

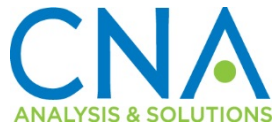
Improving Lethal Action: Learning and Adapting in U.S. Counterterrorism Operations

Dr. Larry Lewis

September 2014



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Photography Credit: A pair of U.S. Air Force F-15E Strike Eagles fly over northern Iraq after conducting airstrikes against Islamic State of Iraq and the Levant targets in Syria. September 23, 2014. U.S. Air Force photo by Senior Airman Matthew Bruch.

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September 2014

A handwritten signature in black ink that reads "Jeffrey B. Miers". The signature is written in a cursive, flowing style.

Dr. Jeffrey Miers
Vice President
Director Operations Tactic Analysis

Executive Summary

The United States uses lethal force to kill individuals it believes pose an imminent terrorist threat to its citizens and interests, as well as those of its allies and partners. This lethal force is often, though not always, successful in killing the individuals being targeted. But it can also kill civilians it did not intend to target. In addition to the human tragedy of these unintended deaths, operations that cause civilian casualties reduce the overall effectiveness of the U.S. counterterrorism (CT) effort by:

- alienating local populations (thereby reducing their willingness to provide intelligence and creating grievances that can lead to the creation of more terrorists);
- failing to disrupt the threat (if the action did not kill the intended individuals);
- delegitimizing U.S. counterterrorism efforts in the eyes of directly and indirectly affected foreign populations; and
- creating political difficulties with our allies and partners.

Given the real potential of negative outcomes from the use of lethal force to undermine U.S. counterterrorism efforts and objectives, it would seem prudent for the U.S. government to have in place an effective operations analysis framework and lessons-learned process to ensure that it is learning and adapting its counterterrorism operations for maximum success. Yet, at least publically, this appears to not be the case. The lack of such a process is compounded by the fact that both the conduct and oversight of these operations are divided among different organizations, making cohesive learning even more difficult. As such, the present report seeks to address this deficiency by presenting an analytic framework and lessons-learned process that the U.S. government could—and *should*—use to continually and comprehensively improve the effectiveness of its lethal force operations and reduce the likelihood of civilian casualties in the future.

Learning from Past Counterterrorism Operations

The analytic framework contains three elements:

- ***Context.*** The context element involves determining the scope of mission success, as well as negative effects, during operations, including a “report card” to demonstrate the extent that operations met U.S. objectives for lethal action.

- **Causes.** This element involves reconstructing individual incidents of interest, identifying specific factors leading to undesired effects, and aggregating these factors to understand the reasons that operations sometimes fail to meet stated objectives.
- **Conduct.** This element takes the observed causes and develops tailored changes to guidance and operational approaches in order to promote mission success in future operations.

Overall, this approach provides insight into current and past operations. It also informs guidance and operational approaches so that military planners can adapt future operations to avoid the kind of operational deficiencies that have hampered mission success in the past. This approach can help ensure counterterrorism operations better meet the U.S. government’s intent in general, and promote success overall in the future conduct of U.S. counterterrorism operations. A review of CT operations based on the approach detailed herein would be most effective as an officially sponsored U.S. effort conducted by an independent team with full access to operational data.

Report Card for Lethal Action Operations

Examples from real world operations help to demonstrate what this framework and lessons-learned process look like in practice, and what kinds of results and insights they can produce. For example, the *context* element includes a “report card” view of whether key U.S. objectives are being met during operations. Using available data for U.S. operations in Pakistan and Yemen, it appears that the two aims of recent Presidential Policy Guidance (PPG)—mission success and reducing civilian casualties—are not being met in full for those operations.

	Yemen		Pakistan	
	Mission Success	Civilian Casualties	Mission Success	Civilian Casualties
2012	✗	✓	✓	✗
2013	✗	✗	✓	✓
2014	✗	✗	✗	✓

For years where both key U.S. aims were met—specifically, the measures for mission success and civilian casualties improved or did not change for the worse compared to the previous year—the year is

color-coded green. Where neither aim was met, the year is color-coded red. When one was met but not the other, the year is color-coded yellow. Hence, mission success against senior terrorist leaders consistently decreased in Yemen from 2012 through 2014, and also decreased in Pakistan in 2014. Civilian casualty rates decreased for Pakistan in 2013 and 2014, but Yemen shows an increasing rate of civilian casualties in these same years. There was only one year in one theater—2013 in Pakistan—that showed improvement in both aims of the PPG. It is important to note that the report

card entries use open source data; the process should be repeated with operational data as part of the official, independent review recommended in this report. Overall, this report card points out areas where improvements in current counterterrorism operations are possible. This report card approach could also be adapted for the use of lethal force in other theaters, such as Iraq and Syria.

Expected Benefits

Importantly, the approach proposed here does not stop with identifying where operations did not meet the full intent of existing guidance such as the PPG. Rather, the analytic approach continues with identification of root causes and follow-on analysis to identify concrete ways that guidance and operational approaches could be modified to better meet U.S. objectives in CT operations. Expected benefits from such analysis for lethal operations include:

- refinements to policy and guidance (including a modified PPG if appropriate);
- alternative tactics and operational approaches to improve mission success and reduce civilian casualties, given observed root causes;
- cross-pollination of best practices across organizations;
- Highlighting deficiencies in current capabilities and the impact of these deficiencies;
- a discussion of how to adapt to adversary approaches that complicate lethal action and targeting criteria; and
- a basis for informed policy decisions regarding organizational responsibilities in future lethal action operations.

This approach would also have several other benefits, including:

- helping to separate fact from opinion on key issues concerning the use of lethal force;
- acting as a means of improving unity of effort among the different elements of execution and oversight of lethal action across U.S. departments and agencies;
- providing an exemplar for broader changes in the U.S. military in light of identified lessons and an increasing requirement for minimizing civilian casualties—which is especially important considering the possibility of ending the current Authorization of Use of Military Force (AUMF);
- enhancing the perceived legitimacy of U.S. lethal action campaigns by better aligning policy and practice; and
- serving as a precedent and model for other countries regarding the responsible use of lethal force, particularly as they acquire new technologies such as armed drones.

Precedent for a U.S. Review

The approach outlined here is possible—because it has been done before. In Afghanistan, the elements in this analytical framework were employed, resulting in measures that improved both mission success and reduced civilian casualties. However, this effort was taken only after years of lessons not being effectively learned. The U.S. counterterrorism lethal action program would benefit from a similar framework and process. Such an effort would help fulfill U.S. commitments to effectively protect its citizens against imminent threats while doing everything possible to minimize civilian harm as a result of its operations.

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Glossary

AAR	After-action report
AUMF	Authorization of Use of Military Force
BIJ	Bureau of Investigative Journalism
CALL	Center for Army Lessons Learned
CENTCOM	U.S. Central Command
CIV K	Civilians killed
CNA	Center for Naval Analyses
COMISAF	Commander, International Security Assistance Force
CT	Counterterrorism
HUMINT	Human intelligence
ICRC	International Committee of the Red Cross
IED	Improvised explosive device
IHL	International humanitarian law
ISAF	International Security Assistance Force
ISIL	Islamic State of Iraq and the Levant (aka IS, ISIS)
JCOA	Joint and Coalition Operational Analysis Division/Joint Center for Operational Analysis
KIA	Killed in action
NAF	New America Foundation
NATO	North Atlantic Treaty Organization
NGO	Nongovernmental organization
OSD	Office of the Secretary of Defense
PED	Processing, exploitation, and dissemination
PPG	Presidential Policy Guidance
ROE	Rules of engagement

SA	Situational awareness
SOF	Special Operations Forces
TTP	Tactics, techniques, and procedures
UAV	Unmanned aerial vehicle (“drone”)
UN	United Nations

Introduction

The United States uses lethal force to kill individuals it believes pose an imminent terrorist threat to its citizens and interests, as well as those of its allies and partners. Such force includes actions taken on the battlefield for declared theaters of conflict, such as Afghanistan. But lethal force has also been used outside areas of active hostilities, such as Yemen, Pakistan, and Somalia. Lethal actions in these particular countries have become much more frequent since 2008, and they are often—though not always—successful in killing the targeted individuals. However, the use of force can also unintentionally kill civilians. These civilian casualties are tragic and also result in other negative consequences on the ground, such as loss of income for households and stigmatization of civilians mistakenly targeted.¹

Civilian casualties also have the effect of reducing the overall effectiveness of the U.S. counterterrorism effort.² This negative effect is the result of multiple factors, including alienating local populations (thereby reducing their willingness to provide intelligence and creating grievances that can lead to the creation of more terrorists), failing to disrupt the threat (if the action did not kill the intended individuals), delegitimizing U.S. counterterrorism efforts in the eyes of directly or indirectly affected foreign populations, and creating political difficulties with our allies and partners.³

¹ Center for Civilians in Conflict and Columbia Law School/Human Rights Clinic, *The Civilian Impact of Drones: Unexamined Costs, Unanswered Questions*. Modern Issues in Conflict Series (New York : Center for Civilians in Conflict and Human Rights Clinic at Columbia Law School, 2012).

² For more discussion of this point, see Larry Lewis, *Drone Strikes in Pakistan: Reasons to Assess Civilian Casualties*. CNA Occasional Paper COP-2014-U-007345-Final (Alexandria, VA: CNA, April 2014).

³ Senator Elizabeth Warren summarized the strategic risks thus: “Do we talk seriously about the price our great nation, built on the foundation of life, liberty, and the pursuit of happiness, may pay if others come to believe that we are indifferent to the deaths of civilians? Do we fully take into account the effect on our interests if people around the world are inflamed by such casualties, or if they do not believe that our actions align with our values?” Senator Elizabeth Warren, “Collateral Damage, National Interests, and the Lessons of a Decade of Conflict,” Whittington Lecture at Georgetown University, 26 February 2014.

Given the real potential of negative outcomes from the use of lethal force to undermine U.S. counterterrorism efforts (to include future uses of lethal force), it would seem prudent for the US government to have in place an effective operations analysis framework and lessons-learned process to ensure that it is learning and adapting its counterterrorism operations for maximum success. Yet, at least publically, this appears to not be the case. As such, the present report will seek to address this deficiency by presenting an analytic framework and lessons learned process that the US government should use to continually improve the effectiveness of its lethal force operations and reduce the likelihood of civilian casualties in the future.

Background

The Need for Lethal Action

Thirteen years ago this month, Al Qaeda struck down thousands of innocent civilians on American soil. The United States still faces an ongoing security threat from Al Qaeda and associated forces, including attacks on U.S. forces and interests on foreign soil and continuing operational planning for further attacks. The U.S. endeavors to address this threat in a number of ways—including working with partner nations to improve their security capacity for addressing Al Qaeda threats within their borders, and helping to address underlying governance and economic issues that can lead to radicalization and support to terrorist groups. But sometimes other nations are unwilling or unable to address these threats directly. In these cases, the U.S. can resort to direct action against terror threats.⁴

Direct action includes both capture operations and the use of lethal force (e.g., airstrikes, raids). The former is preferable when feasible—pursuing this option is consistent with both U.S. policy and international law, and is operationally advantageous because of potential intelligence gains.⁵ While there are examples of successful U.S. capture operations outside of declared theaters of conflict, there are

⁴ Direct action is defined as: “Short-duration strikes and other small-scale offensive actions conducted as a special operation in hostile, denied, or diplomatically sensitive environments and which employ specialized military capabilities to seize, destroy, capture, exploit, recover, or damage designated targets.” Joint Publication 1-02: *Department of Defense Dictionary of Military and Associated Terms* (08 November 2010, as amended through 15 June 2014).

⁵ Capture also sends a strategic message that terrorists are criminals operating outside of acceptable international norms, vice soldiers in a legitimate conflict. This distinction is consistent with national policy; for example: “We must use the full influence of the United States to delegitimize terrorism and make clear that all acts of terrorism will be viewed in the same light as slavery, piracy, or genocide: behavior that no respectable government can condone or support and all must oppose.” *National Strategy for Combatting Terrorism, 2003*, https://www.cia.gov/news-information/cia-the-war-on-terrorism/Counter_Terrorism_Strategy.pdf.

several factors that impact the feasibility option of capture in some situations.⁶ As a result, U.S. direct action involving lethal force (subsequently referred to as *lethal action*) is an important component of the U.S. counterterrorism campaign outside areas of declared hostilities. For example, the U.S. uses lethal force in counterterrorism operations in Yemen and Pakistan, as well as in Iraq against the Islamic State of Iraq and the Levant (ISIL).

Lethal Force Operations: Balancing Objectives

The use of lethal force can have both positive and negative impacts on U.S. objectives in the context of counterterrorism operations—positive impacts from successful missions that kill the intended target, and negative impacts from civilian casualties during these operations.⁷ Both successful missions and civilian casualties have short- and long-term impacts on the overall counterterrorism campaign. The form of significant impacts are shown in Table 1 and discussed below.

⁶ An example of a capture operation is the 2013 capture of Abu Anas al-Liby in Libya, for his role in the 1998 bombings of Embassies in Kenya and Tanzania. The issues of legal custody, sovereignty, and force protection can all complicate or preclude capture operations.

⁷ There are other outcomes that can also negatively impact lethal action operations, including friendly fire, targeting of host-nation forces or assets, and harming hostages in rescue operations. However, as the most widely discussed negative outcome in national counterterrorism guidance is civilian casualties, the treatment of negative impacts here in this paper will focus on this issue.

Table 1. Short- and Long-Term Effects of Mission Success and Civilian Casualties on the U.S. Counterterrorism Campaign

	Mission Success	Civilian Casualties
Short term effects	• Neutralize specific threat • Disrupt terror network • Buy time for other approaches	• Increase popular support to terror networks (insurgent math) • Decrease host-nation government support
Long term effects	• Degrade operational capability of terror networks • Deny sanctuary • Discourage recruiting efforts	• Decreased perceived legitimacy and freedom of action • Feed long-standing grievances that fuel instability and terror networks

Successful Missions—Impacts

In the near term, effectively dealing with the threat through lethal action can neutralize or delay a specific threat to the United States.⁸ For example, in July and August of 2013, a series of drone strikes sought to disrupt a terror plot in Yemen targeting Western assets.⁹ Besides disrupting specific threats, the strikes also affected the terror network. The impact of this can vary: in some cases, resulting gaps in terror networks are filled quickly from below, while in other cases the proficiency and/or experience of the individual are not easily filled, resulting in a more significant near-term impact. Conversely, ineffective strikes can complicate operations in the short-term by alerting the individual or group being targeted.

In the long-term, effective operations can damage the operational capabilities of terrorist networks by removing key individuals with highly valued skills that cannot easily be replaced. They can also deter terrorist activities in targeted areas, complicating recruitment and denying sanctuaries in areas where host nations could

⁸ Lethal operations can also have a deterrent effect on host-nation domestic terrorist activity, See, for example, “The Impact of U.S. Drone Strikes on Terrorism in Pakistan and Afghanistan,” by Patrick B. Johnston, RAND Corporation, and Anoop K. Sarbahi, Stanford University, 11 February 2014, <http://patrickjohnston.info/materials/drones.pdf>.

⁹ Greg Miller, Anne Gearan and Sudarsan Raghavan, “Obama administration authorized recent drone strikes in Yemen,” *Washington Post*, 7 August 2013.

or would not act. Ineffective operations can, in the long term, betray intelligence techniques or sources and make follow-on operations more challenging. Also, in some scenarios, the number of opportunities is limited (and becoming even more so over time), so ineffective operations represent significant setbacks. Ineffective strikes can also include cases where the wrong person is inadvertently targeted, which can cause outrage and alienation within the local population.

Civilian Casualties—Impacts

At the same time, negative second-order effects from strikes—such as civilian casualties—can temper or completely blunt the benefits of counterterrorism efforts. In the short term, even an effective strike can galvanize the local community to support terrorist networks if the strike results in civilian casualties. The effect, called “insurgent math” by General McChrystal in Afghanistan, can result in net growth of the terrorist network rather than net attrition. This effect of insurgent math can be magnified in the case of civilian casualties.¹⁰ Overall, civilian casualties from these operations can create grievances that can radicalize populations, increase support for terrorist elements, and degrade the political will of the U.S. and partner nations for action. In addition, negative second-order effects can reduce freedom of action by decreasing host-nation support, as well as decreasing perceived legitimacy of the U.S. in the eyes of domestic and international audiences.

In addition to the negative impacts that stem from civilian casualties, negative impacts can also come from false allegations concerning civilian casualties. The allegations can arise from misunderstandings—a lack of recognition among the local populace that the targeted individual(s) were in fact terrorists and combatants. However, they can also be deliberate efforts by terrorist groups or others to create a negative perception of the U.S. and sway certain audiences. Typically, allegations can provide the first impression of the operation, and this incorrect impression can be a lasting one. For example:

- In Afghanistan, after a Taliban improvised explosive device (IED) prematurely detonated in a city center in southern Afghanistan, Taliban elements blamed the explosion on an International Security Assistance Force (ISAF) airstrike.

¹⁰ This point was exemplified by General Stanley McChrystal: “When we fight, if we become focused on destroying the enemy but end up killing Afghan citizens, destroying Afghan property or acting in a way that is perceived as arrogant, we convince the Afghan people that we do not care about them. If we say, ‘We are here for you – we respect and want to protect you’ while destroying their home, killing their relatives or destroying their crops, it is difficult for them to connect those two concepts. It would be difficult for us to do the same.” General Stanley McChrystal, remarks at the International Institute for Strategic Studies, London, 1 October 2009.

ISAF did not respond effectively to the allegation; as a result, even a year later, locals still believed the story to be true, creating resentment and lack of cooperation with international forces.¹¹

- In Iraq, when a U.S. operation against foreign fighters in a safe house was falsely portrayed by terrorists as killing women and children in a wedding party, U.S. forces were slow to respond, and to this day the true nature of the target is widely misunderstood.¹²

Contesting allegations is complicated in covert and clandestine operations, but involvement of the host nation in consequence management—as was done in Afghanistan in later years—is one way to deal with this challenge. The ability to contest such allegations is one reason why it is important to have a process for evaluating the presence of civilian casualties during operations.

¹¹ Sarah Sewall and Larry Lewis, *Joint Civilian Casualty Study*. August 2010.

¹² Joint and Coalition Operational Analysis Division, *Operation Iraqi Freedom: Transition to Sovereignty* (Suffolk, VA: JCOA, March 2007).

Managing Positive and Negative Impacts: the Role of Guidance

The authority to use force carries responsibilities for its use, such as the creation of guidance and policy to define and govern when force may be used, processes to be followed to gain approval for operations, and overall intent for the use of force. The guidance informs the operational approach—including the targeting process, intelligence allocation, requirements for pattern of life determinations, tactics, and training in support of operations.

The United States has refined its guidance regarding lethal force in counterterrorism operations over time. The most recent guidance is the Presidential Policy Guidance (PPG) issued in May 2013, which aims to enable the effective use of lethal force against the most significant security threats to the U.S. The PPG aims to ensure that lethal force conforms to U.S. laws, is only used when no other option exists, and meets two primary criteria:

- Operations are effective against the threat.
- Operations avoid negative second-order effects that can both limit freedom of action and undercut progress against terrorist organizations (e.g., civilian casualties).¹³

Because of the conflicting impacts of effective missions and civilian casualties discussed above, U.S. lethal force operations attempt to meet both of these objectives when possible. This is not just true for counterterrorism operations in Pakistan and Yemen: airstrikes against ISIL have focused on targets away from heavily populated civilian areas to minimize the risk of civilian casualties; counterinsurgency and counterterrorism operations in Afghanistan also sought to meet these objectives.

¹³ The PPG is summarized in the unclassified fact sheet, “U.S. Policy Standards and Procedures for the Use of Force in Counterterrorism Operations Outside the United States and Areas of Active Hostilities” (Washington, DC: The White House/Office of the Press Secretary, 23 May 2013), http://www.whitehouse.gov/sites/default/files/uploads/2013.05.23_fact_sheet_on_ppg.pdf. Other stated criteria in the PPG collectively amount to a requirement that no feasible alternatives exist to effectively address the imminent threat.

Yet guidance for the use of force—no matter how well intentioned—does not always have its desired effect. The example of Afghanistan is instructive: When combat operations began causing a significant number of civilian casualties in 2007 (harming progress in the campaign as well as the relationship with the host nation government), then-Commander, International Security Assistance Force (COMISAF) General Dan K. McNeil issued a Tactical Directive to reduce civilian casualties in ISAF operations, with goals and guidance somewhat similar to the 2013 PPG. However, despite the guidance—issued with the authority of COMISAF himself—the intent of the guidance was not met, with significant civilian casualty incidents occurring throughout 2007 and 2008. Several subsequent Tactical Directives were released by General David D. McKiernan, but they had a similar—that is, negligible—effect on reducing the level of civilian casualties.¹⁴

It wasn't until a revised directive was issued in 2009 that ISAF forces began improving in their ability to reduce civilian casualties. A further revision, issued in 2010, was even more effective. Similarly, Special Operations Forces (SOF) made changes to their operations in 2010–2012 that both reduced civilian casualties and improved mission success. What made the difference? Guidance prior to 2009 provided intent but was uninformed with respect to the causal factors that contributed to civilian casualties. This limited the utility of the guidance.¹⁵ In contrast, there were two elements to the improvements in 2009 and 2010. The first, in 2009, was leadership emphasis of existing guidance. The 2009 Tactical Directive was not substantively different than previous guidance, but it was emphasized heavily by the commander and at subordinate echelons, improving consistent implementation and promoting creative problem solving at the tactical level.¹⁶ However, the biggest improvement occurred in 2010, when General Petraeus implemented a revised Tactical Directive. Importantly, this new Tactical Directive included additional considerations that reflected lessons from past incidents, allowing forces to learn from past experiences rather than repeat them. This shows the benefit of going back and evaluating performance, understanding key drivers of success and failure, and then revising guidance to reflect this improved understanding.

¹⁴ Larry Lewis, *Reducing and Mitigating Civilian Casualties: Enduring Lessons* (Suffolk, VA: Joint and Coalition Operational Analysis Division, 12 April 2013).

¹⁵ In a similar example, U.S. forces struggled with limiting civilian casualties during escalation of force incidents. Analysis showed that existing doctrine, and much equipment, was optimized for one root cause of civilian casualties, based on experiences in Bosnia—but that the majority of incidents in Afghanistan did not share this root cause. Later guidance was amended to reflect this disconnect between guidance and operational reality, and civilian casualties decreased. See Sewall and Lewis, *Joint Civilian Casualty Study*.

¹⁶ Ibid.

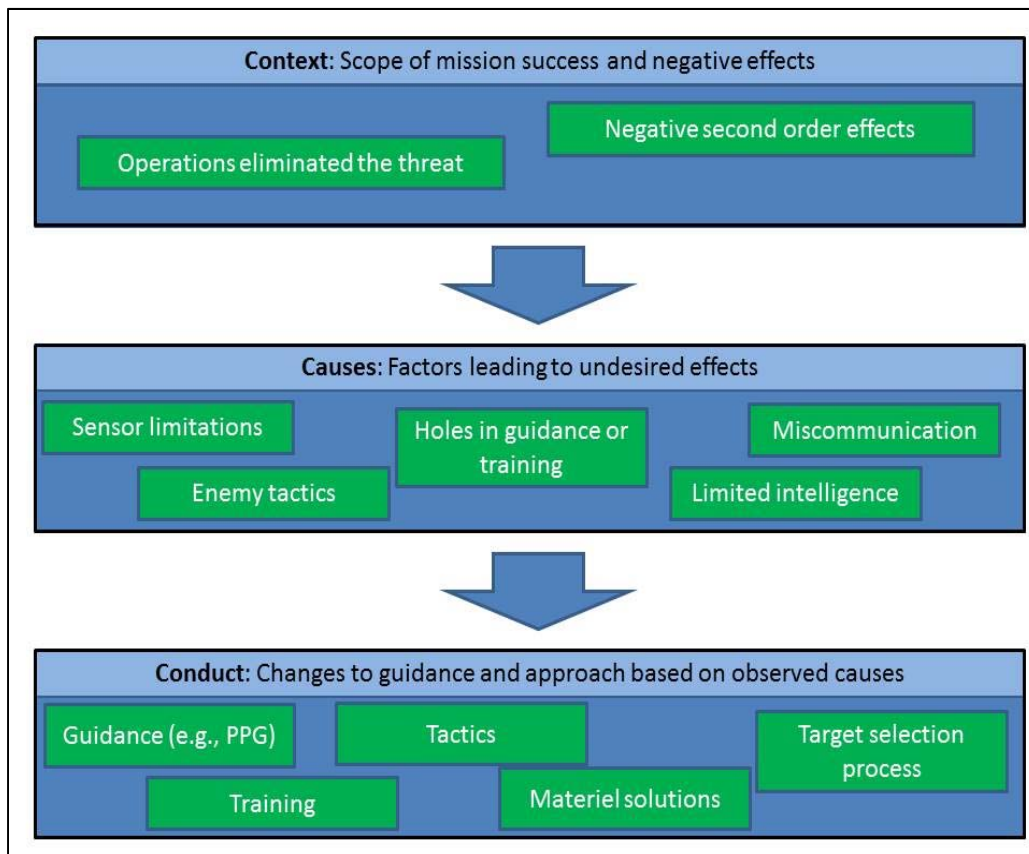
An Analytical Approach for Improving Lethal Action Operations

Given the historic limitations of guidance in achieving its stated intent, it is worthwhile to ask how U.S. counterterrorism operations have done with respect to the goals of the PPG issued last year. This report presents an analytical approach for answering this question and identifying and addressing shortfalls with three elements:

- **Context.** The context element involves determining the scope of mission success, as well as negative effects, during operations. It includes operational trends, detailed analysis on specific aspects of operations, and a diagnostic “report card” for senior leaders on progress made in the two PPG objectives.
- **Causes.** This element involves identifying specific factors (root causes) leading to undesired effects, in order to facilitate learning of lessons from the past and inform adaptation.
- **Conduct.** This element marries root causes with operational trends (context) to identify tailored changes to guidance and approach to improve the success of future missions while minimizing unintended consequences.

This analytical approach is illustrated in Figure 1.

Figure 1. Analytical Approach for Improving Lethal Force Operations



The first element provides context and addresses directly the desired balance in the PPG. It answers questions such as: How effective are operations overall? How do operations by type and action arm vary in mission success? How frequent are civilian casualties during operations, and when do they tend to occur? The next element answers the question “why?” When missions do not successfully kill the intended target, why did this happen? When operations cause civilian casualties, what are the contributing factors that played a role? Finally, by comparing the first two factors, we can arrive at an understanding of specific areas for improvement so that lessons learned can inform subsequent guidance and operational approaches—and not repeat mistakes.

As will be shown, this approach has a number of positive outcomes. It can help ensure guidance is best suited to meet its intent and inform revisions to that guidance over time. It can also achieve the traditional outcome of operations research, which is to improve the operational effectiveness of U.S. lethal action missions. The following sections examine the components of the framework in more detail, and illustrate them with data. Since information on these operations is

classified, the analysis here cannot use official operational data. However, where open source data are available regarding these operations, they will be used to illustrate the analytical approach.

Element 1: Context

For the first element, operations are examined to quantify the scope of both mission success and negative impacts that occur during operations, in order to understand current performance and identify potential areas where improvement is possible. Three focus areas in this analysis are:

- mission success;
- civilian casualties; and
- a diagnostic “report card” for senior leaders on progress made regarding the two PPG objectives.

Context: Mission Success

The first step in establishing context is to examine mission success: characterizing lethal action operations and analyzing their operational effectiveness. There are three components to this characterization. The first is ***mission profiles***—the number and nature of operations. This component includes a description of the following:

- Operational tempo: the number of operations over time;
- Types of targets: both physical (e.g., vehicles, buildings) and organizational (e.g., senior leaders, facilitators);
- The kinds of operations conducted: manned airstrike, drone strike, raid, etc.; and
- Subsets of the above for operations conducted by specific forces, military or otherwise.

The second component is ***mission effectiveness***, which can be viewed as progress toward the positive impacts of lethal action shown in Table 1. For example, for the goal of killing a particular individual who has been identified as a threat, one appropriate measure could be the success rate for lethal action against targeted individuals.¹⁷ Another measure is the number of combatants killed per strike. While attrition is not the primary goal of U.S. counterterrorism operations using lethal

¹⁷ Estimates of progress on other short- and long-term goals will necessarily rely on intelligence to estimate the wider effects of lethal action.

force, attrition can disrupt terrorist networks by removing trained militants from the battlefield and causing a deterrent effect to prospective recruits, so tracking this measure can be useful.

Another component to be assessed is the number of proposed targets that could not be actioned. Two sets of targets are relevant here: those that could not be actioned because of a lack of sufficient intelligence for the strike, and those that could not be acted upon because of PPG restrictions such as concerns over civilian casualties. This distinction helps characterize the magnitude of the barrier to conducting operations due to intelligence requirements and other PPG restrictions. The analysis should also include a discussion of adversary approaches that complicate lethal action and targeting criteria. Determining these adversary countermeasures overall and for specific time periods— either annually or (even better) according to time periods that delineate changes in policy and guidance—helps in understanding the interplay between these changes and overall mission success.

These measures should be evaluated for the total set of operations as well as for key subsets, including:

- specific types (building, vehicle, gathering);
- specific echelons of targets (leaders, mid-commanders, specialists, etc.);
- nature of operation (drone strike, manned aircraft strike, unilateral raid, partnered raid, combination);
- pre-planned versus fleeting targets; and
- comparing operations by different action arms.

This analysis will highlight areas of success, as well as point out potential areas for improvement. For example, examining the subsets listed above can provide additional information on factors that may be driving overall trends—for example, specific types of targets that tend to elude mission success or potential differences between pre-planned and fleeting target sets. This examination both informs the conduct of future operations and focuses root cause analysis (discussed later in “causes”) to determine specific reasons for these differences. In addition, such analysis informs operational decision making for prospective operations so that historical factors are accurately taken into account.

These measures provide insight into near-term targeting performance, in terms of the ability of the U.S. to successfully take specific targets off the battlefield. There is also a need to assess the effect of these operations on the threats to the U.S. that predicated the lethal action. This is a more intelligence-centric analytical effort that assesses threat streams and the likely effects of past U.S. operations. This effort should include examples of specific terrorism plots that were disrupted through lethal operations, as well as an assessment of the broader effect of lethal force on enemy networks.

Context: Civilian Casualties

The other major objective of the PPG is ensuring that noncombatant civilians are not killed or injured during U.S. lethal action operations. Assessing civilian casualties during lethal action operations begins with a raw ***total number of civilian casualties***, which can be compared across different time periods (years, or possibly other periods that coincide with changes in guidance or operational approaches). While civilian casualties technically include both killed and wounded, typically it is more difficult to obtain totals of wounded than it is for those killed.¹⁸ So, in cases where wounded numbers are difficult to obtain reliably, the number of civilians killed is usually used as a surrogate metric for total civilian casualties.

Although the total number of civilian casualties is useful for understanding the magnitude of the toll of lethal actions on civilians, it is insufficient in itself for determining progress. For example, the International Security Assistance Force (ISAF) reported the total number of civilian casualties from its operations per year and touted progress when the number decreased, but this neglected significant factors—such as operational tempo and operating environment—that can also affect the toll on civilians. For example, if civilian casualties decreased by 10 percent in some time period but the number of operations during that time dropped by 50 percent, then the metric of total civilian casualties shows apparent progress. Yet in this case, an average operation would have been more likely to cause civilian casualties after the decrease in the total, putting into question the claim of improved care during operations. So normalizing the number of civilian casualties by the number of operations (giving a ***rate of civilian casualties per operation***) can put casualties in operational context and indicate whether operations are more or less likely on average to cause such casualties over time. Similarly, the rate of civilian casualty incidents per the total number of operations indicates the relative propensity of operations to cause civilian casualties.

Another measure is the ***relative lethality of incidents***—how many casualties on average result from an operation where civilian casualties occur. For example, in Afghanistan, when civilian casualties resulted during checkpoint operations, the average number of casualties was relatively small (around one casualty for incidents involving individuals, and around two casualties for incidents involving vehicles). In contrast, airstrikes tended to have a higher number of casualties per incident. In addition to highlighting differences in civilian casualties from different types of operations, this measure was also useful in showing greater effectiveness in guidance over time in Afghanistan, as the average number of casualties per civilian casualty incident—an operation where civilian casualties occurred—dropped significantly

¹⁸ Reasons include varying definitions of injuries counting as wounded, as well as the greater chance of woundings going unreported.

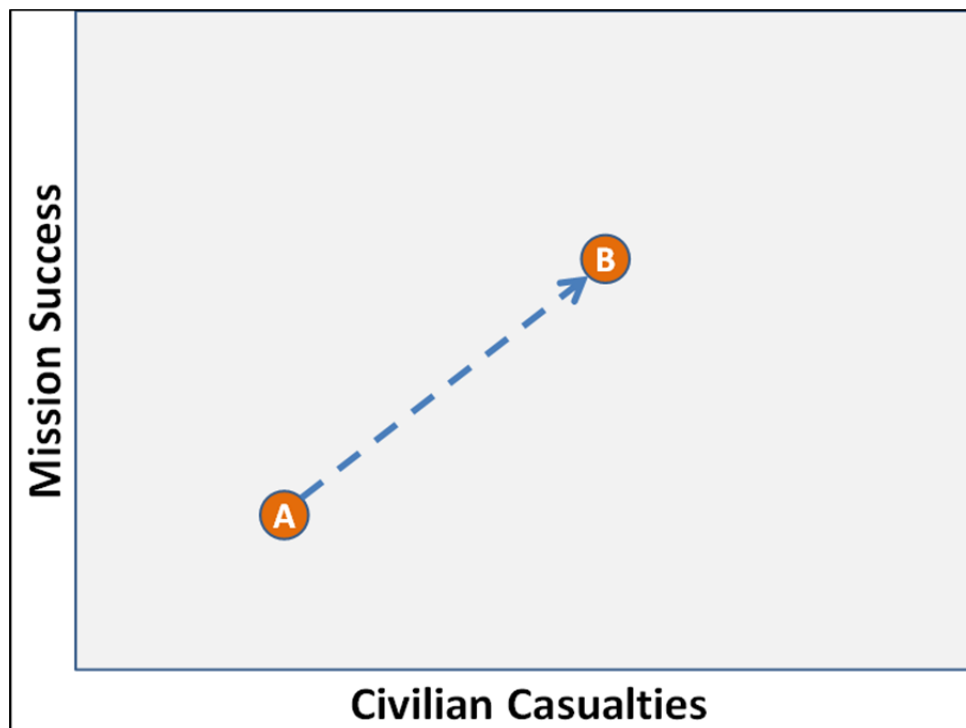
following the issuance of improved guidance. For context, another useful measure is the average number of civilian deaths per operation, which illustrates the average number of civilian deaths that could be expected to result from a typical operation.

These measures should also be broken out by type of operation and by action arm. Similar to the measures for mission success, this analysis will highlight areas of success as well as point out potential areas for improvement with respect to avoiding civilian harm during operations. This measure provides context to the later stages of the analytic framework described in this report.

Report Card: Relationship between Mission Success and Civilian Casualties

The two objectives of improving mission success and reducing civilian casualties are sometimes considered to be in conflict, and indeed it can be a considerable challenge to conduct operations effectively and simultaneously minimize negative second-order effects such as civilian casualties. A common assumption regarding the perceived tension between these two objectives is illustrated in Figure 2 below.

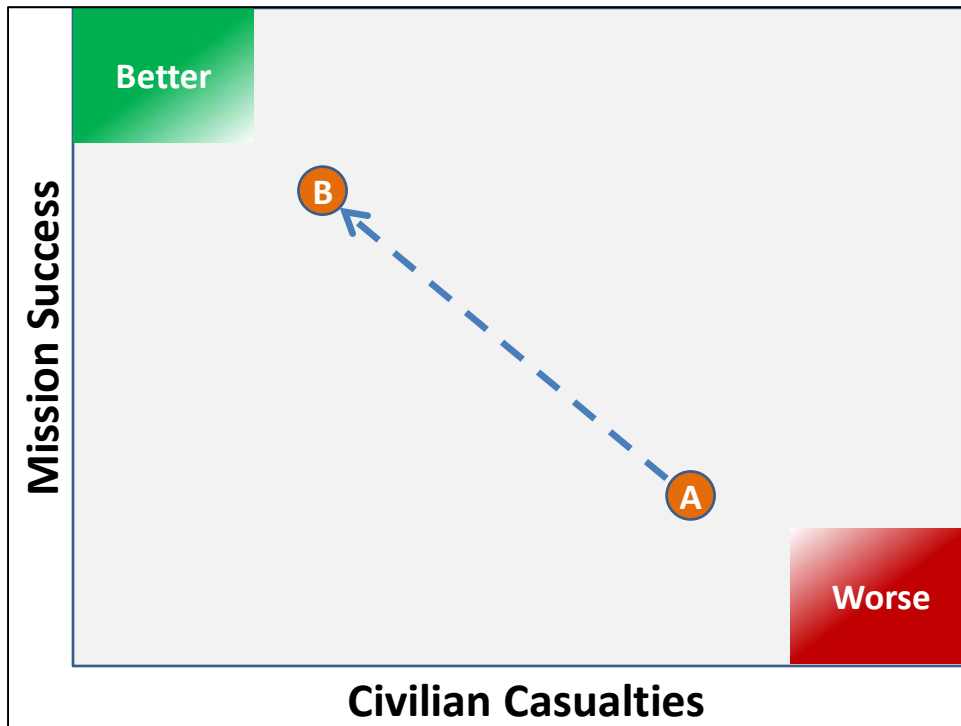
Figure 2. Perceived Tension between Mission Success and Civilian Casualties



In this scenario, an effort to increase mission success from condition A to condition B would carry a commensurate cost of an increase in civilian casualties. This scenario also implies that the requirement to reduce civilian casualties would induce a decrease in mission success.

Yet while this assumption has been voiced by some military forces directly, and by news reporting indirectly, this relationship between mission success and civilian casualty rates is not necessarily always the case. In fact, in counterterrorism operations in Afghanistan, the relationship appeared to be that depicted in Figure 3.

Figure 3. Common Relationship between Mission Success and Civilian Casualties as Observed in Afghanistan



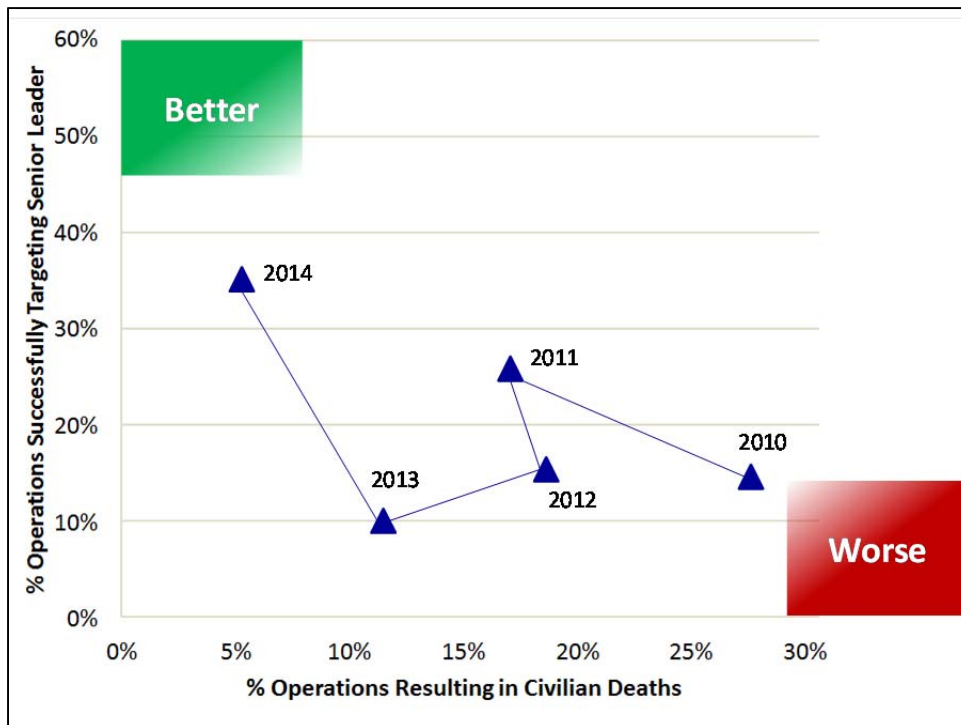
Regarding Figure 3, an effort to improve mission success would also decrease civilian casualties, and decreasing civilian casualties would increase mission success. The optimum outcome is represented by the upper left quadrant of the chart. Fortunately, these two objectives can in some ways be mutually reinforcing. For example, many of the measures taken to reduce civilian casualties—improving pattern-of-life analysis,¹⁹ improved intelligence requirements, better coordination and situational awareness—also work to enhance mission success. However, realizing such a relationship was the result of careful attention to improving mission success, reducing civilian casualties, and optimizing guidance and operational approaches to

¹⁹ Pattern-of-life analysis uses intelligence to understand behaviors and habits of the target and environment.

this end. Such a mutually reinforcing relationship between these two goals, where they both improve simultaneously, is unlikely to result without an intentional and informed effort.

Given the twofold criteria of the PPG aiming for both mission success and avoiding civilian casualties, it is worthwhile to determine the relationship between these two factors. A hypothetical example using notional data is given below.²⁰

Figure 4. Relationship between Mission Success and Civilian Casualties: Hypothetical Example



In Figure 4, operations from 2010 to 2011, and again from 2013 to 2014 are seen moving towards the upper left quadrant of the chart, with mission success and avoidance of civilian casualties improving simultaneously, consistent with the aims of the PPG. However, from 2012 to 2013, an improvement in reducing civilian casualties came at the same time that mission success decreased. And from 2011 to 2012, there were decreases in both PPG goals.

²⁰ Note that while the PPG is dated May 2013, the stated aims of the PPG—effectively dealing with the threat and avoiding civilian casualties—have been discussed for years prior to the release of this guidance.

These results are summarized in Table 2; this kind of table can be used as a report card for senior leaders regarding progress in meeting the two PPG objectives. In the table, each year is color-coded to show the extent to which operations achieved the aims of the PPG per changes in operations that year compared to the previous year. Green indicates both an increase in mission success (or no significant change) and a reduction or no significant change in the rate of civilian casualties; red indicates that mission success decreased while the rate of civilian casualties increased; and yellow indicates that one of the two PPG aims was achieved but not the other. From the table below, based on data shown in the figure above, operations in 2011 and 2014 were more successful in approaching the aims of the PPG, while there was room for progress in 2013. In contrast, operations in 2012 met neither of the PPG aims.

Note that there can be good reasons for a time period of operations to be coded yellow or even red—for example, a change in enemy tactics to hide within the population could both increase the rate of civilian casualties and increase the number of cases where civilians were misidentified as terrorists, resulting in operations that tended to be less successful. This is why the context step should be accompanied by the next step—causes—described below.

While this approach uses changes from year to year to assign colors, it is also possible to assign absolute requirements for operations and then grade operations relative to those requirements. For example, operations could be assigned threshold requirements of 70% for mission success and 1% for a civilian casualty rate. In this arrangement, the operational performance would be graded according to those stated requirements. This graded approach has the advantage of avoiding cases where excellent performance one year doesn't increase the likelihood of a marginal or failing grade the next year. However, such thresholds would need to be agreed to up front. If this approach were followed, reasonable thresholds should be determined through a process referencing previous operational data. For example, civilian casualty rates were determined for several kinds of operations in Afghanistan, so such data already exists and should be consulted.

Table 2. Example: Hypothetical Report Card for Meeting PPG Goals

Report Card		
	Mission Success Improved?	Civilian Casualties Less Likely?
2011	✓	✓
2012	✗	✗
2013	✗	✓
2014	✓	✓

Element 2: Causes

This element of the analytic approach involves identifying specific factors—root causes—leading to undesired effects, in order to facilitate learning lessons from the past and thus inform adaptation. The previous stage, context, highlights areas of progress and areas where improvement is possible. However, further analysis is needed to identify the root causes of areas where operations fell short of goals, which can then be used to develop tailored improvements to guidance and operational approaches (i.e., the *conduct* element).

This process begins with data-based reconstructions of individual incidents of interest: incidents where mission success was not achieved, civilian casualties were incurred, or both. Operational data should be a primary source, but data from other sources should also be factored in, including from international organizations (e.g., UN, ICRC), nongovernmental organizations, and media reports. After the reconstruction step, which results in identifying contributing causal factors, further analysis finds common trends in these causal factors to ascertain the main root causes of specific outcomes.

The process described here is distinctly different than that for a standard After Action Report (AAR) process, where any root cause analysis is done for a single incident in isolation, and lessons are typically not effectively shared across different units or operations. In contrast, by collectively considering causal factors for multiple incidents by different units and operations, as is done here, this process can reveal larger patterns that help to focus efforts for reducing civilian harm or improving mission success on areas that are most productive. In Afghanistan, that collective analysis process revealed a number of factors leading to civilian casualties that had not been previously identified, such as certain target sets not being addressed in guidance, certain scenarios not being adequately covered in doctrine, and equipment/capabilities not supporting the targeting process for select situations.

Element 3: Conduct

This element looks at ways to change the conduct of future operations to promote both mission success and reduced civilian casualties through tailored modifications to guidance and operational approaches. It should be noted that this aim is partially achieved through regular adaptation that occurs with a learning force. For example, in Sadr City, Baghdad in 2008, U.S. forces combined new tactics, massed and fused intelligence, precision weapons, and other innovative procedures and command and control arrangements to mitigate civilian casualty concerns while also aiding the

tracking of targets. This adaptation provided freedom of action to use force effectively against a fleeting enemy operating in an urban area.²¹

At the same time, there are many examples where adaptation was slow or inconsistent within the force. Thus, the analytic framework and lessons learned process described here is a way to accelerate and optimize the normal learning process for operations. This analysis recommends tailored changes to guidance and approach based on actual observed causes, taking the root causes identified above and informing them with operational trends, pointing out specific areas of challenges and their relative frequency and importance. These changes are concrete steps that help address those challenges in future operations. One such challenge is the incorporation in guidance of specific scenarios that were not adequately addressed, putting in place tactics or procedures to improve the fidelity of intelligence, decisions on using a specific action arm or weapon platform, improving training for a certain kind of operation, or elevating risk factors associated with specific target sets or environments.

Importantly, changing conduct to adapt to new lessons learned should not be a one-time process. As causes are successfully identified and addressed in operations, improvement should result. Yet new factors can also arise as tactics are changed or the enemy adapts. Hence, the process should be repeated periodically—say, every six or twelve months—where performance is reassessed, the need for additional changes is identified, and guidance and operational approaches are adapted accordingly.

²¹ Joint and Coalition Operational Analysis Division, *Joint Tactical Environment* (Suffolk, VA: JCOA, January 2009).

Illustrating the Approach

Previous sections of this report described the analytic framework in conceptual and theoretical terms. This section takes the theory and puts it into practice using available data to illustrate the framework and lessons learned approach and its potential benefits. Ideally, data for a single case study would be available to demonstrate the approach from start to finish. However, such is not the case (at least publically) for U.S. lethal-action counterterrorism operations. As such, the specific examples we use to demonstrate the approach are as follows:

- **Context:** analysis of mission success and civilian casualties using open-source data on U.S. operations in Yemen and Pakistan, followed by a report card for those operations.
- **Causes:** a vignette of a high profile civilian casualty incident, followed by root-cause analysis of civilian casualties from drone operations from Afghanistan.
- **Conduct:** a discussion of specific changes to guidance and operational approaches made in Afghanistan that were prompted by analysis.

These examples aim to show how this process can yield additional insight into operational performance and enable improved adaptation and learning to promote mission success and reduced civilian casualties in future operations.

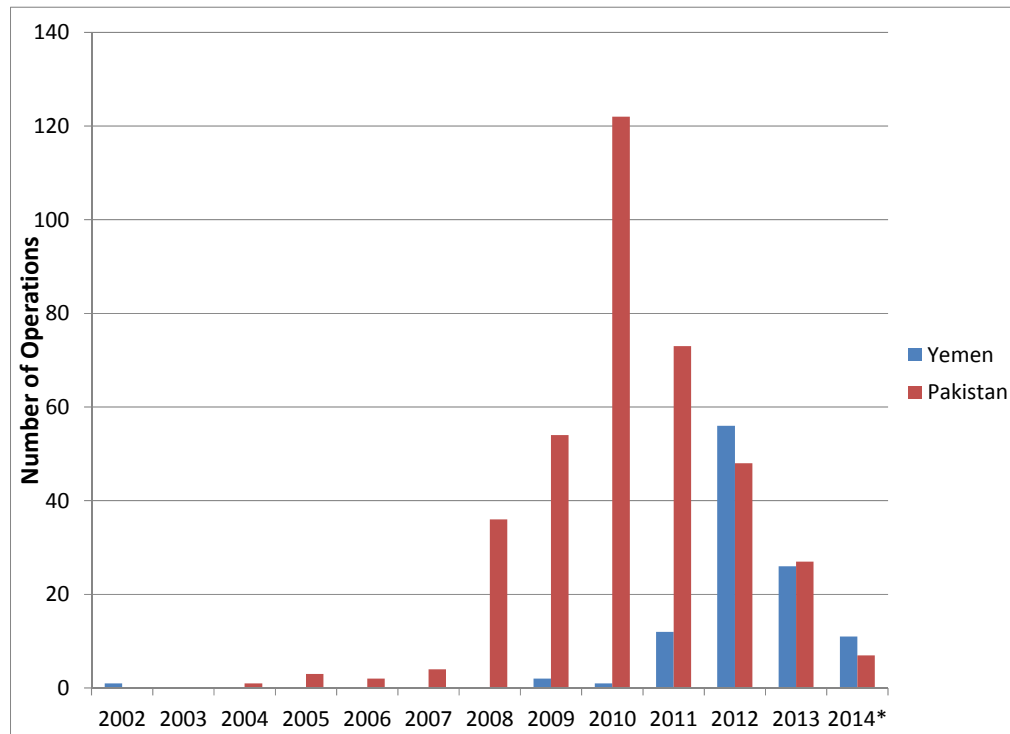
Context: Yemen and Pakistan

One salient aspect of assessing the context of operations is the mission profile. Figure 5 below shows the number of U.S. counterterrorism operations per year in Pakistan and Yemen, using available data maintained by New America Foundation (NAF).²² These data provide information about operational tempo, which is useful for

²² The New American Foundation, a Washington, DC-based think tank, maintains data on U.S. counterterrorism airstrikes, with the goal of increasing transparency with regard to these operations. NAF aggregates media reporting, using the three major international wire services (Associated Press, Reuters, Agence France-Presse), the leading Pakistani newspapers (Dawn, Express Times, The News, The Daily Times), leading South Asian and Middle Eastern TV networks (Geo TV and Al Jazeera), and Western media outlets with extensive reporting

understanding the ability to conduct operations—which depends on intelligence and freedom of action—as well as the overall context for more detailed analysis. Note that the figure shows data for the first half of 2014—so, the significant drop in 2014 compared to 2013 is at least partially due to the shorter time period. In addition, there were no operations in Pakistan for the first six months of 2014, another reason for the significantly smaller number of operations this year.

Figure 5. Number of Lethal Action Operations per Year in Pakistan and Yemen



Source: Data from New America Foundation: <http://securitydata.newamerica.net/>, accessed 4 August 2014. Data for 2014 is partial through this date.

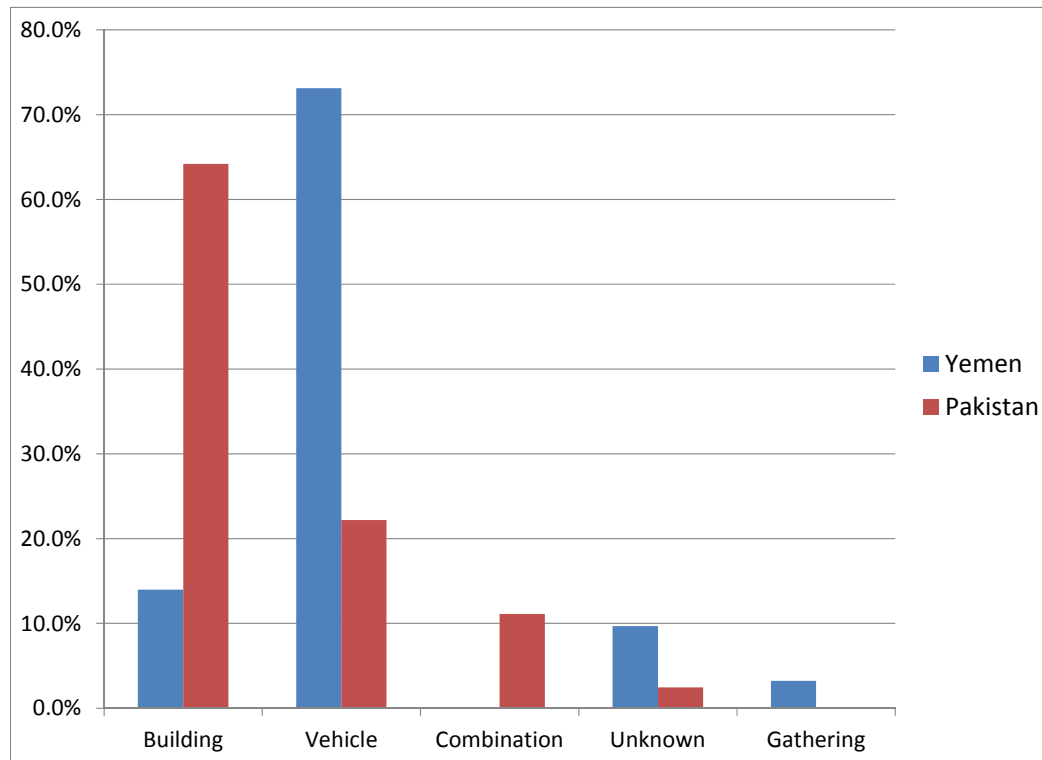
From the figure, it is clear that the number of overall operations has decreased in the past few years. From 2010 to 2012, there was an average of about 100 operations per year. During this time, the operations shifted from being almost entirely in Pakistan to being divided equally between Pakistan and Yemen. However, in 2013 the number

capabilities in Pakistan (CNN, New York Times, Washington Post, Los Angeles Times, BBC, The Guardian, Daily Telegraph). Ritika Singh, “A Meta-Study of Drone Strike Casualties,” Lawfareblog.com, 22 July 2013, <http://www.lawfareblog.com/2013/07/a-meta-study-of-drone-strike-casualties/>.

of operations decreased to about half the past levels; operations so far in 2014 are on pace for a further reduction.

Not all data elements mentioned in the previous section—such as types of operations and the identity of units involved—are available in open source data. However, target types are included in data extracted from media reporting, so analysis of that element will be used here as an exemplar for the overall analytic process. Operations in Pakistan and Yemen featured a number of different target types: buildings (including homes, businesses, and *madrassas*), vehicles (cars and motorcycles), a combination of vehicles and buildings, and gatherings of people. Figure 6 shows the distribution of target types for operations in Yemen and Pakistan, as characterized in NAF’s database.²³ Some target types could not be determined, which are included in the figure as “unknown.”

Figure 6. Target Type Distribution for Lethal Action Operations in Pakistan and Yemen: 2012 to 2014



²³ These figures use operations in Pakistan and Yemen between 2012 and 2014 in order to highlight any country-specific differences, since there were considerable numbers of operations occurring in both countries during that timeframe. Data on individual operations from New America Foundation.

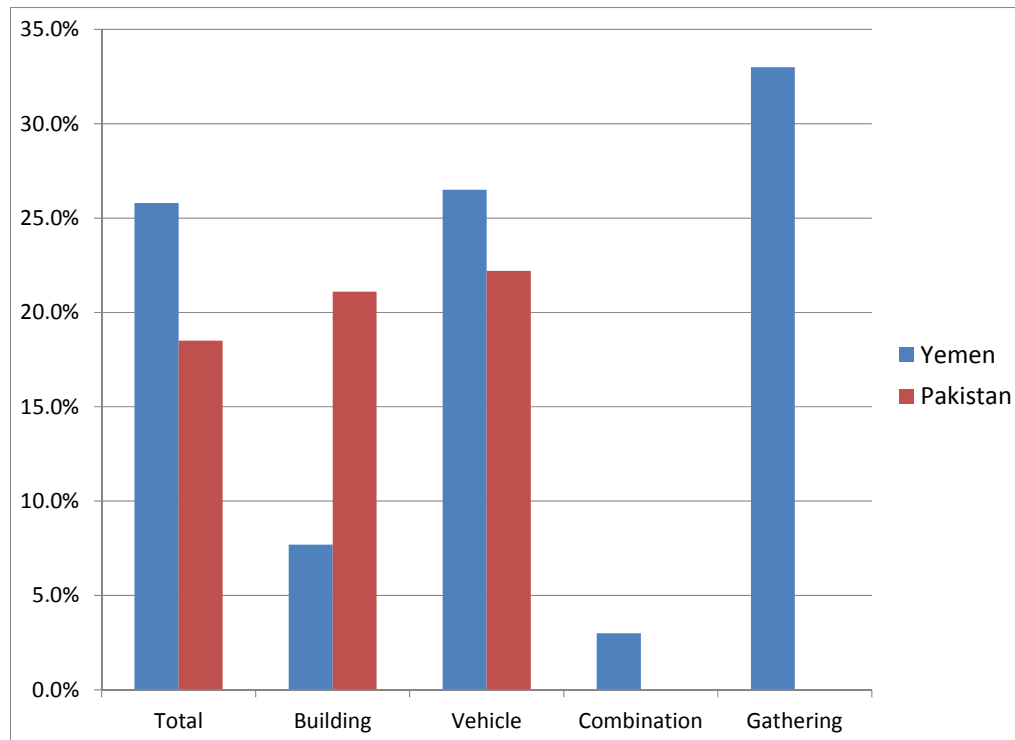
Per Figure 6, target sets for operations in Yemen and Pakistan are significantly different—the majority of operations in Pakistan target buildings, while operations in Yemen preferentially target vehicles. In addition, about one in ten operations in Pakistan targeted a combination of buildings and vehicles simultaneously; no such events occurred in Yemen in the time frame analyzed.²⁴ Similarly, several events in Yemen targeted gatherings of people, with at least one of them believed to be a terrorist training camp.

Another component of assessing the context of operations is *mission success*, which has a number of different aspects. This section uses the relationship between mission success and target types as an exemplar to illustrate the larger analysis process with available data. For example, Figure 7 shows the success in killing senior leaders by target type for operations in Yemen and Pakistan.²⁵

²⁴ There was only one combination event in the history of U.S. operations in Yemen, occurring 14 October 2011. This event led to the killing of two senior leaders and also resulted in 9–15 civilian casualties.

²⁵ This aggregates NAF data for individual airstrikes indicating target type and whether senior leaders were killed during individual strikes. Determination of senior leader was made in the NAF database.

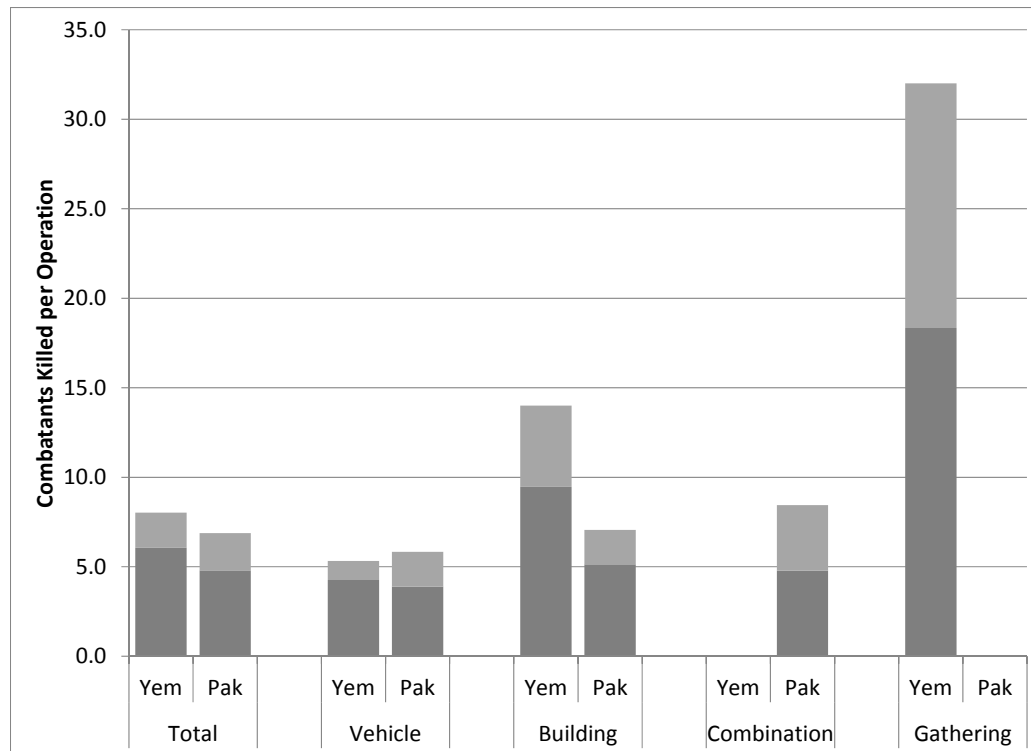
Figure 7. Percent of Lethal Action Operations Successfully Targeting a Senior Leader, by Target Type (when known)



Overall, operations in Yemen were more likely to successfully target senior leaders. In addition, different target sets were more successfully actioned in Yemen and Pakistan. For Yemen, an operation targeting vehicles was about 3.5 times more likely to result in the killing of a senior leader than an operation targeting buildings. This is quite different from Pakistan, where targeting success for senior leaders was about equal for both target types.

Another metric is the total number of terrorists (legally, characterized as combatants) killed during an operation. Figure 8 shows the average level of attrition from operations in Yemen and Pakistan, both overall and for specific target types. The data source provides a minimum and maximum combatant casualty number for each operation based on differing media reports, so average minimum and maximum values are provided.

Figure 8. Maximum and Minimum Combatant Casualties (KIA) from Lethal Action Operations with Different Target Types



In Figure 8, the average combatant numbers of killed in action (KIA) are about the same for operations in Yemen and Pakistan. For different target types, the casualties from engagements of buildings tend to be larger than those from engagements of vehicles. Also, engagements of buildings in Yemen cause about twice as many casualties as those in Pakistan. This could reflect differing pattern-of-life factors—that combatants are more likely to congregate in buildings in Yemen vice Pakistan—or that weapons employment, either in terms of ordinance or tactics, is significantly different in the two operations. For example, if engagements in Yemen routinely employ 500lb bombs, while engagements in Pakistan use Hellfire missiles, then a larger attrition effect could be anticipated in Yemen operations due to the larger area of weapon effect (all other things being equal). Combination events (where an operation targeted both a building and a vehicle) occurred primarily in Pakistan, and had casualty numbers close to that for building targets. Operations targeting gatherings had casualty levels several times higher than those for other target types.

The discussion here focuses on specific types of targets and one echelon of targets (senior leaders). With access to official data, additional analysis could address the different echelons of targets and the relative success of pre-planned versus fleeting targets. In addition, analysis could be done with a focus on the nature of the

operation (e.g., drone strike, manned aircraft strike, unilateral raid, partnered raid, combination) and the relative success of these approaches. In addition, operations by different action arms could be compared in terms of overall mission success—the average percentage of operations that successfully dealt with their intended target—as well as in specific kinds of operations to show strengths and possible areas of improvement for each force. Examining these subsets could provide additional information on factors that may be driving the overall trends—for example, specific types of targets that tend to be less successful, or potential differences between pre-planned and fleeting target sets. This both informs the conduct of future operations and focuses root cause analysis (discussed later) to determine specific reasons for these differences.

As mentioned above, another important component to be assessed is the number of proposed targets that could not be actioned, including those that could not be developed sufficiently to have supporting intelligence for the strike, and those that could not be acted upon because of other PPG restrictions. This helps characterize the magnitude of the barrier to conducting operations due to intelligence requirements and other PPG restrictions. It should also include a discussion of adversary approaches that complicate lethal action and targeting criteria. Unfortunately, we cannot present sample analysis here for these elements due to a lack of open-source data.

The previous discussion addressed mission success, one of the major objectives of the PPG. The other major objective is preventing **civilian casualties** during U.S. lethal action operations. While U.S. official data on civilian casualties during these operations has not been released, open source data are available and will be used here to illustrate the proposed analytical process for evaluating civilian casualties from the use of lethal force. Several sources are available for the drone strikes subset of U.S. CT operations, including the Bureau of Investigative Journalism (BIJ) and the New America Foundation. These two sources were compared in a previous report, and are found to have good agreement overall (after treating the NAF “unknown” status casualties as civilian, per international humanitarian law considerations).²⁶ The BIJ data are used here because they include operation types other than drone strikes, giving a more comprehensive dataset for the present analysis.

For illustrative purposes, these measures are included in Table 3 using BIJ data for Pakistan and Yemen. These numbers show the peril of just using numbers of civilian casualties—or in this case, civilian deaths—without the other metrics to provide context. From the data below, civilian deaths in Pakistan from U.S. operations were

²⁶ See Lewis, *Drone Strikes in Pakistan*, for more discussion of this point. The author confirmed the validity of this interpretation of IHL with the International Committee of the Red Cross (ICRC). Communication with ICRC, May 2014.

more than twice those compared to deaths from operations in Yemen. However, when considering the other measures, operations in Yemen were only somewhat lower in their likelihood of causing civilian deaths (15% versus 19%) and caused the same number of deaths per incident.

Table 3. Overall Civilian Death Statistics for Pakistan and Yemen²⁷

	Pakistan	Yemen
Overall lethal action operations	384	176
Civilians killed (CIV K)	416	152
Operations where CIV were killed (CIV K incidents)	73	27
Average CIV K/operation	1.1	0.9
CIV K incidents/operation (%)	19	15
CIV K/CIV K incident	5.6	5.6

Source: The Bureau of Investigative Journalism, current as of July 16, 2014. (Note that after this date through the end of August, there were seven drone strikes in Pakistan. For completeness, these operations were also included in the data set analyzed here.)

These metrics can also be considered over time. For example, the percentage of total operations resulting in civilian deaths (CIV K incidents/operation from Table 3) is shown below in Figure 9 for both Pakistan and Yemen. This metric is shown beginning in 2009 (the first year of CT operations in Yemen) through the first half of 2014. In this figure, the percentage of operations in Pakistan causing civilian deaths clearly decreased over time, reaching zero in 2013 and 2014; the decline of civilian casualties is clearly within the intent of the PPG. In contrast, the likelihood of civilian casualties in Yemen operations varies over time, first dropping after 2009 from a maximum of 34 percent, but then ranging between 10 percent and 24 percent in subsequent years, in contrast to the clear drop over time in Pakistan. In fact, the civilian casualty rate in Yemen rises from a minimum in 2012 to double that rate in 2014, conflicting with the intent of the 2013 PPG.

²⁷ Also, BIJ includes a range of values for casualty numbers. This report uses the minimum values to provide a conservative measure of the civilian toll.

Figure 9. Percent of Lethal Action Operations Causing Civilian Deaths by Year

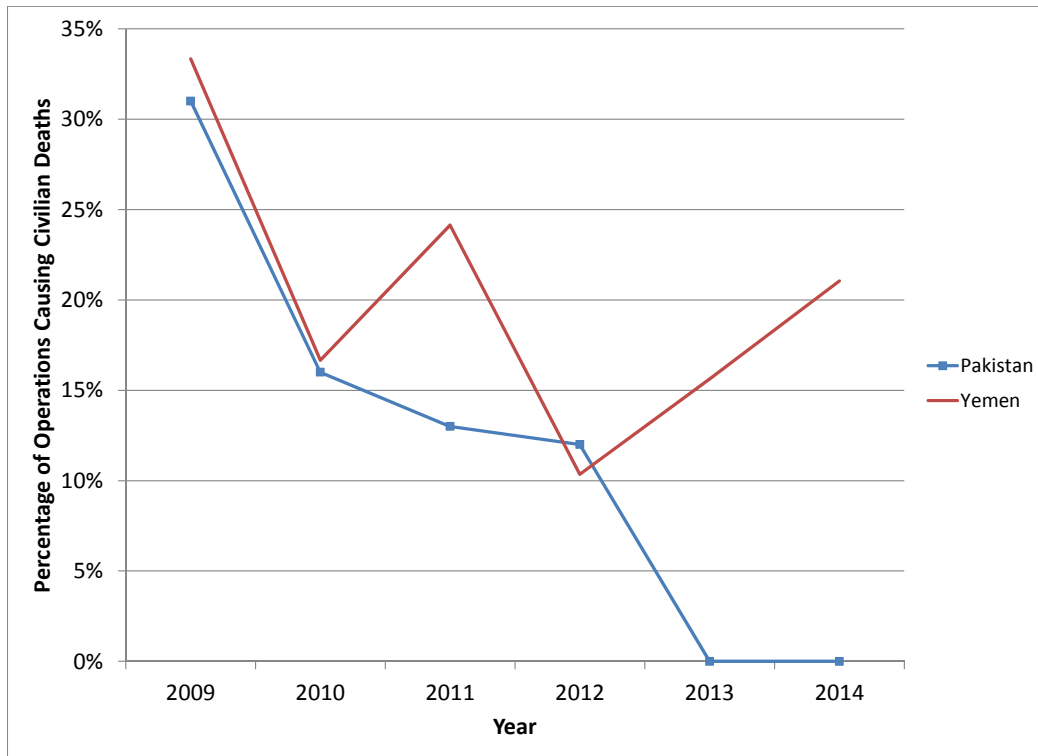


Figure 10 shows the lethality of incidents (i.e., the average number of civilians killed when civilian casualties occur). This metric is shown beginning in 2009 (the first year of CT operations in Yemen) through August 2014. In this figure, about five civilians were killed on average for an incident in Pakistan between 2009 and 2011; after this, the lethality decreased sharply, to one civilian killed on average in 2012, and zero in 2013 and 2014. For Yemen, the average in 2009 is very high due to a single incident with 44 civilian deaths. After this, the average lethality decreased to a range between 3 and 6 civilians killed per incident for the four year time period from 2010 to 2013, and then dropped further to an average of 1.5 for the first half of 2014. Overall, both Pakistan and Yemen operations showed a decreasing trend in lethality over time, consistent with the intent of the PPG. However, for Yemen, the decrease in lethality was countered by the increase in the rate of civilian casualty incidents for operations in Yemen in 2014.

Figure 10. Average Number of Civilian Deaths per Incident by Year

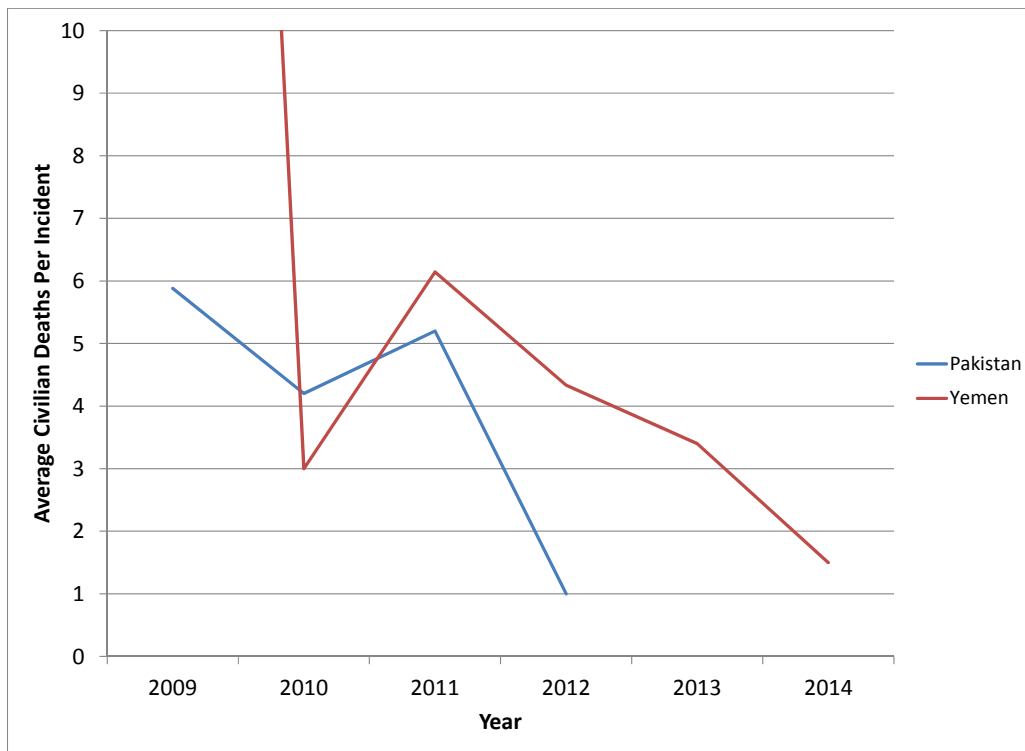
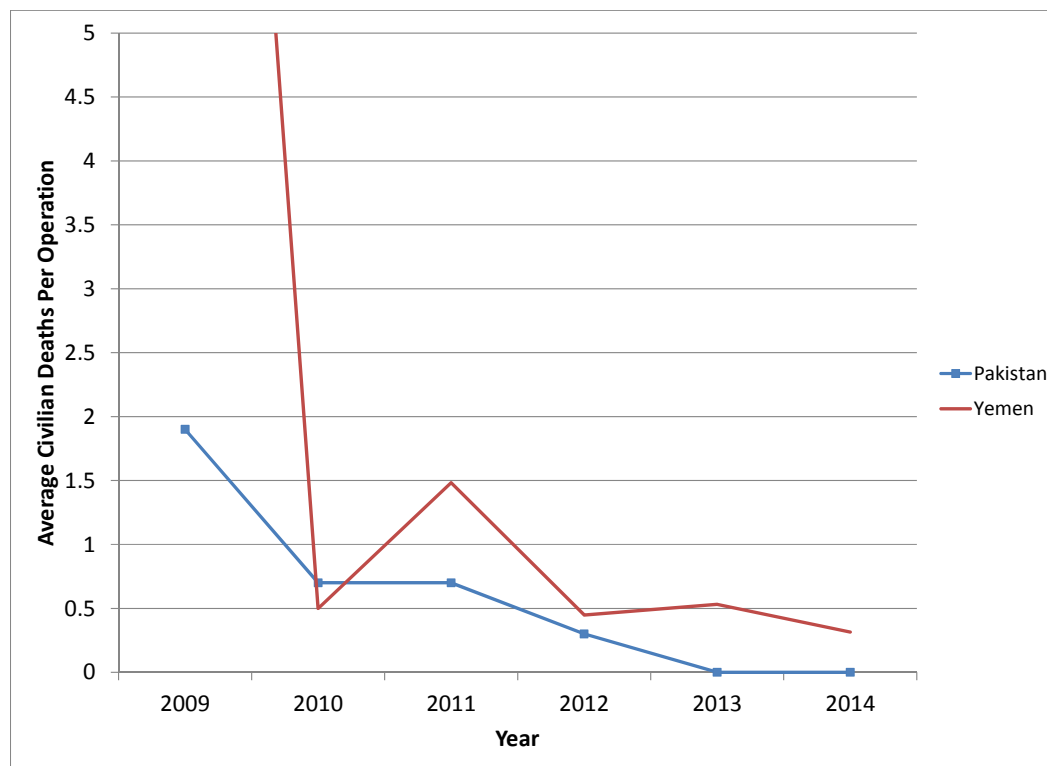


Figure 11 below shows the average number of civilian deaths per operation. It illustrates the average number of civilian deaths that could be expected to result from a typical operation. For Pakistan operations, the average civilian toll decreases steadily from 2009 down to zero in 2013 and 2014. For Yemen, after 2009 with its single high-casualty incident, this number has ranged between 0.3 (in the first half of 2014) and 0.5, with the exception of 2011, where it spiked to 1.5. This spike is due to a simultaneous increase in the civilian death rate and the lethality of incidents for that year. The lowest value for the first half of 2014 is driven by the low lethality rate of incidents, despite an increase in the percentage of operations causing civilian deaths.

Figure 11. Average Civilian Deaths per Operation



Overall, analysis of open source data for civilian deaths in lethal action operations in Pakistan and Yemen shows some progress in meeting the stated U.S. intent to reduce civilian casualties during operations. In Pakistan, the likelihood of civilian casualties per airstrike was seen to decrease over time, and dropped to zero after the release of the 2013 PPG. In comparison, the use of lethal force in Yemen has not shown the same reduction in civilian casualties; while lethality of incidents decreased in the first half of 2014, the frequency of operations causing civilian casualties showed an increase in recent years, even after the issuance of the PPG.

The measures provided above should also be broken out by type of operation and by action arm. However, these pieces of information are generally not available in open source data and so cannot be illustrated here. But there is one area that can be examined in more detail—characteristics of drone strikes versus other kinds of operations. BIJ is particularly interested in drone strikes, so for operations in Yemen, they have specifically researched CT operations to try and determine whether or not each operation is a drone strike.²⁸ In some cases, they have information they assess

²⁸ In Pakistan, all operations are believed to be drone strikes.

as reliable indicating an operation was in fact a drone strike, so these incidents are considered *confirmed* drone strikes. For other operations, BIJ does not know whether they are drone strikes, manned airstrikes, ground raids, or a combination thereof; in this paper these are referred to as “other operations.” While it would be preferable to know the specific type of engagement for all operations, the existence of two groups—drone strikes and other operations—allows a comparison of civilian casualty attributes of one group (confirmed drone strikes) with another (unknown—possibly manned aircraft strike, drone strike, or ground operation). This comparison is shown below in Table 4.

Table 4. Comparing Civilian Casualties from Drone Strikes and Other Operations in Yemen

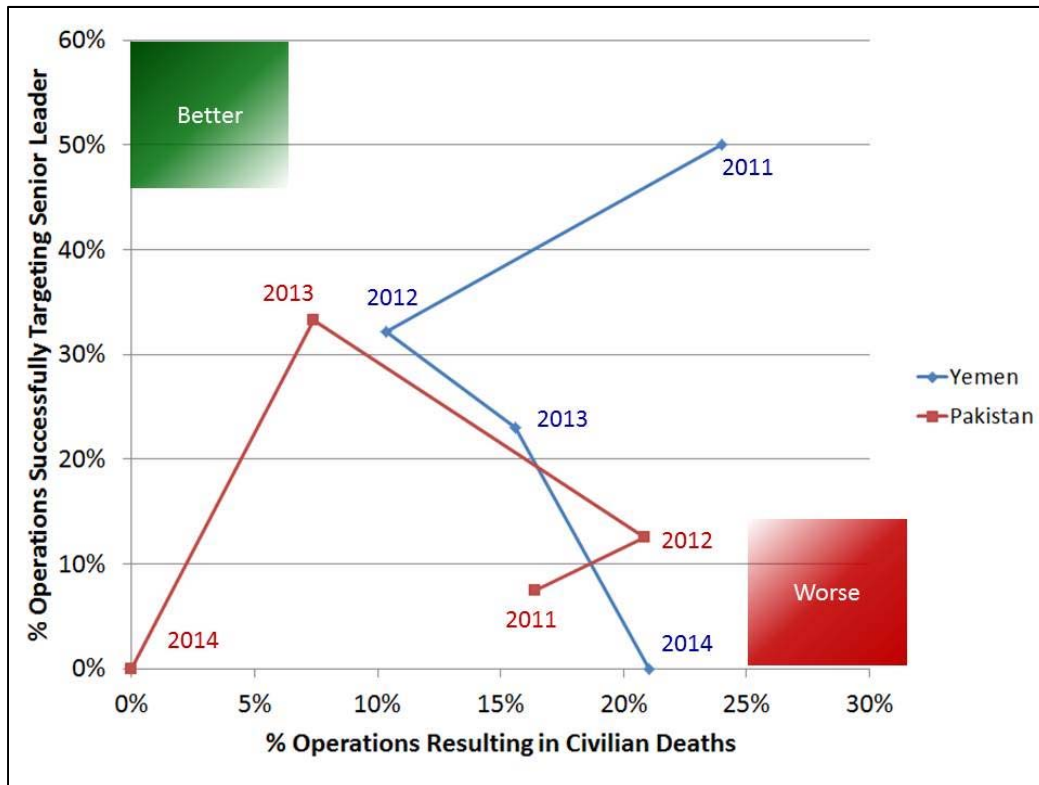
Yemen	Confirmed Drone Strikes	Other Operations
Overall number of operations	69	107
Civilians killed (CIV K)	124	28
Operations where CIV were killed (CIV K incidents)	19	8
CIV K/CIV K incident	6.5	3.5
Rate of civilian deaths per operation (%)	27.5	7.5

In Yemen, per this data set, about 40 percent of operations fall under the category of confirmed drone strikes. However, this set of operations is responsible for the majority of civilian casualties—more than 80 percent of the total number of civilian deaths. The table also provides some reasons why this is—the group of confirmed drone strikes has almost twice the civilian deaths per incident compared to the other group, and drone strikes are almost four times more likely to cause civilian casualties per operation. While this observation should be considered tentative until the comparison is repeated with operational data, a similar trend – with a higher civilian casualty rate for drone strikes compared to other types of operations – has been seen previously. This is discussed further in the Benefits section.

Report Card for Operations in Yemen and Pakistan

In order to build a report card regarding operations in Yemen and Pakistan and how well they met U.S. objectives outlined in the PPG, the relationship between mission success and avoiding civilian casualties is first determined, as shown in Figure 12.

Figure 12. Relationship between Mission Success and Civilian Casualties



In Figure 12, mission success is represented by the percentage of operations successfully targeting senior leaders. For Pakistan from 2012 to 2013, operations are seen moving toward the upper left quadrant of the chart, with mission success and avoidance of civilian casualties improving simultaneously, consistent with the aims of the PPG.²⁹ However, at other times, an improvement in one of the two criteria came at the expense of the other. For Yemen, a decrease in the frequency of civilian casualties from 2011 to 2012 came at a cost of decreased mission success. And contrary to the aims of the PPG, from 2012 to 2014, mission success dropped over

²⁹ It could be considered unfair to find that (for example) operations in Pakistan in 2012 fell short of the full aims of the PPG, since the PPG did not exist then. However, it is useful for context to consider historical performance and whether these aims were achieved during operations. At the same time, expectations should be higher for operations in 2013 and 2014, since these aims were more explicit in guidance.

time while the civilian casualty rate increased. Thus, in Yemen, operations became less likely to satisfy both PPG criteria during this time period.

These results are summarized in Table 5 below. In the table, the changes from year to year are color-coded to show the extent to which operations achieved the aims of the PPG. Green indicates both an increase in mission success and a reduction in the rate of civilian casualties, red indicates that mission success decreased while the rate of civilian casualties increased, and yellow indicates that one of the two PPG aims was achieved but not the other. From the table, Pakistan operations have been more successful in approaching the aims of the PPG, though there is still room for improvement in 2014. In contrast, Yemen operations over the past two years appear to be meeting neither of the PPG aims. From this report card, the analytic process described in this report could reasonably start with a focused effort supporting Yemen operations.

Table 5. Operations in Yemen and Pakistan: Achieving the Aims of the PPG?

	Yemen		Pakistan	
	% Change in Mission Success ³⁰	% Change in Rate of Civilian casualties	% Change in Mission Success	% Change in Rate of Civilian casualties
2012	-18%	-14%	+5%	+4%
2013	-9%	+5%	+21%	-13%
2014	-23%	+5%	-33%	-7%

Causes: Examples from Afghanistan

To illustrate the process of root cause analysis, a specific vignette from Afghanistan is featured below, followed by an example of aggregating root causes from multiple incidents.

Uruzgan: Reconstructing an Incident of Interest

The vignette used here, which occurred in the Uruzgan province of Afghanistan, was chosen because it is well documented with sources that were approved for public

³⁰ Measured here as the rate of success of targeting senior leaders. With actual operational data, other metrics for mission success could also be used here.

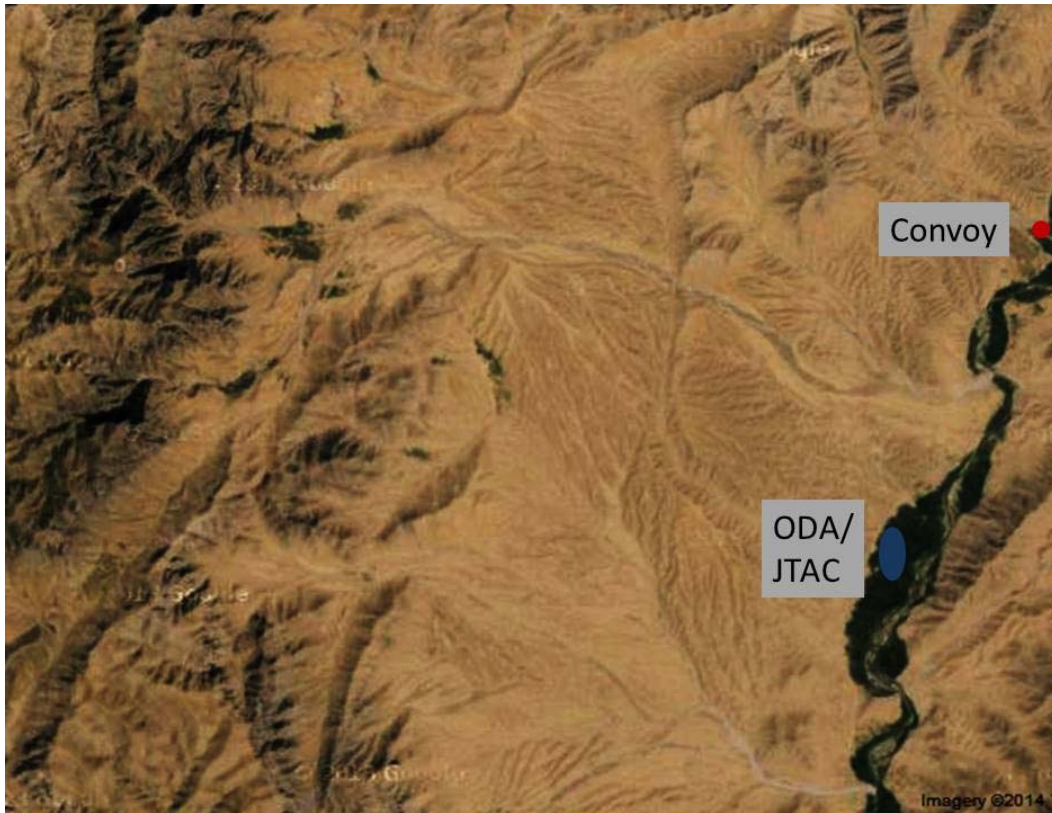
release.³¹ While the specific root causes identified below are not completely representative of counterterrorism operations in Yemen and Pakistan, the process for identifying such root causes is the same, so the process of reconstruction and identification of contributing factors is illustrative of what could be done for those operations.³²

Early on 21 February 2010, a U.S. Special Forces team, accompanied by Afghan Army and Police personnel, conducted an air infiltration into western Uruzgan province for a daytime cordon and search operation. The Special Forces team was supported by a MQ-1 Predator and an AC-130. While waiting for daylight, the team received intelligence that enemy forces were going to attack. The Predator observed two SUVs driving south toward the location of U.S. forces, and assumed these were enemy forces. The position of the U.S. team and the initial position of the convoy are shown in Figure 13.

³¹ Primary sources for the section on the Uruzgan incident are the redacted CENTCOM report (AR 15-6 Investigation, 21 February 2010, *U.S. Air-to-Ground Engagement in the Vicinity of Shahidi Hassas, Uruzgan District, Afghanistan*, dated 21 May 2010) and the unclassified ISAF Executive Summary (Executive Summary for AR 15-6 Investigation, 21 February 2010, *CIVCAS Incident in Uruzgan Province*, May 2010).

³² While root causes are not identical for the two sets of operations, there can be considerable overlap, so historical work supporting U.S. efforts in Afghanistan and products derived from it can be a useful starting point for the effort described in this report. For example, the checklist for AAR data elements in the Army TTP publication *Civilian Casualty Mitigation* was derived from this Afghanistan work.

Figure 13. Initial Locations of U.S. Team and Civilian Convoy in Uruzgan Incident

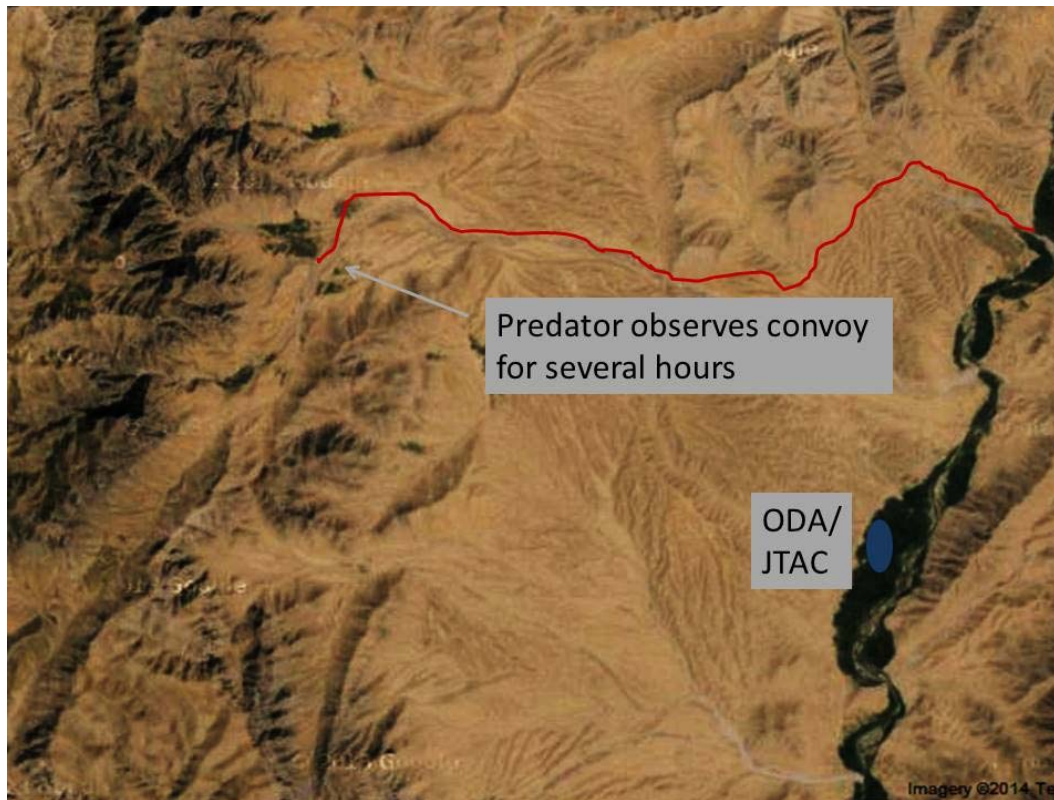


Source: Map data from Google TerraMetrics. Information on locations based on redacted CENTCOM report.

The Predator then watched the SUVs as they drove around the area for about three and a half hours, changing directions several times, stopping to allow the occupants of the vehicles to pray, and moving to a position about 12 km away from U.S. forces. The two SUVs were joined during this time by a third vehicle, a pickup truck. During this time period, imagery analysts examined the full motion video from the Predator and provided their feedback to the Predator crew. In turn, the Predator crew communicated with the U.S. team on the ground in Afghanistan.³³ The movement of the convoy is shown in Figure 14.

³³ Note that the imagery analysts were located at a different location than the Predator crew, and had no means of direct communication with forces on the ground. Thus their feedback was filtered through the Predator crew.

Figure 14. Movement of Civilian Convoy



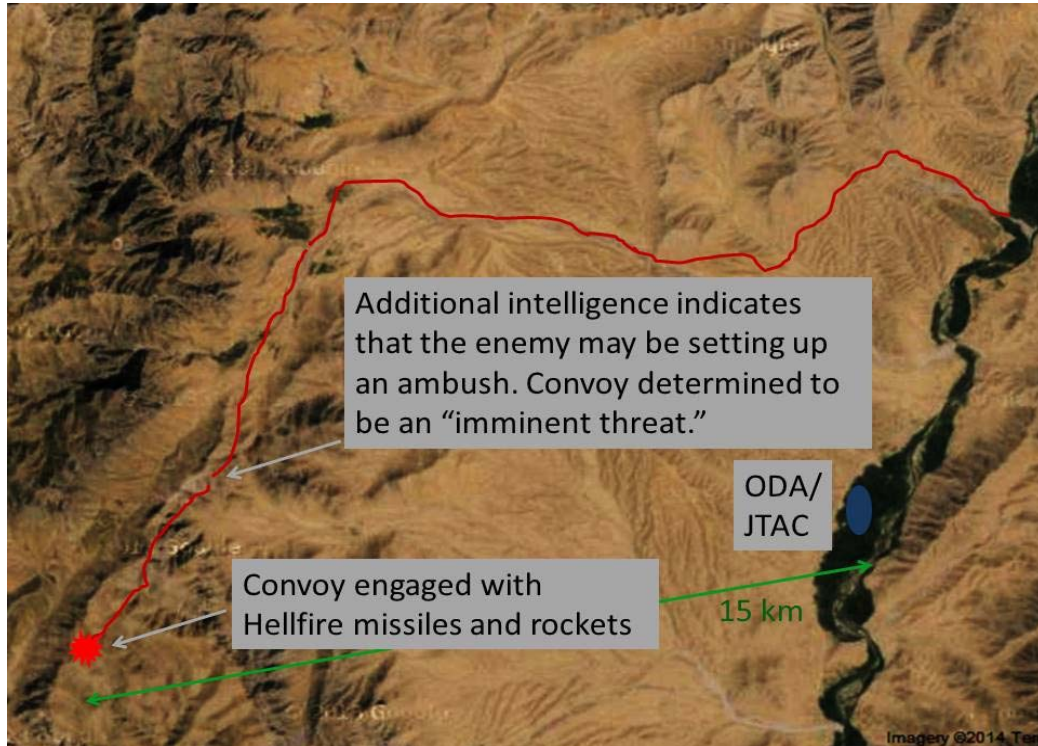
Source: Map data from Google TerraMetrics. Information on locations based on redacted CENTCOM report.

Over the three and a half hours, the imagery analysts communicated the presence of three possible weapons in the vehicles and two children, also described as “adolescents.” The descriptions provided by the imagery analysts—who were trained to interpret the Predator feed—were frequently different than the descriptions the Predator crew provided to the U.S. forces on the ground in Afghanistan. For example:

- The imagery analysts described seeing several children, who were described as “adolescents”. The Predator crew described them as “teenagers” who could be providing support to combatants, and later described them as “military aged males.”
- While the imagery analysts said that the vehicles appeared to be leaving the area, the Predator crew stated that they might be flanking the U.S. position.
- At one point, the Predator crew reported to the U.S. Special Forces team that the imagery analysts had reported seeing two weapons in a specific vehicle, when they had in fact provided no such report.

The imagery analyst descriptions were provided as text on computers via mIRC chat, which was inaccessible to the Special Forces team, though it was available at their higher headquarters in Kandahar. The team then received additional intelligence indicating the enemy may be setting up an ambush. As a result, the Special Forces team believed the vehicles represented an imminent threat and called for an air strike. This is shown in Figure 15.

Figure 15. Strike on Civilian Convoy



Source: Map data from Google TerraMetrics. Information on locations based on redacted CENTCOM report.

OH-58 helicopters were called in to strike the targets based on information provided by the Predator crew, including information about weapons and military-age males, but no mention of children. The vehicles were engaged with Hellfire missiles, with follow-up engagement of individuals using rockets. Then the OH-58 pilots saw people running from the vehicles dressed in brightly colored clothing, which is characteristic of women's apparel in Afghanistan. So, they stopped the engagement and radioed back the possibility of civilian casualties. This was heard at the higher headquarters, but it did not report to ISAF the possibility of civilian casualties, waiting to receive confirmation. This delayed the reporting of the incident for many hours, slowing the eventual ISAF consequence management response and causing that response to trail

Taliban information operations and rumors rather than being proactive and establishing the facts quickly to avoid misunderstandings.

Lessons from the Uruzgan Incident

The “Swiss cheese model” of accident causation describes how problems (holes in the Swiss cheese) can arise relatively frequently with no impact; however, when the holes all line up, then an accident can occur. The Uruzgan incident, like other civilian casualty incidents, was the result of a number of factors that all contributed to the incident. These factors included:

- **Intended target not located due to lack of capability.** Specifically, the team on the ground received intelligence regarding the presence and intent of enemy forces but lacked the ability to know where the enemy was located. Having this ability could have helped U.S. forces to be successful in dealing with the threat and avoid misidentifying civilians as enemy.
- **A misunderstanding of the situation among the different military elements.** The engagement was coordinated among the U.S. Special Forces team on the ground, its higher command element in Kandahar, the Predator crew at Creech Air Force Base (AFB), the Predator’s support elements (including its imagery analysts at Hurlburt AFB), and the OH-58 helicopters. Key facts were not shared among these different actors; as a result, the factors were not adequately considered in the decision to engage.
- **The Predator crew overruled assessments by supporting imagery analysts.** The U.S. official investigation stated that the Predator crew, lacking training in interpretation of imagery, “made or changed key assessments ... that influenced the decision to destroy the convoy.”³⁴ While the Predator crew was supported by imagery analysts who did have such training, only the Predator crew was in communication with the forces on the ground. Consequently, the descriptions they provided were assumed to carry the weight of the entire processing, exploitation, and dissemination (PED) process that the Predator platform was supposed to provide.
- **Use of “guilt by association.”** The third vehicle joining the convoy had no basis for being declared hostile. Rather, the Predator crew described its status as “guilt by association.” This was an assumption by the Predator crew, one that proved incorrect, and was also a violation of the rules of engagement (ROE) and of international humanitarian law (IHL).

³⁴ AR 15-6 Investigation, 21 February 2010, U.S. Air-to-Ground Engagement in the Vicinity of Shahidi Hassas, Uruzgan District, Afghanistan, dated 21 May 2010

- **Civilian casualty numbers and target types.** Until 2010, ISAF efforts to reduce civilian casualties from airstrikes emphasized particular target sets—namely, compounds—in its guidance and emphasis. The Uruzgan incident, along with others such as the Kunduz tanker truck airstrike in September 2009, illustrates how significant numbers of civilian casualties could occur outside of compounds. Consequently, more consideration of the possibility of high numbers of civilian casualties was extended to other target types.
- **Lack of tactical patience.** While the U.S. watched the vehicles for three and a half hours prior to engaging (which appears to show patience), the Predator crew appeared eager to engage, and used leading language to describe the vehicles in terms that appeared to satisfy the rules of engagement:
 - o [Responding to the imagery analyst description of seeing a child]: “At least one child... Really? Assisting the MAM [military-age male], that means he’s guilty.”
 - o [Responding to a later description of seeing several children] “I really doubt that ‘children’ call, man, I really (expletive deleted) hate that.”
 - o “That truck would make a beautiful target.”
 - o “I want this pickup truck of dudes.... I hope we get to shoot the truck with all the dudes in it.”³⁵
- **Self-defense engagement predicated on an imminent—but not immediate—threat.** Rules of engagement grant the authority to exercise self-defense in the face of a hostile act or hostile intent, which includes the threat of imminent use of force. This engagement was predicated on the interpretation of a single word: the modifying word “imminent.” The definition of “imminent” in the U.S. standing ROE is not the commonly understood dictionary definition (“Threatening to occur immediately; near at hand; impending”). Indeed, the standing ROE definition specifies that *imminent* need not be instantaneous or immediate. This distinction allows U.S. forces to take a broader view of what constitutes hostile intent and self-defense. In this incident, U.S. forces used this broad view to justify the use of force in self-defense when the attacked vehicle convoy was miles and hours from Coalition forces. Hence, according to the 15-6 report, “there was no urgent need to engage the vehicles.”

Collectively, these contributing factors represent areas where the U.S. can make improvements. For example, training and doctrine can emphasize the importance of including key details in air-to-ground coordination. At the same time, training for

³⁵ AR 15-6 Investigation, 21 February 2010, U.S. Air-to-Ground Engagement in the Vicinity of Shahidi Hassas, Uruzgan District, Afghanistan, dated 21 May 2010

drone crews can devote more attention to mindset and tactical patience. In addition, the communications for drones could be revised—for example, investigate the inclusion of imagery analysts in voice communications so that the Predator crew is not forced to be a middleman in relaying intelligence they are not trained to interpret. Of course, these are simply potential solutions from a single incident—it is best to consider a larger set of incidents and then develop solutions that best fit the collective contributing causes. These solutions include changes in overall guidance (including the PPG), training, tactics, techniques, and procedures (TTP), and materiel solutions.

Aggregating Root Causes: Drone Strikes in Afghanistan

The other step in the root cause process is where root causes of individual incidents are aggregated to identify common themes and primary contributing factors for operations that fail to meet their objectives. Another example of the root cause process that featured this aggregation step is the previous analysis of drone strikes in Afghanistan operations.³⁶ As mentioned earlier, this analysis found the relative rate of civilian casualties to be ten times higher for drone strikes compared to that for manned airstrikes (this result is an example of the “context” stage of analysis). Then, all operations with civilian casualties were reconstructed in a way similar to the Uruzgan example given above. Finally, the contributing causes were aggregated to find the main drivers of civilian casualties in drone strikes.

When multiple incidents were considered, several common root causes stood out that tended to contribute to civilian casualties during drone strikes:

- **Deficiencies in training** for drone operators and imagery analysts. A lack of sufficient training in pattern of life, positive identification, discriminating civilians from combatants, and tactical patience can increase the risk of civilian casualties.
- **Complex coordination processes.** The distributed processing, exploitation, and dissemination (PED) architecture for drones commonly used to support decision-making higher demands on communications and coordination of engagements. Breakdowns in communication can lead to engagements that are not informed by the entire set of facts. Specifically, someone was aware of

³⁶ Joint and Coalition Operational Analysis Division, Drone Strikes: Civilian Casualty Considerations (Suffolk, VA: JCOA, June 2013)

information that would have stopped the engagement if it were commonly known.³⁷

- **Lack of situational awareness** (SA) in the area beyond the immediate target. Such a lack of SA was compounded by a well-intentioned tendency to use low-collateral damage weapons that did not always eliminate the target in the first engagement. A requirement for subsequent engagements combined with unobserved civilians in the general area increased the risk of civilian casualties, especially when those civilians were acting as first responders.³⁸

This analysis informs subsequent efforts to tailor solutions to improve the conduct of operations, as described in the next section.

Conduct: Examples from Afghanistan

These analytical steps were conducted for ISAF and U.S. forces in Afghanistan in order to help those forces reduce civilian casualties resulting from operations. For example, the Joint Civilian Casualty Study analysis identified a shortcoming in the COMISAF Tactical Directives that had been issued between 2007 and 2009.³⁹ The study findings were communicated to the new COMISAF, General David Petraeus, in mid-2010, and the revised Tactical Directive issued by his staff corrected the shortcoming, which had persisted through four previous versions of the guidance. As a result, the conduct of operations changed to reflect this key identified lesson.

Another example: In a 2011 study, analysis ascertained which kinds of operations were contributing the most to civilian casualties, and what practical measures could be taken to reduce them. After analyzing several hundred separate incidents, the study team provided a list of primary causal factors for different types of operations—including airstrikes, check point operations, artillery fire, and vehicle movements—and specific recommendations for changes in guidance and tactics to address them. ISAF made a number of changes to the conduct of operations in early 2012 in response to these recommendations, and also promulgated these best practices to tactical forces in Afghanistan to aid their implementation. In addition, the recommendations were shared with training centers back in the United States to be included in pre-deployment training. Also, CENTCOM quickly acted on one of the

³⁷ This is also a common factor in friendly fire incidents, such as the shooting down of a Navy F/A-18 aircraft by a Patriot missile in Operation Iraqi Freedom in 2003.

³⁸ Larry Lewis and Sarah Holewinski, “Changing of the Guard: Civilian Protection for an Evolving Military,” *PRISM* 4, no. 2 (2013).

³⁹ The specific shortcoming, like the Tactical Directive itself, is classified.

recommendations calling for an additional number of a certain kind of weapon, and this resulted in the rapid fielding of these weapons to Afghanistan. Members of the study team then worked with the Center for Army Lessons Learned (CALL) and compiled the main body of a handbook for soldiers addressing how to reduce civilian casualties during operations.⁴⁰ This handbook was shared with forces in theater as well as those preparing for future deployments, and contained tailored guidance and tactics based on specific lessons from actual civilian casualty incidents.

Importantly, these efforts were done periodically and sequentially, re-examining Afghanistan operations over time to observe how existing measures were doing in reducing civilian casualties, and whether there were new issues that also needed to be addressed. These efforts also benefitted from team continuity and expertise, and subsequent teams were able to observe benefits of tailored guidance. For example, the revised Tactical Directive issued by General Petraeus had a marked positive impact on civilian casualties from airstrikes, and guidance and tactics introduced as a response to root cause analysis often were effective in reducing those contributions to civilian tolls.⁴¹ Also, U.S. SOF observed both increases in mission success and decreased rates of civilian casualties as they addressed identified root causes.⁴² At the same time as enemy tactics and the environment changed, it was also necessary to conduct follow-on studies to revisit guidance and tactics in light of subsequent incidents of interest and provide fine-tuning to address new factors as they emerged.

⁴⁰ The members of the study team (LTC Randy White and the author of this report) co-authored the chapter on consequence management—what to do when civilian casualties occur—with Sarah Holewinski and Marla Keenan from Center for Civilians in Conflict. The Center is a nongovernmental organization that advised ISAF and U.S. forces on improving civilian harm mitigation during operations.

⁴¹ Larry Lewis, *Reducing and Mitigating Civilian Casualties: Enduring Lessons* (Suffolk, VA: Joint and Coalition Operational Analysis Division, 12 April 2013).

⁴² Sewall and Lewis, Joint Civilian Casualty Study.

Implementing the Approach

The process outlined and illustrated above would quantify how well operations are meeting stated U.S. goals of lethal action operations, as well as identify specific areas where improvement is possible. This review would also identify root causes, providing not only an explanation for why mission success was not achieved or civilian harm occurred, but also a basis for evidence-driven solutions to improve performance of future operations.

In addition to following the methodology in this report, the process described here would also benefit from several other features. Particularly, the review process described here should be an independent one—that is, not conducted by a specific action arm. Also, the review process should provide feedback to the action arms conducting operations, to help them improve their own after-action processes and promote learning. The review process should also pursue ways to improve assessments of civilian casualties during operations, since it is notoriously difficult to accurately estimate civilian casualties in these kinds of operations, and there are several factors that can lead to official estimates being too low.⁴³

Review Should Be Independent

Many sources discuss the existence of at least two different action arms for U.S. lethal force operations, one within the military and the other within another government agency (OGA). Given the important policy considerations regarding the use of lethal force, each organization is likely to be conducting an internal review of its operations. It would be constructive for these reviews to incorporate elements described in this report.

However, an independent review process would also be beneficial, especially given the critical nature of these operations and the significant fallout and reduction of freedom of action that can result from negative second-order effects. An independent review, conducted by either an existing organization or a special team of experts assembled for this purpose, would have a number of benefits. First, all

⁴³ See Lewis, *Drone Strikes in Pakistan* for a detailed discussion of this point.

organizations have blind spots and can hold assumptions that may or may not be true. An independent review allows critical analysis of data and assumptions and should yield additional insight regarding these operations. This review can also consider the casualty classification policy, including decisions for individual operations regarding whether casualties were combatants or civilians. For example, a similar process conducted for counterterrorism operations in Afghanistan yielded both additional understanding of actual root causes of civilian casualties and refinements to casualty classification processes.

Another reason for an independent review is the fact that there are multiple action arms in the U.S. government involved in these operations, each with differing oversight processes. The National Security Council, Congress, the Intelligence Community, and the military all play key roles in shaping, executing, and validating U.S. counterterrorism policy. Yet details regarding operations and lessons are often stovepiped. An independent review will more effectively identify key lessons across these stovepipes, promote consistency, and foster cross-pollination of best practices and lessons. Again, in Afghanistan, such sharing of best practices and lessons among different U.S. units and elements did not occur regularly, and independent reviews that examined operations by different organizations were the most effective way to leverage learning and avoid stovepipes.⁴⁴

Refine and Standardize AARs

As part of its work, the independent review should also examine the sufficiency of AARs produced after these operations. The review should examine questions such as:

- Are the reports factually accurate?
- Are they suited for operational learning?
- Do they adequately support consequence-management activities?
- What are potential areas of improvement to better support the overall process?

In Afghanistan, U.S. forces and ISAF created a number of products that reported on civilian casualties; the most valuable reports were generally command-directed investigations. These investigations generally considered all available data and interviewed all U.S. government personnel who were involved in the incident. This provided a rich dataset for analysis of causal factors, including factors that were not

⁴⁴ Joint Center for Operational Analysis, *Adaptive Learning for Afghanistan: Final Recommendations* (Suffolk, VA: JCOA, 11 February 2011).

surfaced or seen as significant when considering a single incident but, when analyzed collectively, emerged as a common contributing factor for many incidents.

Although they were usually the best data source available, these command-directed investigations were not optimal. The purpose of the investigations was to determine culpability, and attention to learning from the incident was inconsistent. At the same time, since investigations were often conducted by different units and individuals, there was a disparity in the kinds of issues and data that were considered. This limited the consideration of some root causes in the analysis. Identifying key issues and information to be included in AARs would address these concerns; an example of such a checklist, based on the Joint Civilian Casualty Study and other related studies, is included in the Army's ATTP 3-37-31. The independent review should develop a tailored set of reporting requirements to ensure AARs best support the learning process for the specific type of operations.

Increase the Robustness of Civilian Casualty Assessments

In addition to reporting requirements, standard processes should be put in place for improving the accuracy of assessments of civilian casualties. Just because civilians may be harmed does not mean that the engagement is not permissible: Under U.S. and international humanitarian law (such as the Geneva Conventions), it is permissible to use force against an enemy as long as the harm to civilians is not excessive relative to the gained advantage from the operation. However, these civilian tolls should be properly acknowledged in follow-on reporting and assessments.

The U.S. faces considerable challenges in obtaining accurate assessments of civilian casualties in its use of lethal force in operations outside of declared areas of hostilities. Most of these operations are airstrikes in areas without U.S. boots on the ground, and as such are often characterized by air-based target identification and battle damage assessment. These factors increase the likelihood that civilian casualties, including those misidentified as enemy, are not discovered by the U.S. Thus, if civilian casualty assessment depends only on these measures, it is likely that the U.S. government does not have a true picture of the actual scale of civilian harm from its drone strikes. Regarding operations in Pakistan and Yemen, the U.S. has frequently denied the extent of civilian casualties that have been widely reported in the media. This resembles the situation in Afghanistan prior to mid-2009, where U.S. and international force military commanders were frequently confronted by reports of civilian casualties that differed from their own initial reports.

This tendency to underestimate the levels of civilian casualties also undermines the ability to reduce civilian casualties. If the magnitude of civilian harm is

underestimated, then the problem risks not being prioritized appropriately and causes will not be understood; because of this, measures put in place to reduce civilian harm may not be effective. Therefore, the U.S. can only truly minimize civilian harm if it has an accurate assessment process to quantify levels of civilian harm and an analytic process in place to capture root causes showing why civilians are harmed in operations.

This report provides such an analytic process, but the analytic process should be accompanied by an improved assessment process for quantifying civilian harm. In addition to intelligence efforts (e.g., use of HUMINT and imagery) to improve assessments, this process could consider information from third-party organizations, either with a presence on the ground or having processes for gathering information that are complementary to that of official U.S. methods. While information gained here may appear to conflict with operational data, such a process can highlight cases where findings from operational data are not as incontrovertible as they seemed, leading to revised estimates of civilian tolls.

One overarching principle of IHL is: “In case of doubt whether a person is a civilian, that person shall be considered to be a civilian.”⁴⁵ The U.S. is governed by this principle with respect to the use of force, but the same principle applies for assessments of civilian harm after the use of force. In cases where there is a question of whether a casualty was a combatant or noncombatant, they should be assigned to noncombatant status per IHL.⁴⁶ This was the practice of U.S. military forces in Afghanistan; doing otherwise is inconsistent with international law and is likely to lead to an incomplete picture of the civilian toll from these strikes.

⁴⁵ Additional Protocol to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977.

⁴⁶ The author confirmed the validity of this interpretation of IHL with the International Committee of the Red Cross (ICRC). Communication with ICRC, May 2014.

Benefits of the Process

The analytic approach proposed in this report seeks to improve the conduct of the U.S. counterterrorism campaign of lethal force by providing improved context for operations, revealing causes for negative outcomes, and creating tailored recommendations for improved conduct of future operations. This approach also yields several other benefits, including a basis for “defragmenting” the execution and oversight of lethal action across U.S. departments and agencies, separating fact from opinion regarding operations, helping to make the case for broader changes to the U.S. military in light of identified lessons, and enhancing the perceived legitimacy of the U.S. lethal action campaign by better aligning policy and practice.

Impetus for Revising Guidance and Operational Approaches

U.S. counterterrorism lethal action operations are aimed at imminent threats where no other solution for addressing them—such as working with partner nations or attempting capture operations—is feasible. For this critical mission set, a missed opportunity—or killing the wrong people—can have dire consequences. The analytic process described here is a way to accelerate and optimize the normal learning process to maximize success and minimize the chances of these negative outcomes.

Specifically, the benefits of this analytical approach should include:

- Refinements to policy and guidance (including a modified PPG if appropriate)
- Alternative tactics and operational approaches to improve mission success and reduce civilian casualties, given observed root causes
- Cross-pollinating best practices across organizations
- Highlighting shortfalls in current capabilities
- A discussion of how to adapt to adversary approaches that complicate lethal action and targeting criteria
- A basis for informed policy decisions regarding organizational responsibilities in the future use of lethal force

In addition, there is continuing discussion of ending the Authorization for Use of Military Force (AUMF), which is the basis of authorization for the conduct of operations against Al Qaeda and associated groups.⁴⁷ This would require a new legal basis for the use of lethal force. Several commentators have suggested that this new legal basis for action could include adapting the PPG framework for this targeting process.⁴⁸ Getting the guidance right has potential implications for a broader set of lethal action operations beyond the current campaign against Al Qaeda and affiliated groups. And, as stated earlier, getting the guidance optimal for one period of time does not guarantee it is optimal for the long term, so putting a process in place to look for regular opportunities to learn lessons and incorporate them into guidance would improve the ability of the U.S. to deal effectively with future threats.

Separating Fact from Opinion

When working to optimize guidance and operational approaches, it is critical that this effort rely on facts and data instead of opinion and commonly held assumptions. The problem with using the latter is that these opinions can be incorrect, in effect steering efforts away from addressing root causes and undermining possible improvement.

Early efforts to mitigate civilian casualties in Afghanistan tended to be based more on opinion and observations from past operations with no contextualization or systematic examination of the actual incidents in question. As a result, early mitigations tended to be less effective, and resulted in fielding of equipment that had little to no benefit for addressing the major issues. In some respects, this is understandable – operating forces were under considerable pressure and lacked both the luxury and expertise to analyze these issues. These early failures was a key reason why General McChrystal welcomed an independent reachback team to assist

⁴⁷ “[T]he President is authorized to use all necessary and appropriate force against those nations, organizations, or persons he determines planned, authorized, committed, or aided the terrorist attacks that occurred on September 11, 2001, or harbored such organizations or persons, in order to prevent any future acts of international terrorism against the United States by such nations, organizations or persons.” Authorization for Use of Military Force, Sep 18, 2001. S.J.Res. 23 (107th).

⁴⁸ See, for example, Statement by Harold Hongju Koh, Sterling Professor of International Law, The Yale Law School, before the Senate Foreign Relations Committee Regarding Authorization for Use of Military Force After Iraq and Afghanistan, 21 May 2014, http://www.foreign.senate.gov/imo/media/doc/Koh_Testimony.pdf; Jack Goldsmith, Agreeing with Harold Koh on the Need for and Contours of a New AUMF, 23 May 2014, <http://www.lawfareblog.com/2014/05/agreeing-with-harold-koh-on-the-need-for-and-contours-of-a-new-aumf>.

his efforts, as the team could come into theater to collect data and then have time to think and analyze outside of theater.

Another example of the challenge of sorting between fact and opinion is civilian casualties from drone strikes. For lethal action operations, the nature of drone strikes has been widely debated. For example, official U.S. statements and other public statements have stressed the “surgical” nature of drone strikes. This opinion is shared by others; for example, it was stressed in a recent Stimson Center report: “Lethal UAV [unmanned aerial vehicle, or drone] strikes frequently have been criticized for their alleged tendency to cause excessive civilian casualties. This criticism has little basis in fact.”⁴⁹

Other organizations have claimed that drones cause more civilian casualties than the U.S. and others have claimed. This includes human rights groups such as the Center for Civilians in Conflict, Amnesty International, and Human Rights Watch, as well as some in academia. In addition, a Special Rapporteur for the United Nations made similar claims.⁵⁰ Analysis of open source data in this report tended to agree with these claims: for example, for operations in Yemen, drone strikes were almost four times more likely to cause civilian casualties than other types of operations. These different opinions regarding civilian casualties from drone strikes have real impact: they create uncertainty regarding the level of effort the U.S. should expend in pursuing improvements in this area.

Analysis of operational data can provide valuable insight that can help in cases where opinions differ. For example, on this subject, contrary to the assertion of the Stimson report, analysis of operational data from Afghanistan showed that engagements by drones were ten times more likely to cause civilian casualties than engagements by manned aircraft.⁵¹ Thus “*their [drones] alleged tendency to cause excessive civilian casualties*” is in fact documented in analysis of official U.S. military data from operations in Afghanistan. Furthermore, the Stimson assertion that “*this criticism has little basis in fact*” is unfounded. This situation—that the Stimson Task Force made important assertions that were uninformed by and in fact contradictory

⁴⁹ *Recommendations and Report of the Task Force on U.S. Drone Policy* (Washington, DC: Stimson Center, June 2014), <http://www.stimson.org/spotlight/recommendations-and-report-of-the-stimson-task-force-on-us-drone-policy/>.

⁵⁰ Report of the Special Rapporteur on the promotion and protection of human rights and fundamental freedoms while countering terrorism, Ben Emmerson, A/68/389, 18 September 2013.

⁵¹ *Drone Strikes: Civilian Casualty Considerations* (Suffolk, VA: Joint and Coalition Operational Analysis Division, June 2013), <https://www.cna.org/research/2013/drone-strikes-civilian-casualty-considerations>.

to findings from analysis of official U.S. operational data—reinforces the importance of testing assumptions through an analytic process leveraging operational data.

This example also illustrates how incorrect opinions can be formed. The Stimson report justified their position that drones cause minimal civilian casualties by pointing to the precision of drone platforms and munitions, and the advantages of the platform in providing persistence and high-quality intelligence.⁵² While these descriptions of advantages of the platform are true, they are also incomplete: the discussion in the Stimson Center report neglects the full set of factors that contribute to civilian casualties during operations. When drone strikes are considered in operational context, including the distributed nature of drone operations, training contributions, and employed tactics, these factors collectively contribute to why drone strikes can have a greater propensity to cause civilian casualties than other types of engagements, such as strikes from manned aircraft.⁵³

The analytic process described here can help identify cases where common opinion differs from the facts. This is also important in developing tailored solutions that address the actual drivers for challenges. For example, from analysis of root causes of civilian casualties during drone strikes in Afghanistan, the factors that contributed to civilian casualties in those strikes could be mitigated—so, this propensity to cause civilian casualties is not an inherent limitation of drones, but rather a situation that can be improved through deliberate measures informed by root causes.

“Defragmentation” of U.S. Counterterrorism Efforts

With regard to the use of lethal force to deal with threats to the United States, many elements of the U.S. government have roles and responsibilities in executing and overseeing this program. For example, the National Security Council, Congress, the Intelligence Community, and the military all play key roles in shaping, executing, and validating U.S. counterterrorism policy. At the same time, details regarding operations and lessons are often stovepiped. This stems largely from the fact that two action arms currently execute lethal action, and they execute on the basis of differing legislative authorities (Title 10 versus Title 50), answering to different congressional committees.

⁵² *Recommendations and Report of the Task Force on U.S. Drone Policy* (Washington, DC: Stimson Center, June 2014), <http://www.stimson.org/spotlight/recommendations-and-report-of-the-stimson-task-force-on-us-drone-policy/>.

⁵³ This point is discussed in detail in Lewis, *Drone Strikes in Pakistan*.

Having different organizations executing operations introduces barriers to sharing best practices and reducing collective learning. For example, culture differences, classification and access, and differing doctrine and equipment create differences in the conduct of operations and make it more difficult to share feedback and enable learning across organizations. This challenge was also seen in Afghanistan—individual units tended to learn in isolation, and key lessons were often not shared from one unit or force to another. Likewise, having differing oversight organizations for the two action arms limits the ability to compare the conduct of operations across the two action arms and identify opportunities for improvement.

Given these barriers, an independent review will create an opportunity to more effectively identify key lessons across these stovepipes. By looking at operations across different action arms, key lessons can be identified more effectively and offer the chance to share best practices used by one organization but not the other. These lessons should also be shared across the different organizations responsible for oversight of these operations in order to best understand current effectiveness in lethal operations, and what steps need to be taken to address key challenges.

Impetus for Broader Institutional Change

Last year, President Obama indicated that the use of lethal force in counterterrorism operations outside of declared areas of hostilities will shift over to the military in the near future.⁵⁴ Notably, current U.S. lethal action operations are similar to operations in Afghanistan in that in both, existing guidance for protecting civilians exceeds the baseline legal requirement. Per U.S. and international law, it is permissible to harm civilians during military operations if the engagement is of a valid military target, if it discriminates between combatants and civilians, and if the use of force is proportional to the threat. The standard for protecting civilians in the PPG—that operations will be conducted only if there is a relative certainty that civilians will not be harmed – is above and beyond that required to comply with international humanitarian law; this higher standard can be referred to as *supercompliance*. If this higher standard of supercompliance continues to be an expectation for the use of force—and recent operations in the past decade suggest this will be the case—then the U.S. military should consider institutional changes to reflect this.

Fortunately, the U.S. has already made some changes with regard to reducing civilian casualties over the past decade. For example, while the U.S. consistently met the

⁵⁴ Ken Dilanian, “CIA Winds Down Drone Strike Program in Pakistan,” *Military.com*, 30 May 2013, <http://www.military.com/daily-news/2014/05/30/cia-winds-down-drone-strike-program-in-pakistan.html>.

requirements of international humanitarian law in combat operations during this period, it also found that more could be done to avoid civilian casualties. U.S. forces in Iraq and Afghanistan found that improvement in protecting civilians was possible—and was in fact required for the success of the campaign—over the course of those lengthy campaigns. However, in these cases, improvement was slow; delays in measures taken resulted in unnecessary harm to civilians, as well as harm to the overall campaigns through alienation of the local population, tarnishing of the U.S. reputation, and limited freedom of action.⁵⁵

While the progress in reducing civilian casualties and pursuing supercompliance in Iraq, Afghanistan, Libya, and elsewhere is good news, to date the changes put into place have remained largely focused on supporting operations there. Sharing lessons between operations—and institutionalization of those lessons—is less apparent. For example:

- Existing lessons from Iraq regarding escalation of force (e.g., checkpoint operations) did not appear to migrate to Afghanistan.
- Lessons from Afghanistan regarding air-to-ground operations did not reach NATO participants in Operation Unified Protector in Libya.
- Lessons for escalation of force did not inform an incident in August 2013, in which a U.S. Navy ship engaged a small fishing boat in the Persian Gulf.

These examples point to a need for a stronger institutionalized approach within the U.S. military to reduce civilian casualties when possible and conform to greater expectations for civilian protection. This stronger approach would benefit from clear military leadership and policy in this key area. For example, a policy-level position in OSD on civilian harm mitigation would help focus policy development, encourage consideration of civilian harm in planning, and advocate institutional development of doctrine, tactics, and materiel solutions to reduce civilian harm in operations. In addition, the deliberate analysis of civilian harm in operations would be helpful in improving the ability of forces to understand current levels of civilian harm in operations and identify ways to minimize it, guiding the actions of the OSD advocate. These changes would benefit counterterrorism operations outside of declared areas of hostilities, both under the current AUMF authority and under a new legal basis for action. At the same time, these measures would yield benefits in a range of other kinds of operations, including the recent airstrikes against ISIL in Iraq and Syria.

To the extent that other government agencies will also be conducting operations using lethal force outside of declared areas of hostilities, those agencies would also

⁵⁵ Lewis, Reducing and Mitigating Civilian Casualties.

benefit from similar measures to institutionalize best practices and policies to reduce civilian harm above and beyond that required by international humanitarian law.

Enhancing U.S. Legitimacy and Promoting the Responsible Use of Force

Finally, this process can help to build legitimacy for the U.S. lethal action campaign and serve as a model for other nations that will inevitably use lethal actions for their own national interests. The U.S. regularly advocates for the discriminate use of force and the protection of civilians in conflict in the international community. However, the counterterrorism lethal action campaign has resulted in criticism of U.S. policies and practices from an unlikely collection of sources, including elements of the UN, members of the UK Parliament, China, academia, and NGOs and other human rights organizations. This broad criticism has arguably injured the moral authority of the United States and degraded its ability to exert global leadership.⁵⁶

The U.S. commitment to this review sends a message that its actions are consonant with its words—that it is acting decisively to protect U.S. citizens from imminent threats while also doing “everything possible” to protect civilians from harm. The Obama administration and Congress can use this review to improve transparency: the U.S. could share broad trends from this review with the public, as well as communicate the benefits gained through the review—namely, specific improvements to promote mission success and progress in reducing civilian harm from counterterrorism operations. By conducting this review, the U.S. can point to this framework and process, giving the U.S. greater credibility when advocating for other nations to follow similar standards in the responsible use of force.

⁵⁶ For example, General James Cartwright, former vice chairman of the Joint Chiefs of Staff, testified to a Senate committee concerning drones: “I am worried we have lost the moral high ground.” Tom Curry, Poll finds overwhelming support for drone strikes, NBC News, 5 June 2013, http://nbcpolitics.nbcnews.com/_news/2013/06/05/18780381-poll-finds-overwhelming-support-for-drone-strikes?lite.

Conclusions

The use of lethal force is a key component of the U.S. counterterrorism approach, in light of ongoing security threats from Al Qaeda and associated forces. Recent guidance, including the PPG, seeks to balance mission success and the risk of civilian casualties. Having a robust analytical framework and lessons learned process, as outlined here, would quantify how well operations are meeting stated U.S. goals of lethal action operations, including a report card to summarize overall progress in U.S. stated aims for lethal action, as well as identify specific areas where improvement is possible. This review would also identify root causes, providing an explanation for why mission success was not achieved or civilian harm occurred, and providing a basis for evidence-driven solutions to improve performance of future operations. This process aims to improve mission success—a critical element of U.S. national security—while also reducing civilian casualties, consistent with U.S. principles and policy that values the protection of innocents. Thus, this approach helps to ensure U.S. practice and policy are aligned.

This process would benefit from being an independent review. The review process should provide feedback to the action arms conducting operations, to help them to improve their own after-action report process and promote learning. The review process should also pursue ways to improve assessments of civilian casualties during operations, since official estimates can tend to be too low.

As noted earlier in the report, the U.S. has a history of adapting and learning lessons in one operation but not applying those hard-fought lessons to other, similar operations.⁵⁷ For example, lessons from Afghanistan for civilian protection were not transferred to U.S. and coalition forces operating in Operation Unified Protector in Libya, nor did they inform Navy operations in the Persian Gulf. While the process outlined here would improve the conduct of counterterrorism operations in Pakistan and Yemen, such a process would also benefit other operations, such as current U.S. military airstrikes in Iraq. For the longer term, creating an institutional focus area for civilian harm within the U.S. military, with a focus on avoiding civilian casualties while promoting mission success, would help to preserve these lessons and keep

⁵⁷ Joint and Coalition Operational Analysis Division, *Enduring Lessons from the Past Decade of Operations*, vol. 1 of *Decade of War* (Suffolk, VA: JCOA, 15 June 2012).

forces from having to relearn them in future operations. Finally, this review would promote U.S. legitimacy and aid U.S. efforts to advocate the responsible use of force within the international community, a particularly important consideration with the proliferation of technologies such as armed drones.

Recommendations

The U.S. government should sponsor an independent analysis of U.S. lethal action operations in counterterrorism operations, using the analytic approach outlined in this report. This review should include:

- **A team of independent experts** who would have full access to operational data in order to review mission success and potential civilian harm during U.S. counterterrorism operations in areas outside of declared theaters of conflict. This review should leverage the analytic process illustrated in this report, and also reference and draw upon insights from similar reviews conducted for operations in Afghanistan.⁵⁸
- **Concrete recommendations for changes to guidance and operational approaches** based on identified root causes. A key element to reducing civilian casualties in Afghanistan was conducting analysis of individual incidents and determining causal factors. When these causal factors were considered collectively, they helped to focus efforts for reducing civilian harm to areas that were most productive. This process could easily be replicated for operations outside of declared theaters of conflict: a review process to determine the causal factors for the incident, as outlined in this report. Periodic reviews would identify these causal factors across multiple incidents and identify ways to systematically address them in guidance and operational approaches, including future versions of the PPG.
- **“Defragmentation” of oversight and lessons-learned processes for U.S. counterterrorism operations.** Different elements of the U.S. government have various roles in shaping, executing, and validating U.S. counterterrorism policy. However, for various reasons, details concerning these operations tend to be stovepiped, limiting operational learning and effective oversight. The independent review should aim to effectively identify key lessons across these stovepipes and share them across the different organizations responsible for execution and oversight of these operations. The U.S. can improve transparency and set an example for the international community by

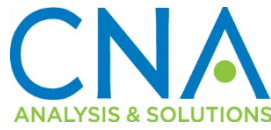
⁵⁸ This review could be a subset of a larger oversight effort recommended by the Stimson Center’s *Recommendations and Report of the Task Force on U.S. Drone Policy*.

highlighting this effort and sharing broad trends from this review with the public.

DOD should improve its institutional capability to reduce civilian harm while maintaining mission effectiveness. The military has a history of openly debating the ethical use of force, and it considers compliance with international humanitarian law (IHL, codified in the Law of Armed Conflict) an integral part of the U.S. profession of arms. That said, DOD could be better organized and resourced to systematically work to reduce civilian harm in its operations, especially given the recent trend of requiring supercompliance with regard to civilian protection. Key recommendations for DOD include:

- **Create a policy-level position in OSD that focuses on civilian harm mitigation in the conduct of military operations.** Civilian harm mitigation is part of the ethical and professional obligation of being a member of the U.S. military, foundational to the profession of arms. Yet there is a gap in military leadership and policy in this key area. A policy-level position in OSD should be created to focus on civilian harm mitigation and better enable supercompliance with regards to civilian protection where possible. Such a position could have a role both in current operations and in the institutionalization of lessons for future operations. ICRC, international organizations such as the UN, and NGOs can interface with this office as the DOD institutional point of contact in addition to its coordination with operational forces.
- **Conduct analysis and develop expertise.** The deliberate analysis of the conduct of operations, including the topic of civilian harm in operations, is a relatively new field, with no systematic program for such work and few established experts. Yet this aspect of operations is becoming foundational to the ability to use force in a wide range of operations. DOD should develop expertise on the reduction and mitigation of civilian harm and pursuit of best practices with respect to IHL. This resourcing should include support to operational staffs, which typically lack this expertise and analytical capability.

Other agencies employing lethal force should also improve their institutional capability to reduce civilian harm. To the extent that other government agencies will also be conducting operations using lethal force, those agencies would also benefit from measures to institutionalize best practices and policies to reduce civilian harm and pursue supercompliance, similar to those recommended here for DOD.



The CNA Corporation

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