civilian harm response	Authorizes US military to undertake activities directly, to cover related expenses, or both?	Requires State Department approval or interagency coordination?	Relevant to individual- or community-level response?	Possible limitations for application to respond to civilian harm
2561: Humanitarian assistance					
Funded Transportation Program	Transportation of humanitarian relief	Undertake activities directly and cover related expenses	Not explicitly mentioned in the authority	Individual and community	Relies on NGOs or international organizations to provide the supplies and equipment for DOD to transport; will require coordination and relationship with local and international NGOs in advance
Humanitarian Assistance (HA) Program	Construction, basic infrastructure, health-related projects and activities, and basic education support	Undertake activities directly and cover related expenses	Not explicitly mentioned in the authority	Individual and community	Usually developed in coordination with the partner nation at the ministerial level
Foreign Disaster Relief (FDR)	Deployment of forces to save lives	Undertake activities directly and cover related expenses	Requires concurrence of secretary of state and the chief of mission before committing forces	Individual	Also requires the concurrence of the partner nation before committing forces
2557: Excess nonlethal supplies: availability for humanitarian relief, domestic emergency assistance, and homeless veterans assistance	Providing clothing, shoes, sleeping bags, and other nonlethal supplies	Provide supplies directly	Supplies and materials will be transferred to the State Department via the US Embassy for distribution to the partner nation government	Individual and community	Requires an excess of nonlethal supplies and a willing partner nation government or NGO to receive and distribute supplies; providing excess nonlethal supplies does not necessarily constitute a response to civilian harm
407: Humanitarian demining assistance and stockpiled conventional munitions assistance: authority; limitations	Education, training, and technical assistance to partner nations	Provide direct education, training, and technical assistance	State Department brings the request forward to an interagency group chaired by the National Security Council to determine whether assistance is warranted	Community	Requires nation suffering from explosive remnants of war (ERW) to request US support; this authority does not stipulate that the ERW must be a result of US military operations

DOD authority (including existing and proposed)	Related civilian harm response	Authorizes US military to undertake activities directly, to cover related expenses, or both?	Requires State Department approval or interagency coordination?	Relevant to individual- or community-level response?	Possible limitations for application to respond to civilian harm
166a: Combatant Commander Initiative Fund	Urgent and unanticipated humanitarian relief and reconstruction assistance, among other activities	Cover costs only	In coordination with chief of mission	Individual and community	Commanders would need to contract with other actors, such as local and international NGOs or members of the interagency, to carry out specific activities; will require coordination and relationship with local and international NGOs in advance
127: Emergency and extraordinary expenses	Payment for any emergency or extraordinary expense that cannot be anticipated or classified	Cover costs only	Not explicitly stated	Individual and community	Commanders would need to contract with other actors, such as local and international NGOs or members of the interagency, to carry out specific activities; will require coordination and relationship with local and international NGOs in advance
(Proposed Legislation) 2741: payment of expenses to help respond to civilian harm		Carry out short-term projects and make payments for expenses related to responding to civilian harm	Relies on country and regional assessments conducted in consultation with the relevant US Embassy country team	Individual and community	Directly applicable to responding to civilian harm; complements authority 1213 on ex gratia payments

Source: CNA.

condolence payments, medical care, repairs to damaged structures and infrastructure, and ordnance removal.

Condolence payments

Authority for certain payments to redress injury and loss (1213). Section 1213 is the sole authority for providing ex gratia payments in response to damage, personal injury, or death that is *incident to the use of force* by the US military, a coalition that includes the US, or a military organization supporting the US or such a coalition. Under 1213, $3 million is allocated for each calendar year for ex gratia payments from the DOD-wide Operation and Maintenance account. Authorized commanders can use this authority at their discretion "to provide monetary payments to friendly civilians as a means of expressing condolence or sympathy or as a goodwill gesture in the event of property damage, personal injury, or death" incidental to the use of force.[107] The aim of this authority is not to attempt to compensate civilians for losses that are incidental to armed conflict or attempt to restore civilians to a situation that existed before the conflict. Instead, ex gratia payments may be provided only if the following conditions are met:

- The prospective foreign civilian recipient is not otherwise ineligible for payment under any other provision of law.
- A request for damages would not be compensable under chapter 163 of Title 10 2734, United States Code (commonly known as the Foreign Claims Act).
- The property damage, personal injury, or death was not caused by enemy action.
- The prospective foreign civilian recipient suffered property damage, personal injury, or death that was caused by or occurred during an operation carried out by the US military or coalition.
- The prospective foreign civilian recipient was not involved in planning or executing an attack or hostile action that gave rise to the use of force.

We note that the Foreign Claims Act is the correct authority for providing payments to foreign nationals in response to damage, personal injury, or death caused by noncombat, negligent, or wrongful actions by the US military. The Foreign Claims Act has a specific noncombat clause that does not allow the act's provisions to be used to respond to civilian harm caused by military operations. Given this, the Foreign Claims Act is not included in this report.[108]

The payment amount should be based on country and regional assessments conducted in consultation with the secretary of state and should include factors such as cultural appropriateness and prevailing economic conditions. Payments are limited to a maximum of $5,000 per civilian who is injured or killed or who suffers property damage. Authority to approve ex gratia payments resides with the geographic combatant commander and can be delegated to subordinate commanders.[109] Offers above $5,000 (maximum of $15,000) must be approved by the respective geographic combatant commander or

[107] James H. Anderson, Memorandum for Secretaries of the Military Departments, Chairman of the Joint Chiefs of Staff, and Commanders of the Combatant Commands, Subject: Interim Regulations for Condolence or Sympathy Payments to Friendly Civilians for Injury or Loss That Is Incident to Military Operations, June 22, 2020, https://media.defense.gov/2020/Jun/23/2002320314/-1/-1/1/INTERIM-REGULATIONS-FOR-CONDOLENCE-OR-SYMPATHY-PAYMENTS-TO-FRIENDLY-CIVILIANS-FOR-INJURY-OR-LOSS-THAT-IS-INCIDENT-TO-MILITARY-OPERATIONS.PDF.

[108] *Military Claims,* Title 10, U.S. Code, Ch. 163, Sec. 2731 et seq. 2021, https://uscode.house.gov/view.xhtml?req=granuleid%3AUSC-prelim-title10-chapter163&saved=%7CZ3JhbnVsZWlkOlVTQy1wcmVsaW0tdGl0bGUxMC1zZWN0aW9uMjczNGE%3D%7C%7C%7C0%7Cfalse%7Cprelim&edition=prelim.

[109] *Military Claims,* 2019.

their designee. The maximum amount per individual civilian may not be sufficient in certain contexts in which costs of living and prevailing economic conditions are dramatically higher.

According to the Interim Regulations for Condolence Payments, the following procedures apply to the decision of the geographic combatant commanders or other delegated subordinate commanders to approve the offer of ex gratia payments:

1. **Document circumstances related to the damage, injury, or death.** This documentation can include significant activity reports, Comprehensive Cost and Requirement systems, administrative investigations, a review of the incident, or a commander's written report about the incident.
2. **Act in a timely manner.** Ex gratia payments normally should be made within 90 days of the incident because the sympathy or goodwill such payments convey is time sensitive. All efforts should be made to ensure timely action.
3. **Consider relevant factors.** Consideration should be given to cultural norms, local economic realities, the feasibility of compiling the needed information, and sensitivities of the host nation and allies and partners, among other factors. The required regional and country assessment should assist commanders with this step.
4. **Determine the cause of the damage, injury, or death.** Ensure that an offer of ex gratia payment is not made for any reasons other than the circumstances allowed under this authority.
5. **Determine whether the possible recipient is "friendly to the US."** Commanders should make a good-faith effort based on available information, including recent interactions with the civilian or the local community and relevant information from Civil Affairs and intelligence sources.
6. **Obtain legal advice.** Commanders must obtain legal advice before authorizing an offer. Legal advisors have discretion to decide the best way of communicating their advice based on the circumstance.
7. **Submit a written record.** Information on the offer must be documented and will be submitted as part of the required quarterly report that geographic combatant commanders must submit to the Joint Chiefs of Staff.[110]

Medical care

Health care eligibility under the Secretarial Designee (SECDES) program and related special authorities (DODI 6025.23). This DOD Instruction (DODI) establishes policy pursuant to Section 1074c of the United States Code. The policy states that foreign nationals (other than foreign military personnel in the US and foreign diplomatic or other senior foreign offices) may be designated to receive medical care (regardless of role of care) if space allows in medical treatment facilities (outside the contiguous US (OCONUS) or within the contiguous US (CONUS)) only in extraordinary circumstances. Importantly, this policy does not require those seeking medical care to have been harmed because of US operations. The policy's stipulation of "extraordinary circumstances" is commonly interpreted to include combat zones and wartime.[111] For care provided in CONUS, the Office of the Under Secretary of Defense for Personnel and Readiness or the secretaries of the military departments have the authority to waive reimbursement for care. For OCONUS-related care, requests from the State Department or other US government agencies will be considered on

[110] Anderson, Memorandum for Secretaries of the Military Departments.

[111] Sabrina Verleysen, interview with Kara Mandell, CNA analyst specializing in US military health services research, Nov. 2, 2023.

a reimbursable basis. The US ambassador to the country involved and the geographic combatant commander for that area of responsibility must support the request, and it "must be premised on critically important interests of the US."[112] Generally, the US military is supposed to seek reimbursement for medical care provided to foreign nationals and has stated medical billing rates, including an inpatient daily rate of $1,084 and an outpatient visit rate of $69.[113] However, seeking reimbursement is not always practical or possible.[114] In addition, seeking reimbursement for medical care to civilians injured as a result of US military operations could be viewed as insulting and callous.

Procedures for charging fees for care provided to civilians; retention and use of fees collected (1079b). This authority directs the secretary of defense to implement procedures under which a military medical treatment facility may charge civilians who are not covered beneficiaries (or their insurers) fees representing the costs, as determined by the secretary, for treatment of trauma and other medical care provided to such civilians. If the provision of care enhances the knowledge, skills, and ability of health care providers, the director of the Defense Health Agency (DHA) may issue a waiver for fees. Importantly, if a civilian is underinsured, has a remaining balance, or is at risk of financial harm, the director of the DHA can reduce each fee charged to the civilian according to a sliding fee discount program. In addition, the director has the authority to implement a waiver to prevent severe financial harm.[115] In the event of a high-intensity conflict that involves a high number of injured civilians, it would likely be most efficient for a commander to have the authority to give a blanket waiver for civilians harmed in a certain region or area.

Military medical treatment facilities (1073d). Under this authority, the secretary of defense shall do the following:

> Designate and maintain certain military medical treatment facilities as core casualty receiving facilities, to ensure the medical capability and capacity required to diagnose, treat, and rehabilitate large volumes of combat casualties and, as may be directed by the President or the Secretary, provide a medical response to events the President determines or declares as natural disasters, mass casualty events, or other national emergencies.[116]

A core casualty-receiving facility is a medical treatment facility that "serves as a medical hub for the receipt and treatment of casualties, including civilian casualties, that may result from combat or from an event the President determines or declares as a natural disaster, mass casualty event, or other

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[112] Department of Defense Instruction (DODI) 6025.23, Sept. 16, 2011, incorporating Change 2, May 28, 2020, *Health Care Eligibility Under the Secretarial Designee (SECDES) Program and Related Special Authorities,* https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/602523p.pdf.

[113] Anne J. McAndrew, Memorandum for Deputy Assistant Secretary (Budget), Office of the Assistant Secretary of the Army (Financial Management and Comptroller), Director for Office of Budget/Fiscal Management, Office of the Assistant Secretary of the Navy (Financial Management and Comptroller), Deputy Assistant Secretary (Budget), Office of the Assistant Secretary of the Air Force (Financial Management and Comptroller), Subject: Medical Billing Rates for Care Provided to Foreign Nationals Under Acquisition and Cross-Servicing Agreements in Department of Defense Deployed/Non-Fixed Medical Facilities, 2019, https://comptroller.defense.gov/Portals/45/documents/rates/fy2019/2019_ic.pdf.

[114] Sabrina Verleysen, interview with Kara Mandell, Nov. 2, 2023.

[115] *Medical and Dental Care,* Title 10, U.S. Code, Ch. 55, Sec. 1079b, 2024, https://uscode.house.gov/view.xhtml?path=&req=%22medical+care%22+and+%22civilians%22&f=treesort&fq=true&num=20&hl=true&edition=prelim.

[116] *Medical and Dental Care,* Title 10, U.S. Code, Ch. 55, Sec. 1073d, 2022, https://www.law.cornell.edu/uscode/text/10/1073d.

national emergency."[117] The authority contains a timeline for establishment that notes that no later than October 1, 2024, four military medical treatment facilities should be designated as core casualty-receiving facilities, and by October 1, 2025, all designated military medical treatment facilities should be fully staffed and operational as core casualty-receiving facilities. At present, the US military maintains military medical treatment facilities across Europe and in Guam, Guantanamo Bay, Korea, Japan, and Puerto Rico.

Medical care or repairs to damaged structures and infrastructure

Humanitarian and civic assistance provided in conjunction with military operations (401). Under this authority, the secretary of a military department may carry out humanitarian and civic assistance activities in conjunction with authorized military operations of the armed forces in a country if the secretary concerned determines that the activities will promote (1) the security interests of both the US and the country in which the activities are to be carried out and (2) the specific operational readiness skills of the members of the armed forces who participate in the activities. Humanitarian and civic assistance activities include several activities that must "serve the basic economic and social needs of the people of the country concerned."[118] These include the following:

- Medical, surgical, dental, and veterinary care provided in areas of a country that are rural or are underserved by medical, surgical, dental, and veterinary professionals, respectively, including education, training, and technical assistance related to the care provided.
- Construction of rudimentary surface transportation systems.
- Well drilling and construction of basic sanitation facilities.
- Rudimentary construction and repair of public facilities.[119]

According to US law, public facilities are defined as any of the following facilities owned by a state or local government: facilities involved in flood control, navigation, irrigation, reclamation, public power, sewage treatment and collection, water supply and distribution, and watershed development, as well as infrastructure such as airports, streets, roads, highways, parks, and buildings and other structures and systems, including those that are used for educational, recreational, or cultural purposes.[120]

Importantly, activities carried out under this authority should complement and not duplicate any other forms of social or economic assistance that may be provided to the receiving country by another US department or agency (such as USAID). In addition, assistance cannot be provided (directly or indirectly) to any individual, group, or organization engaged in military or paramilitary activities. Finally, specific approval from the secretary of state is required for the provision of assistance under this authority for any foreign country. Differing from authority 127 (emergency and extraordinary expenses), which is outlined below, 401 provides authority for the US military to conduct these humanitarian and civic assistance projects directly. Incidental expenses incurred as part of the humanitarian and civic

[117] *Medical and Dental Care,* 2022.

[118] *Humanitarian and Other Assistance,* Title 10, U.S. Code, Ch. 20, Sec. 401, 1987, https://www.govinfo.gov/content/pkg/USCODE-2023-title10/html/USCODE-2023-title10.htm.

[119] *Humanitarian and Civic Assistance Provided in Conjunction with Military Operations,* Title 10, U.S. Code, Ch. 20, Sec. 401, 1993, https://uscode.house.gov/view.xhtml?req=29+USC&f=treesort&num=8969.

[120] *Disaster Relief,* Title 42, U.S. Code, Ch. 68, Sec. 5122(10), 2013, https://www.law.cornell.edu/uscode/text/42/5122#10.

assistance provided are to be paid by the funds specifically appropriated for such purposes (no financial limit is explicitly mentioned in the authority) and other funds, except for those appropriated for operation and maintenance.

Humanitarian assistance (2561). Under this authority, "funds authorized to be appropriated to the DOD for humanitarian assistance may be used for the purpose of providing transportation of humanitarian relief and for other humanitarian purposes worldwide."[121] This authority covers three DOD programs managed by the Defense Security Cooperation Agency (DSCA), including the Funded Transportation Program, Humanitarian Assistance (HA), and Foreign Disaster Relief (FDR), all of which may be relevant for responding to civilian harm. This authority is funded by the Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) appropriation, an annual appropriation with a two-year period of availability.

Funded Transportation Program (2561). The secretary of defense can use this authority to transport and deliver privately donated humanitarian supplies and equipment "intended for use to respond to, or mitigate the effects of, an event or condition, such as an oil spill, that threatens serious harm to the environment, but only if other sources to provide such transportation are not readily available."[122] NGOs that wish to donate these materials can do so by submitting a Humanitarian Assistance Transportation Programs request to DOD via an online portal. Transportation of humanitarian relief under this authority should be provided under the direction of the secretary of state and should be provided using the most economical commercial or military means available, including the use of aircraft and personnel of the armed forces. US Transportation Command executes the program. This authority could be relevant when transporting materials to repair damaged structures and infrastructure or transporting medical equipment and supplies to civilian populations that have been harmed as a result of military operations. This authority is limited because it relies on NGOs or international organizations to provide the supplies and equipment.

Humanitarian Assistance (2561). The HA program includes "collaborative DOD engagements with PN [partner nation] government authorities in permissive environments to directly relieve or reduce human suffering, disease, hunger or privation or to increase PN capacity to provide essential human services to vulnerable populations."[123] Usually developed in coordination with the PN at the ministerial level, activities can include construction, training, planning, health-related projects and activities, basic education support, basic infrastructure, and provision of equipment to address disaster risk reduction, mitigation, and disaster preparedness, according to DSCA.

Foreign Disaster Relief (2561). The FDR allows DOD components to provide nonreimbursable FDR using the presidential drawdown authority and other available authorities at the direction of the president (with approval from the secretary of defense and the concurrence of the secretary of state) or in emergency situations to save lives. According to DSCA, "Commanders with assigned forces at or near the immediate scene of a foreign disaster may take prompt action to save human lives. Commanders

[121] *Issue of Supplies, Services, and Facilities,* Title 10, U.S. Code, Ch. 152, Sec. 2561, 2021, https://www.govinfo.gov/content/pkg/USCODE-2021-title10/html/USCODE-2021-title10-subtitleA-partIV-chap152-sec2561.htm.

[122] *Issue of Supplies, Services, and Facilities,* 2021.

[123] Department of Defense and Defense Security Cooperation Agency, "Chapter 12: Overseas Humanitarian, Disaster, and Civic Aid," in *Security Assistance Management Manual* (2012), https://samm.dsca.mil/chapter/chapter-12.

should obtain the concurrence of the partner nation (PN) and the Chief of Mission (COM) before committing forces."[124] Foreign disasters include calamitous situations or events that may be natural or human caused, whether they have a sudden or a slow onset. Furthermore, commanders may use or preposition their own resources to respond to the disaster. Human-caused disasters resulting from US military operations are not explicitly excluded from the definition of a foreign disaster. Given this, Authority 2561 could be used to deploy forces located near a disaster to support civilians and their communities, such as in the direct aftermath of misidentification (the mistaken belief that civilians or civilian objects are valid military targets) if the level of risk is low enough and if alternative first responders are unavailable.

Excess nonlethal supplies: availability for humanitarian relief, domestic emergency assistance, and homeless veterans assistance (2557). This authority allows the secretary of state to make available any nonlethal excess DOD supplies for humanitarian relief. These supplies and materials (e.g., excess clothing, shoes, and sleeping bags) must be transferred to the State Department via the US Embassy for distribution to the PN government recipient. In addition to the PN government recipient, "donations can be distributed to NGOs or international organizations only if the organization is supporting the population on behalf of the partner nation government."[125] Nonetheless, this authority could be used to good effect in tandem with other forms of civilian harm response, such as ex gratia payments or medical care for injured civilians. This authority and the potential basic needs that it could fulfill could be very useful for civilians who have lost their homes and livelihoods as a result of US military operations or been displaced. This authority is limited by nature of its reliance on *excess* nonlethal supplies, and it may not be an option for all commanders in all situations. Furthermore, displaced civilians require speedy assistance, which may not align with the time it takes for excess nonlethal supplies to be distributed. Finally, civilian populations may be inaccessible and therefore unable to receive these supplies.

Ordnance removal

Humanitarian demining assistance and stockpiled conventional munitions assistance: authority; limitations (407). Under this authority, the secretary of a military department can carry out humanitarian demining assistance in a country if the secretary deems the assistance will promote either (1) the security interests of the US and the country in which the activities will be carried out or (2) the operational readiness of the members of the military who would participate in the activities. No members of the military are allowed to "engage in the physical detection, lifting, or destroying of landmines, unexploded ordnance, or other explosive remnants of war (ERW) (unless the member does so for the concurrent purpose of supporting a United States military operation)."[126]

In relation to training and support, *humanitarian demining assistance* has the following meaning:

> [Humanitarian demining assistance] means detection and clearance of landmines, unexploded explosive ordnance, and other explosive

[124] Department of Defense and Defense Security Cooperation Agency, "Chapter 12: Overseas Humanitarian. Disaster, and Civic Aid," Section 8.

[125] Department of Defense and Defense Security Cooperation Agency, "Chapter 12, Overseas Humanitarian, Disaster, and Civic Aid."

[126] *Humanitarian and Other Assistance,* 2020.

> remnants of war, and includes activities related to the furnishing of education, training, and technical assistance with respect to explosive safety, the detection and clearance of landmines, unexploded explosive ordnance, and other explosive remnants of war.[127]

This authority supports the DOD Support for Humanitarian Mine Action (HMA) Program, which "provides assistance to partner nations plagued by land mines and ERW by executing 'train-the-trainer' programs of instruction designed to develop indigenous capabilities for a wide range of HMA activities."[128] DSCA manages the program and handles all aspects of the budget authority for the OHDACA appropriation. HMA costs for supplies and equipment cannot exceed $15 million per fiscal year.

The process to leverage the HMA program and this existing authority must be initiated by the country experiencing the adverse effects of ERW through their US Embassy. A copy of the request for support is provided to the geographic combatant command at the time the request is submitted. The State Department then brings the request forward to an interagency group chaired by the National Security Council to determine whether assistance is warranted.[129] The process by which countries experiencing the effects of ERW request support from the HMA program assumes that the countries are able and willing to engage in the process and transfers the burden of initiating the process from the commander to the country where the war is being fought. This authority and related process assume that the country where the conflict is being fought is friendly to US forces (given that they are requesting support) and that the battlefield is accessible for demining. In a high-intensity conflict, the battlefield may not be accessible until after the conflict is over, and the country hosting the hostilities may not be willing or able to request US support for demining. Importantly, this authority does not stipulate that the ERW must be a result of US military operations. This authority could be used to good effect to respond to ERW caused by allies and partners.

Broad authorities of relevance

Combatant Commander Initiative Fund (166a. Combatant commands: funding through the chairman of Joint Chiefs of Staff). Under this authority, the "Chairman of the Joint Chiefs of Staff may provide funds to the commander of a combatant command, upon the request of the commander" for "humanitarian and civic assistance, in coordination with the relevant chief of mission to the extent practicable, to include urgent and unanticipated humanitarian relief and reconstruction assistance,"[130] among other activities.

When funding requests are made, the chairman must give priority consideration to situations in which the funds will be used for activities that would enhance the warfighting capability, readiness, and sustainability of the forces assigned to the commander requesting the funds. The funds must be used for urgent and unanticipated humanitarian relief and reconstruction assistance, particularly in a foreign country where the armed forces are engaged in a contingency operation. There are limits

[127] *Humanitarian and Other Assistance,* 2020.

[128] Chairman of the Joint Chiefs of Staff Instruction (CJSCI) 3207.01D, June 15, 2022, *Department of Defense Support to Humanitarian Mine Action,* https://www.jcs.mil/Portals/36/Documents/Library/Instructions/CJCSI%203207.01D.pdf.

[129] Chairman of the Joint Chiefs of Staff Instruction (CJSCI) 3207.01D, 2022.

[130] *Combatant Commands,* Title 10, U.S. Code, Ch. 6, Sec. 166a, 2024, https://uscode.house.gov/view.xhtml?req=(title:10%20section:166a%20edition:prelim).

to the use of this authority for humanitarian and civic assistance: funds provided under this authority per fiscal year may not exceed more than $25 million or be used to purchase items with a unit cost greater than $300,000.[131]

For the purposes of responding to civilian harm, funds under this authority could be used to pay for medical care for injured civilians and costs associated with repairing damaged structures and infrastructure. Although this authority could cover these types of expenses, it does not explicitly provide authority for the US military to conduct these repairs and provide medical care directly. Instead, for this authority to be used to respond to civilian harm in these ways, commanders would need to contract with other actors, such as local and international NGOs or members of the interagency, to carry out specific activities. Commanders should also work in close collaboration with the local government to ensure that any activities are well received by the local community.

Emergency and extraordinary expenses (127). Under this authority, "the Secretary of Defense, the Inspector General of the Department of Defense, and the Secretary of a military department within his department, may provide for any emergency or extraordinary expense which cannot be anticipated or classified."[132] The authority can be delegated by the secretary of defense to any person in the DOD, by the inspector general to any person in the Office of the Inspector General, or by the secretary of a military department to any person within their department. This is an important stipulation because it can empower commanders who are seeking to respond to civilian harm in their area of operation in a timely manner. Funds under this authority are capped at $500,000 until the secretary of defense has notified the necessary congressional defense committees (the Senate Committee on Armed Services, the Senate Committee on Appropriations, the House Armed Services Committee, and the House Committee on Appropriations).[133]

For the purposes of responding to civilian harm, funds under this authority could be used to pay for medical care for injured civilians and costs associated with repairing damaged structures and infrastructure and ordnance removal. Although this authority could cover these types of expenses, it does not explicitly provide authority for the US military to conduct these repairs and removal directly. Instead, for this authority to be used to respond to civilian harm in these ways, commanders would need to contract with other actors, such as local and international NGOs or members of the interagency, to carry out specific activities.

Proposed legislation: payment of expenses to help respond to civilian harm (2741). This proposed legislation would create a new authority under title 10 of the United States Code that would provide authority for the secretary of defense to carry out short-term projects and make payments for expenses consistent with regional assessments "that the Secretary determines to be necessary for the purpose of expressing condolences or helping alleviate or otherwise respond to civilian harm."[134] Under this proposed legislation, the secretary would be able to use no more than $10 million in any fiscal year for these payments, and the funds would be derived

[131] *Combatant Commands,* 2024.

[132] *General Powers and Functions,* Title 10, U.S. Code, Ch. 3, Sec. 127, 2019, https://uscode.house.gov/view.xhtml?req=(title:10%20section:127%20edition:prelim)%20OR%20(granuleid:USC-prelim-title10-section127)&f=treesort&edition=prelim&num=0&jumpTo=true.

[133] *General Powers and Functions,* 2019.

[134] *Military Claims, Title 10,* U.S. Code, Ch. 163, Sec. 2741, 2023, https://ogc.osd.mil/Portals/99/OLC%20FY%202024%20Proposals/16June2023Proposals.pdf?ver=hRpiurKLbzRHemnabuZGdQ%3D%3D.

from the DOD-wide Operation and Maintenance account. Importantly, this proposed authority would complement Section 1213 and allow other expenses related to responding to civilian harm to be covered. This could include expenses for medical care, repairs to damaged structures and infrastructure, ordnance removal, and locally held commemorative events or symbols. In addition, this authority would allow DOD to pay expenses incurred by DOD or others, regardless of whether the expenses are paid directly by DOD or are reimbursed to another individual or group who has already paid the expense.

Key Takeaways: DOD Authorities to Respond to Civilian Harm

- Existing DOD authorities provide a range of possible options, some of which may not be practical or ideal for the purpose of responding to civilian harm.
- Some authorities may be limited in practical utility because they authorize DOD to provide funds for activities, but they do not explicitly give DOD authority to undertake the activity directly (e.g., the Combatant Commander Initiative Fund covers the costs of urgent and unanticipated humanitarian relief and reconstruction assistance but does not give the DOD authority to conduct the reconstruction activities). Some authorities may require clarified policies and increased planning for more effective response to civilian harm.
- Some authorities require collaboration with the interagency and NGO/INGO community. Proactive engagement with these stakeholders is essential to build relationships, establish a common understanding of potential ways to work together toward shared goals, and develop supporting plans, policies, and capabilities.
- Timeliness of the use of certain authorities will remain a challenge. To leverage some authorities, commanders will need to be provided with special ability to act in a timely manner using blanket medical reimbursement waivers or other options. This may require new authorities and capabilities.
- Utilizing authorities that were not designed to respond to civilian harm may not align with the broader intent of responding to civilian harm (e.g., seeking reimbursement for medical care provided to injured civilians).

ABBREVIATIONS

AI	artificial intelligence
AMISOM	African Union Mission in Somalia
ASCOPE	areas, structures, capabilities, organizations, people, and events
BDA	battle damage assessment
C2	command and control
CAG	Commander's Action Group
CCIR	commander's critical information requirement
CCS	Counter Communication System
CCTC	Civilian Casualty Tracking Cell
CET	civilian environment team
CHAC	Civilian Harm Assessment Cell
CHMR	civilian harm mitigation and response
CHMR-AP	Civilian Harm Mitigation and Response Action Plan
CHTC	Civilian Harm Tracking Cell
CIVCAS	civilian casualty
COA	course of action
CONOPS	concept of operations
CONUS	within the contiguous United States
COP	common operational picture
DHA	Defense Health Agency
DOD	Department of Defense
DSCA	Defense Security Cooperation Agency
EOF	escalation of force
ERW	explosive remnants of war
FDR	Foreign Disaster Relief
FMV	full-motion video
HA	humanitarian assistance
HND	humanitarian notification and deconfliction
HTS	Human Terrain System
IED	improvised explosive device
ISAF	International Security Assistance Force
JAG	judge advocate general
JCOA	Joint Center for Operational Analysis

JNLWD	Joint Non-Lethal Weapons Directorate
LAC	Longitudinal Assessment Cell
LSCO	large-scale combat operation
MSF	Médecins Sans Frontières
NATO	North Atlantic Treaty Organization
NGO	nongovernmental organization
NSL	no-strike list
OCONUS	outside the contiguous United States
OHDACA	Overseas Humanitarian, Disaster, and Civic Aid
OIR	Operation Inherent Resolve
OSD	Office of the Secretary of Defense
OSINT	open-source intelligence
PID	positive identification
PMESII-PT	political, military, economic, social, information, infrastructure, physical environment, and time
PN	partner nation
RPA	remotely piloted aircraft
SIGINT	signals intelligence
SOCOM	Special Operations Command
TENCAP	Tactical Exploitation of National Capabilities
TTP	tactics, techniques, and procedures
UK	United Kingdom
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USAID	US Agency for International Development

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