IDA Research Notes

IDA Studies and Analyses Center

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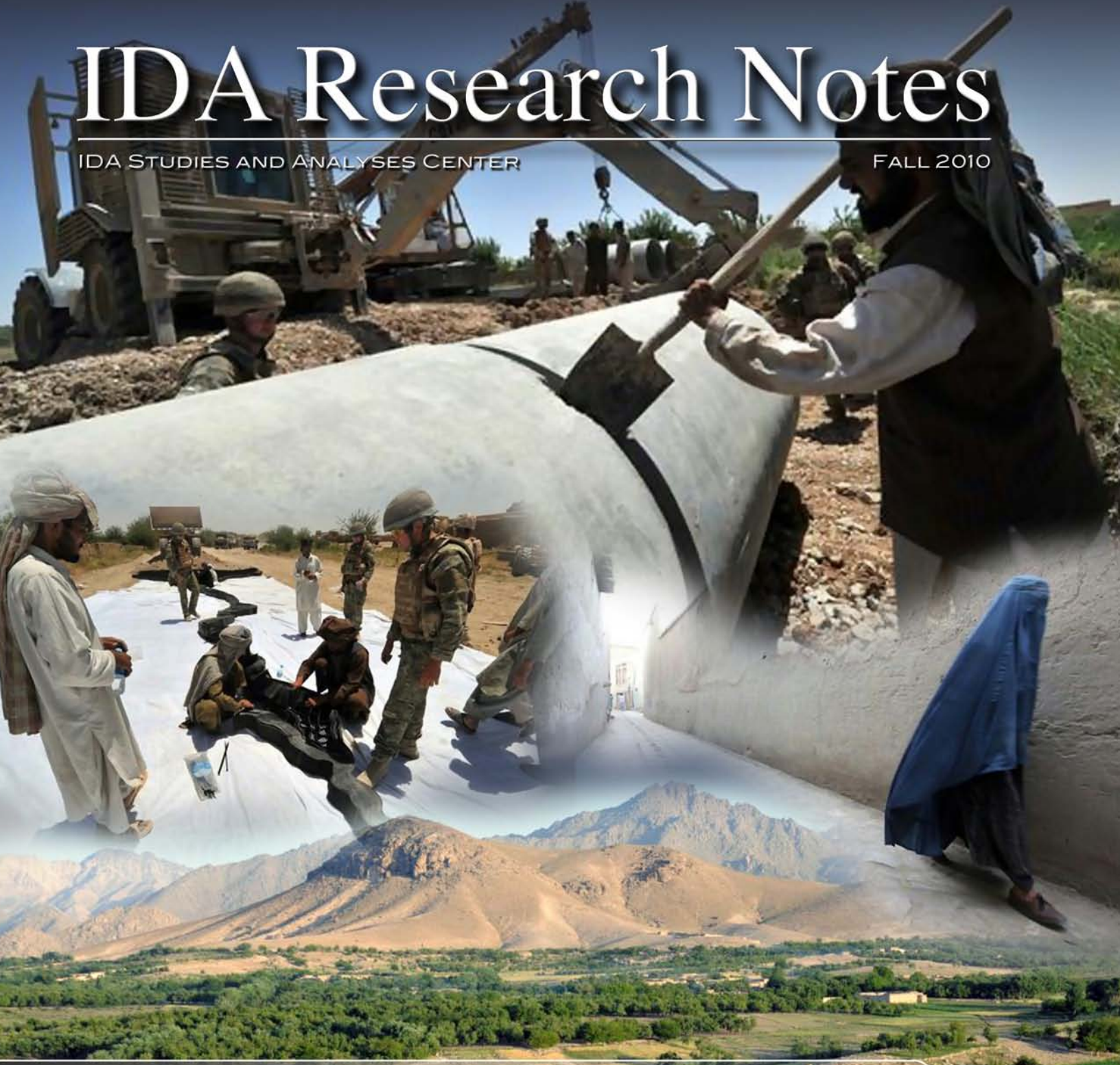


Today's Security Challenges

Issue Overview

This set of IDA Research Notes continues a discussion of counterinsurgency and stability operations begun in our Spring edition.

Few issues in military research elicit more energized debate these days than those associated with the character and implications of what some have called irregular warfare (IW).

However one defines such struggles, IDA researchers have been studying and working to understand them since the mid-1960s. In the past decade, dozens of IDA scientists and technical specialists have studied the topic first-hand on modern battlefields. Research informing their analyses has taken them to Iraq and Afghanistan, and across Africa and South America. Ideas drawn from their studies and frontline observation appear in these pages.

Dr. Bill Hurley opens the discussion by offering a structured framework for thinking about these sorts of conflicts. In *A Framework for Irregular Warfare Capabilities*, he offers a notional means of identifying capabilities associated with various actors in such environments – as well as defining attributes distinguishing IW from large-scale force-on-force encounters.

Caroline Earle explains how – despite wide agreement that "whole of government" responses are necessary to counter insurgent movements – recent military exercises have pointed to structural gaps inhibiting effective interagency cooperation in such campaigns. She describes efforts to bridge these gaps.

Waldo D. Freeman and William R. Burns, Jr. describe their research on how individual and institutional ability to adapt impact their potential for success in stability operations. They examine whether military training is at present enabling adaptability, and whether – in fact – adaptability is a skill in which one can be trained.

Royce Kneece reexamines a commonly-expressed formula for determining the size of military forces necessary to prevail in counterinsurgency environments. Analyzing more than 40 national insurgencies – dating from the end of World War II to the present – he puts present-day conventional wisdom to the test: *is* "20 troops per thousand inhabitants" the magic number?

Dr. John Shea delves into how general purpose forces can be structured to prevail when given stabilizing or counterinsurgency roles. How should forces be shaped? What individual skills sets and unit capabilities are required? What differs regarding command and control infrastructure and material requirements?

Dr. Bob Holcomb suggests an approach to achieving rapid fielding of equipment urgently needed on the battlefield – without sacrificing necessary, effective test and evaluation. He warns against a "business as usual, only faster" approach, rather suggesting a more sophisticated process abbreviation.

Finally, Dr. Eliza Mary Johannes and Dr. Dominick' Wright – both part of IDA's growing program of Africa-focused research – examine potential security dilemmas created by the marginalization of pastoralist bands in East Africa. Nomadically ranging across national borders, largely ignored by national authorities, these groups are being used by arms traffickers to smuggle weapons to rebel groups.

A Framework for Irregular Warfare Capabilities

Dr. Bill Hurley

Irregular warfare (IW) is complex, existing in forms that include counterinsurgency (COIN), counterterrorism, and counter-criminality, blurring U.S. institutional boundaries. National security planners must wrestle with this complexity as they attempt to reshape the nation's capabilities to better deal with this threat.

Structure of Irregular Warfare

A recent IDA study, drawing on case studies from Iraq and Afghanistan, describes a structured way of thinking about IW that can 1) help identify broad areas in need of attention, 2) provide a "checklist" of the types of things that could be done, and 3) suggest promising initiatives.[1] The resulting IW framework has two principal components: the *types of IW capabilities* that correspond to the various actors in IW, and the *attributes of IW* that distinguish it from "regular warfare," and therefore suggest initiatives not addressed by traditional warfare planning.[2] The study described interactions among five generic types of IW actors (Figure 1).

Note that Population forms the center of this structure, with the other actors competing for its support. This is in keeping with the nature of counterinsurgency:

> *Whatever else is done, the focus must remain on gaining and maintaining the support of the population. With their support, victory is assured; without it, COIN efforts cannot succeed.*[3]

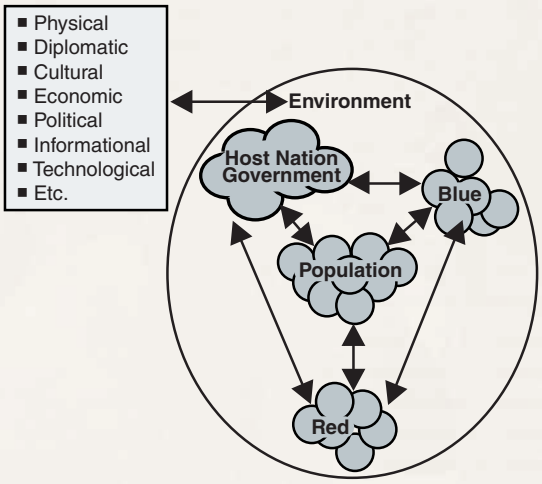


Figure 1: Structure of IW.

The clusters denote the actors. Blue includes U.S. military and civilian organizations, coalition partners, international governmental organizations, non-governmental organizations, and contractors. Likewise the other clusters denote factions within the population, host nation government (HNG), and the opposing forces *(Red)*.[4] The clusters denote the complexity of each group.

Equally important is the dynamic nature of IW. Factions within each group may vary from one location to another and may evolve over time. For example, a faction within an insurgent group (Red) may separate from the others and become neutral (move to the *Population*) or even align itself with Blue. IW strategies generally focus on strengthening or weakening such relationships.

Figure 1 also lists various dimensions of the complex environment in which IW takes place. These, too, may become the objects of strategies as actors seek to shape the environment to their advantage.

Types of IW Capabilities

The two-way arrows in Figure 1 represent interactions between actors. In particular, the Blue Joint Force Commander (military or civilian) must be able to effectively relate to five types of actors within the IW structure: Red, the Population, the Host Nation Government, the Environment, and other members of Blue. Each presents its own challenges, but we may generally characterize capabilities as three interrelated classes: Understand, Shape, and Engage.[5] *Understand* means acquiring and interpreting information

[1] Hurley, W.J., Resnick, J.B., and Wahlman, A., *Improving Capabilities for Irregular Warfare, Volume I: Framework and Applications and Volume II: Capabilities Analysis* Paper P-4267 (Alexandria, VA: Institute for Defense Analyses, 2007).

[2] Briefly, we take "regular warfare" to be warfare between the standing forces of nation-states.

[3] *Counterinsurgency*, FM 3-24/MCWP 3-33.5, Dec 2006, A-9.

[4] The terms Red and Blue are taken from the traditional language of regular warfare (RW), whereas distinguishing the actors in IW can be much more subtle. Nevertheless, we use this convenient shorthand with the understanding that Red refers broadly to U.S. adversaries and Blue to the United States and its (non-HNG) partners.

[5] The "Understand – Shape – Engage" scheme originated with Joint Publication JP 3-06 (Joint Doctrine for Urban Operations (Sept 2002) as a construct for classifying capabilities for urban operations.

and involves a range of capabilities from cultural understanding to tactical intelligence to sensors and processing. *Shape* is about turning understanding into desired effects. Examples include capabilities to train indigenous forces or influence the population. *Engage* may be "kinetic" (applying physical force) or "non-kinetic" (e.g., communicating with locals). This categorization scheme, despite some ambiguities, provides a checklist for reviewing operational needs and the types of capabilities that could address them.

Distinguishing Attributes

IDA's IW framework provides a structure for the landscape of IW capabilities, but the landscape is vast. Where should initiatives be focused? Insight can come from identifying IW capabilities that differ markedly from regular warfare capabilities and so are likely to have been neglected as nations have focused on regular warfare challenges. The IDA study offers a detailed review of IW missions and capabilities and identifies five attributes of IW that distinguish it from regular warfare:

1. Centrality of Human Terrain
2. Mix of Civilian and Military Organizations and Activities
3. Nature of IW Combat Actions
4. Consolidation
5. Transition

1. Centrality of Human Terrain

The population is IW's center of gravity: Militarily, the population is critical to finding, identifying, and isolating Red because Red is embedded in the population. Politically, the population is the foundation for establishing the legitimacy and stability of the host government. Economically, the population is essential to reconstituting national resources and public services. The population's support is driven by its attitudes regarding the opposing sides which, in turn, are driven by each individual's sense of security and social, economic, and political well-being, and by messages being communicated by Blue, Red, and a host of opinion-shapers, including local leaders, social networks, media, rumors, traditions, and narratives.

Figure 2: Visit to Afghan School.

The fundamental capabilities necessary are those needed to understand and shape the attitudes of the population. Just as battles on physical terrain require maps and physical surveillance, battles on human terrain require cultural understanding, human intelligence operations, and opinion polling. Shaping the population's attitude through involvement with key members of the population, influence operations, and media effectiveness becomes central.

2. Mix of Civilian and Military Organizations and Activities

In regular warfare, the primary objective is destroying the enemy force. In IW, it is building a secure, stable society and a legitimate host government. IW therefore requires coordinated military and civilian actions (reconstruction, stabilization, transition of control to the HNG). Fundamental to success is unity of effort at all levels from the onset of planning. Critical focus areas include multi-organizational and multi-level communication systems to connect the Blue partners without compromising restricted information, multi-sided planning processes, and approaches to accommodating disparate organizational cultures.

3. Nature of IW Combat Actions

In general, combat action within an IW environment differs significantly from combat action in regular warfare.

- IW emphasizes ground-centric action against an enemy embedded in a population. Key capabilities include isolating Red from the population; engaging with measured effects to

Figure 3: Operations amidst local populations.

reduce collateral casualties and damage; protecting the population and facilities during day-to-day activities; and partnering with the population to enhance recruitment, local knowledge, and intelligence. Many of these challenges are similar to those faced by law enforcement agencies, so relevant approaches include biometrics, forensics, non-lethal effects, and a strong emphasis on human intelligence activities.

- In IW, Blue and Red share the same environment. This proximity presents threats and opportunities: threats because Blue is vulnerable to close-up attacks, e.g., by improvised explosive devices or snipers; and opportunities because Red must operate in Blue's battlespace, enabling Blue to exploit proximity to identify Red, restrict his movements, monitor communications, conduct human intelligence operations, and interrupt his supply and funding chains. Separation of forces in regular warfare has driven capabilities for surveillance, targeting, and attacking to remote means that cannot differentiate an IW threat mixed in close proximity.

4. Consolidation

When physical security is achieved in an area, IW emphasizes consolidating gains while conducting stability and reconstruction activities and transferring responsibilities to a host government. Key military capabilities include defensive operations to hold areas that have been secured; population management; partnering with host nation, coalition, inter-governmental and non-governmental organizations to leverage local resources; and being civil-support "first-responders" until civilian organizations become available to support humanitarian assistance, governance, police, and reconstruction activities.

5. Transition

Transition is the process of helping a legitimate HNG assume responsibility and authority for security, governance, social well-being, and reconstruction. This is IW's overarching objective and therefore drives all other IW actions. The key to transition is leveraging and empowering local resources—building partner capacity. Key capabilities supporting Transition include planning with interagency, HNG, inter-governmental and non-governmental organizations and contractors; leveraging local capabilities (partnering with, hiring, supporting); training and advising HNG security and civilian personnel; and equipping host nation security and civilian personnel with systems consistent with host nation resources (costs, operator skills, operational environment).

Figure 4: Planning for Afghanistan Elections.

Applications of the Framework

The table that follows illustrates how the framework can identify a range of IW applications that a single technology initiative might provide. In this case, the initiative is to develop a system based on current technologies that could remotely identify and track vehicles in a specific area.[6]

[6] Hurley, W.J., Bucher, C.R., Numrich, S.K., Ouellette, S.M., Resnick, J.B. Non-Kinetic Capabilities for Irregular Warfare: Four Case Studies Paper P- 4436 (Alexandria, VA: Institute for Defense Analyses, 2009).

Types of Capabilities vs. Distinguishing Attributes of IW:
Applications of the Capability to Remotely Identify and Track Vehicles

	Human Terrain	Civil-Military	IW Combat Ops	Consolidation	Transition
Environment—Physical, Economic, Cultural, Political, Informational, Technological, Diplomatic, etc.					Transfer Capabilities to HNG
Understand	Economic activity		Traffic patterns		
Shape	Planning tool		Traffic control		
Host Nation Government					
Understand	Census, activities	Activities	Track civilian traffic	Track civilian traffic	
Shape	Traffic flow	Planning	Reduce civilian casualties	Traffic control	
Red					
Understand	Track activities		Track Red		
Shape	Isolate Red		Deter Red mobility	Border Protection	
Engage			Target Red		
Blue					
Understand		Track Coalition	Blue Force track	Track Coalition	
Shape		Coordination	Command and control, planning	Coordination	

Summary

The IDA study provides planners a framework for sorting through the complexities associated with improving capabilities for IW. It is not a "turn-the-crank" solution but is useful for structuring the background, identifying issues, suggesting directions for initiatives, and focusing the debate on needed capabilities.

Bridging the Interagency Gap for Stability Operations

Caroline Earle

Irregular warfare and stability operations require whole-of-government approaches and specific military and civilian expertise, yet civilian supply has not met the demand. Furthermore, collaboration channels across the interagency community remain immature. The Department of Defense (DoD) has sought ways to bridge the gap and bolster civilian capacity.

Interagency Inputs to Military Planning

DoD Directive 3000.05 addresses military support to Reconstruction and Stabilization Operations and was developed to support the implementation of National Security Presidential Directive (NSPD) 44 and to elevate the status of stability operations to that of major combat operations. A May 2009 DoD Report to Congress on Integration of Interagency Capabilities into Department of Defense Planning for Stability Operations provides a good overview of progress and work that remains.

An IDA team has been engaged in the analysis and review of many of the efforts named in the DoD report and this article summarizes the team's work in two areas: 1) interagency inputs to military planning, and 2) whole-of-government stability operations planning and activities.

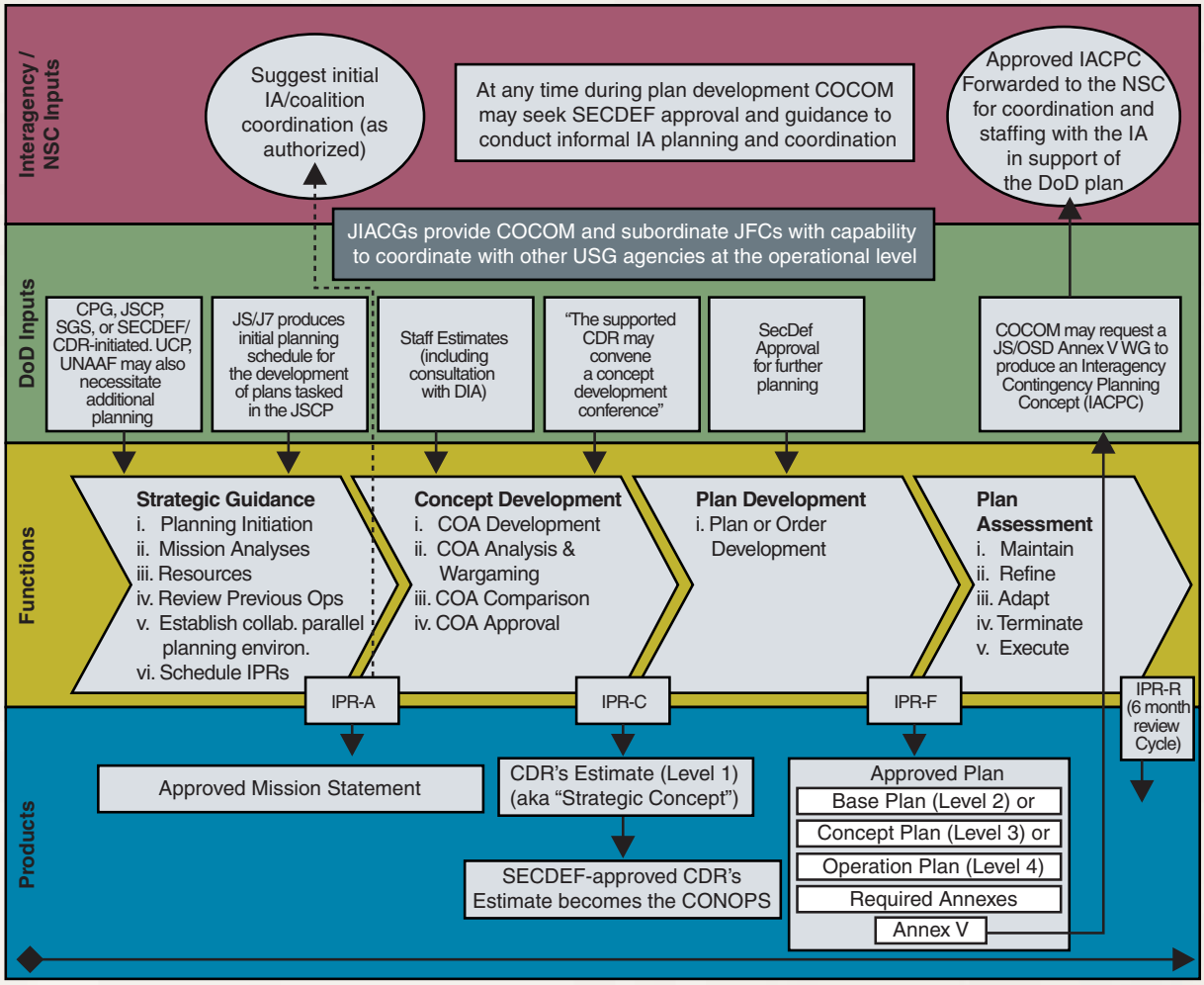


Figure 1. DoD's Process for Developing Interagency Contigency Plans.

Interagency Inputs to Military Planning

The European Command is taking an "experimental" approach to incorporating interagency perspectives in military planning, using the development of a contingency plan as the venue. In a departure from normal practice, OSD officially authorized State Department and USAID representatives to participate in the development of Strategic Guidance framing the plan. Traditionally, military planning has had only limited opportunities for formal interagency contributions (see Figure 1). The typical point of interagency review has been at the coordination stage after a plan is already developed, perhaps only to vet its Interagency Annex. Though there are good reasons for a close-held military plans development process, the absence of earlier interagency input or review sometimes leads to plans that are unsupportable, leaving other agencies to scramble at the last moment to accomplish things for which they had little warning or preparation time.

The criteria for success of this experiment as laid out by the Secretary of Defense memorandum to the Secretary of State and the National Security Advisor of January 2008, were:

a. That the planning process addresses both prevention and response, with increased emphasis on stability and prevention in the designated area of operation.

b. That the plan incorporates a greater degree of interagency collaboration and that a greater degree of interagency input is reflected in the strategic guidance, concept development, plan development, and final product.

We found that EUCOM's experimental planning process met these criteria, reflecting a greater degree of interagency participation in the development of strategic guidance and the concept of operations. Participants acknowledged the added value of interagency contributions.

A prominent deficiency identified by EUCOM's experiment was the lack of formal interagency collaboration and coordination mechanisms, as well as the need to codify such processes in DoD doctrine, training, and policy guidance.

Another insight was the need for expanded use of knowledge management tools, such as the Theater Security Cooperation Management Information System, to provide a whole-of-government Common Operating Picture for each of the combatant command's areas of responsibility. The analysis also highlighted the importance of collaborating with the State Department and USAID to develop common metrics that provide the proper context for Plan Assessments.

Additionally, the research found that the compressed planning timelines introduced by DoD's Advanced Planning and Execution System complicate the accommodation of inputs from USG and international partners. One of the biggest barriers to this is the lack of civilian capacity to participate in and contribute to such planning. There are initiatives underway, supported by the State Department's Office of the Coordinator for Reconstruction and Stabilization (S/CRS), to train a Civilian Response Corps, but the numbers are small compared to the demand.

Finally, the research revealed deficiencies in USG steady state planning, including the lack of a home for national-level whole-of-government prevention planning. DoD may not be the preferred coordinator or leader for developing some whole-of-government USG contingency prevention plans, but other agencies lack the appropriate mandate, authority, and resources to conduct national-level planning. Though many participants identified the National Security Council (NSC) as the appropriate nexus, the NSC is not staffed to lead such a process. Thus, whole-of-government steady state planning remains an interagency gap.

Whole-of-Government Stability Operations Planning and Activities

During U.S. Joint Forces Command (JFCOM) Unified Action experimentation series, IDA analysts observed and evaluated a series of experiments co-sponsored by JFCOM and S/CRS in which two new whole-of-government concepts were vetted, an Interagency Management System (IMS) and draft planning framework for Reconstruction and Stabilization and Conflict Transformation.

Also, the IDA team has supported planning and execution concept development for the domestic departments that are members of the new Civilian Response Corps (CRC). The team began working on a pilot program with the Department of Commerce, designed to build departmental capacity to contribute to overseas contingencies.

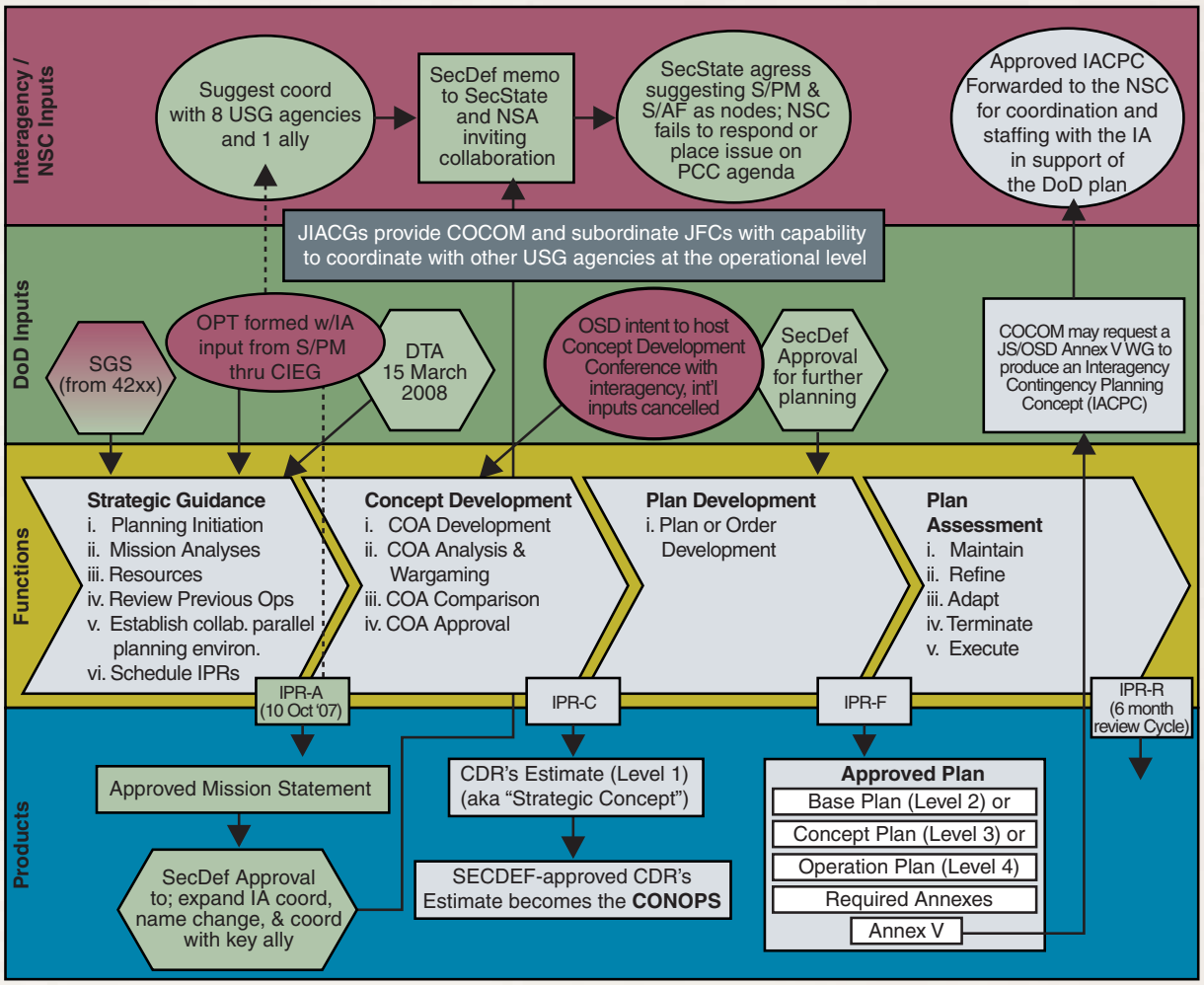


Figure 2. Expanding the Interagency Planning Role.

This work resulted in departmental standard operating procedures for stability operations and spurred the expansion of the pilot to two additional domestic departments (Health and Human Services and Agriculture, both members of the CRC). Non-CRC members, the Departments of Energy and Transportation have expressed interest in participating in the pilot as well.

Finally, in the context of the Unified Action program, IDA supported an Interagency Mission Analysis (IMA) for U.S. Africa Command (AFRICOM). This work, co-sponsored by JFCOM and OSD Policy, synthesized the results of a series of seven interagency workshops to inform the development of structures, processes, and tools for AFRICOM. Though conducting stability operations is not AFRICOM's primary mission, the Command is focused on fostering stability and security on the continent, to include building indigenous partner capacity for crisis management in concert with USG strategic goals. The IDA report includes recommendations for ways to foster such capacity building (see Figure 2) and will help to bridge the interagency gap to establish more effective USG approaches to crisis management and conflict prevention in Africa.

Developing an Adaptability Training Strategy

Waldo D. Freeman and William R. Burns, Jr.

Waging war in Iraq and Afghanistan and confronting the broader threat of terrorism worldwide has presented challenges to the U.S. military that are much different than those of the Cold War era. Adaptation is critical to success.

Introduction

DoD asked IDA to help develop a training and exercise environment that would prepare U.S. forces to respond to the asymmetric threats that characterize the current operational environment.

The resulting study identified unpredictability as the principal characteristic of the operational environment and adaptability as the key skill that individuals, units, and teams of commanders and leaders need to learn in order to conduct successful operations. Because there was no empirical evidence that adaptability can be trained, DoD next asked IDA to help develop a proof-of-concept adaptability training experiment and an adaptability training strategy. Though senior military leaders regularly call for the development of adaptive leaders, there is no agreed definition of adaptability within DoD and no consensus on how to improve adaptability in individuals and unit.

IDA's Model of Adaptability

The basis for training adaptability is a model of adaptability built on the work of numerous scholars and researchers. Adaptability, as defined in the IDA study,[1] is a metaskill: The operable capacity to bring about an effective response to an altered situation. An IDA model of adaptability, depicted in Figure 1, included the cognitive skills of intuition and critical and creative thinking and the relational skills of self-awareness, self-regulation, and a variety of social skills, is depicted in the figure below. In follow-up work, our researchers added grit or resilience to the model, recognizing that these attributes are frequently necessary to allow individuals or teams to cope with the high emotional loads often associated with adaptive situations.[2]

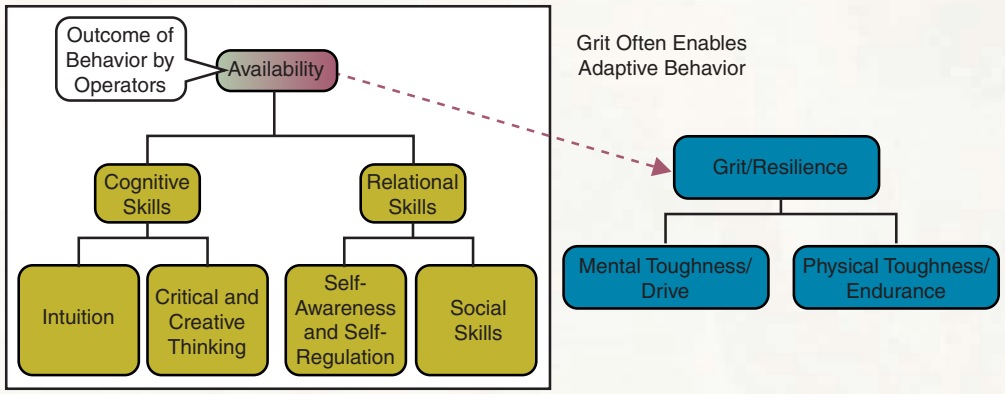


Figure 1: IDA Model of Adaptability.

Is the Military Already Training Adaptability?

To answer this question and identify best-of-breed concepts, DoD convened a two-day adaptability symposium at IDA. In addition to representatives of all the Services, members of academia and of research organizations interested in the subject participated. Surprisingly, while presenters identified training that contributes to developing components of adaptability, the only purpose-designed adaptability training introduced was the Army's Special Warfare Center and School's Adaptive Thinking and Leadership (ATL) program. While anecdotal evidence endorsed the effectiveness of this training, there were no metrics to provide a scientific basis for drawing conclusions about the course's real effectiveness.

[1] *Learning to Adapt to Asymmetric Threats, IDA Document D-3114, August 2005, John C. F. Tillson, et al.*

[2] Developing an Adaptability Training Strategy and Policy for the DoD: Interim Report, IDA Paper P-4358, October 2008, William R. Burns, & Waldo D. Freeman.

Validating the Concept that Adaptability can be Trained

IDA researchers concluded that an experiment to show that adaptability can be trained would necessarily seek to improve performance in all four of the key skill areas identified initially: intuition, critical and creative thinking, self-awareness and self-regulation, and social skills, including cross-cultural awareness, social awareness, and influence skills. Because adaptability is domain specific, the experiment would need to be tailored to the trainees' job-related adaptability needs. Recent brain function research has shown that effective learning is a function of emotional involvement in the learning process; therefore, the experiment must engage the participants fully. Finally, the experiment would need to vary the training challenge in ways that require those being trained to demonstrate the ability to adapt. Therefore, the study concluded that an experiment should be based around multiple simulated "crucible experience" scenarios requiring behavioral response. Essential to the experiment would be reliable and valid metrics.

Proof-of-Concept Experiment

To carry out an experiment, or concept validation, as described here, DoD—with help from an industrial and organizational psychology consulting firm—designed an experiment conforming to IDA's specifications and vetted it with Service representatives and academic experts. Two iterations of the experiment were conducted. The first involved Army personnel who were members of the Military Transition Training (MiTT) Teams undergoing pre-deployment training at Ft. Riley. A second experiment was conducted with students at the Marine Corps Officer Basic Course at Quantico.

Adaptability—More Than Just Training

While both experiments provided evidence that purpose-designed training can improve adaptability, the relevant literature clearly indicates that adaptability depends on much more than training.[3] Adaptability is a function of individual personality, cognitive ability, and experience. It requires a foundation of domain-specific skills, the development of the adaptability skills reflected in the IDA model, and the proper motivation and attitude. Enhancing individual and organizational adaptability depends on a commitment to continuing education and to developing learning organizations. Adaptability is also greatly influenced by organizational culture. Rules, norms, resource allocation, and rewards and other consequences of adaptive performance all contribute to facilitating or inhibiting adaptive performance.

DoD's current initiative is directed toward enhancing the adaptability of general purpose forces—individuals, units, teams. The hypothesis is that all people are adaptable to some degree, but they can become more adaptable and, hence, more effective as the result of specific interventions. What interventions are likely to have the greatest effect?

While interventions in training offer promise, research has indicated that interventions in education and those affecting one's overarching life experience are likely to influence adaptability more. While a small portion of anyone's life is spent in training, 12 to 16 years of most people's early life is spent in education, with the opportunity to continue that education in one form or another throughout life. Two areas for possible intervention stand out. A main goal, if not the principal goal, of education is to develop critical thinking skills, one of the four principal component skills of adaptability. Thus, interventions in military education—at the academies, in ROTC, in postgraduate school, or in Professional Military Education—could potentially contribute to enhancing leaders' critical thinking skills. Similarly, interventions in education could affect the development of adaptability-related communication skills, the lack of which in today's college graduates has been identified as a particular weakness by both senior business and senior military leaders.

Interventions to enhance the experiential contribution to the development of adaptability might focus on career assignments.

Finally, there exists the potential for interventions that would modify elements of organizational culture to support the development of adaptable individuals and, in turn, adaptable institutions. Promotion policies, attitudes towards risk, how failure is treated, and the manner in which inspections are conducted

[3] PDRI succinctly summarized and illustrated many of the relevant factors in its Proof of Concept Validation Plan. Proof of Concept Research For Developing Adaptive Performance: Task 2 Report, Validation Plan. Prepared by Rose A. Mueller-Hanson, Johnathan K. Nelson, and Erin Swartout, July 2009, PDRI, Arlington, VA.

are several examples of organizational practices where initiatives and interventions might influence the development of adaptability.

Conclusion

The adaptability training initiative has so far provided instructive insights, and it has also served as an excellent catalyst to address the larger issue: How does the military develop more adaptive individuals and organizations in order to deal with the uncertainty, unpredictability, complexity, thinking and adapting enemies, and increasingly rapid change of the operational environment? Research to date suggests that the task of developing an adaptability training strategy should serve as the forerunner of the larger task of creating an overall strategy for developing more adaptable individuals and institutions throughout the military.

Force Sizing For Stability Operations

Dr. Royce Kneece

The purpose of stability operations is "to maintain or re-establish a safe and secure environment, provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief."[1] *The force size necessary to conduct effective stability operations has been a matter of contention for years. In light of a 2008 DoD directive identifying irregular warfare "as strategically important as traditional warfare" and calling stability operations "a core U.S. military mission," that debate will remain both relevant and contentious.*[2]

Background

In support of the 2010 Quadrennial Defense Review (QDR), DoD asked IDA to improve analytical techniques for evaluating the adequacy of programmed forces to conduct stability operations in various countries. While mindful of DoD policy stressing that stability operations require a whole-of-government approach, IDA's study addressed only the size of military forces required for stability operations. IDA's approach was to seek insights from historical data, further informed by recent and ongoing operations in Iraq and Afghanistan.

The term "stability operation" encompasses a wide range of military activities, However, operations that involve large-scale counterinsurgency (COIN) operations are, historically, the most demanding for force-sizing purposes and were the focus of the study. Background for the current study is found in work IDA performed in late 2005 supporting the 2006 QDR. Although in 2005 there was a paucity of data on historical stability operations, more recently, considerable additional research and data collection have been conducted. Specifically, IDA obtained a database recently compiled by the Center for Army Analysis, and the study team extracted 41 conflict cases involving COIN operations for its analysis (Figure 1).

In 2006 the U.S. Army and Marine Corps developed a joint doctrinal field manual, FM 3-24, *Counterinsurgency*, that provides important guidance on force sizing for COIN operations. The manual suggests figures for "force densities" (troops per thousand inhabitants in the area of operations) required for effective operations--for example, 20 troops per thousand is cited as a minimum requirement. That figure has become a widely-referenced rule of thumb. The IDA study shed light on the evidence supporting that guidance, confirming the 20 troops per thousand figure as a minimum. However, the field manual also implicitly suggests 25 troops per thousand as the upper end of a range—a figure *not* supported by the IDA study, which found that force densities of 40-50 troops per thousand may be required for reasonably high confidence of success.

The IDA analysis reinforced the findings cited above by employing statistical analyses (logistic regression) on the selected historical data seen in Figure 1, finding a statistically significant relationship between force density and conflict outcomes for COIN operations. Since these findings are at odds with the findings of other research organizations, the reasons for the differences in results were also investigated by the study team. The causes were three-fold: (1) IDA computed force densities using the populations in the *actual area of military operations*, whereas most other studies used populations for the entire country; (2) the IDA team categorized an operation as a "success" if the counterinsurgency force was not defeated militarily (other researchers used broader criteria including political outcomes), and (3) IDA scored certain conflicts as "indecisive" (and thus a "success" militarily) that others scored as "loss." Under these conditions, we found that the logistic regression provided a coefficient for the force density independent variable with a p-value of about two percent (p-values of five percent or less indicate a statistically significant relationship). The resulting regression equation (see Figure 2) provides an estimated probability of success of 50 percent for a force density of 16 troops per thousand, and a probability of success of 75 percent for a force density of 40 troops per thousand.

[1] Joint Publication (JP) 1-02, 517.

[2] Department of Defense Directive 3000.07, 2.

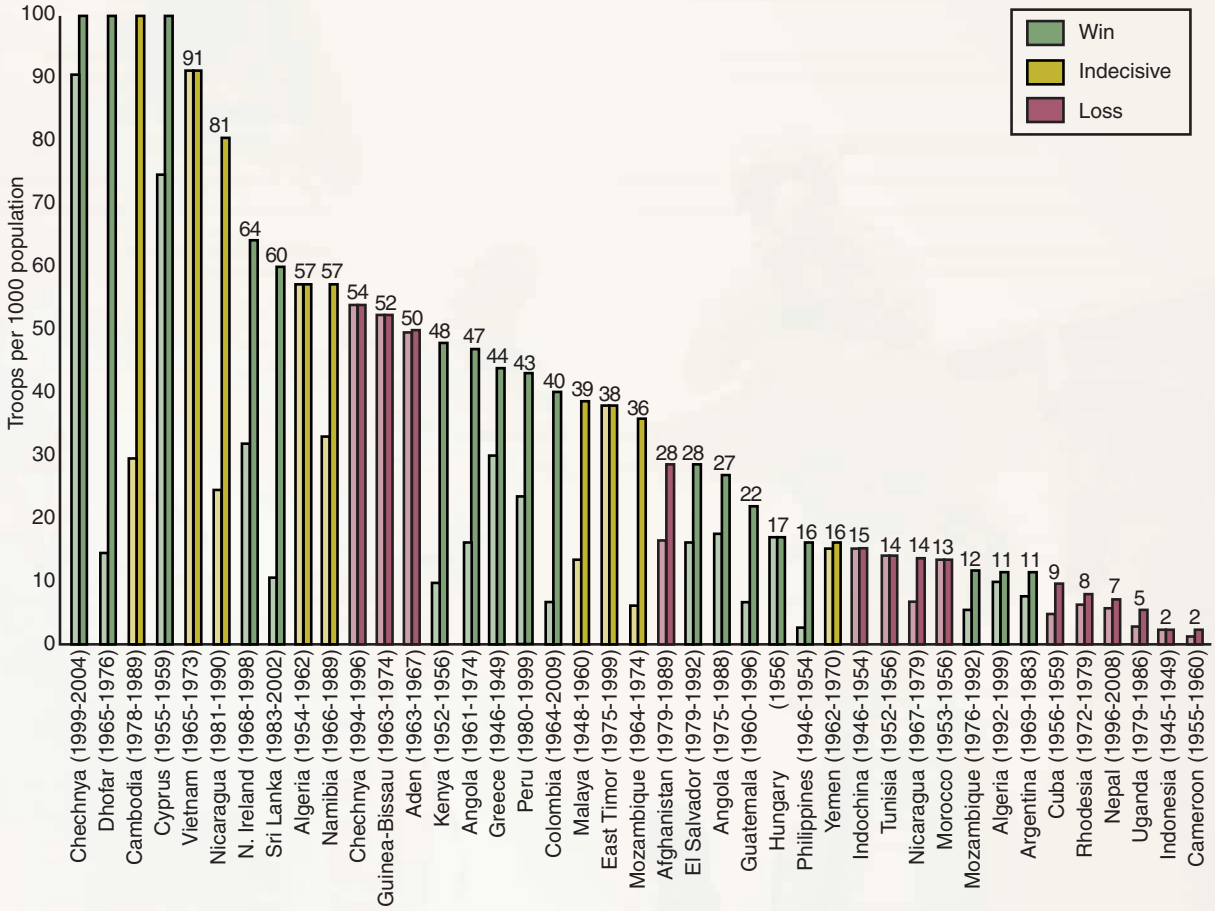


Figure 1: Troops per Thousand Population for Historical Counterinsurgency Operations.

Data from recent operations in Iraq and Afghanistan also provided additional corroboration with regard to the relationship between force density and campaign success. The peak of the surge in Iraq achieved a force density for the total counterinsurgency force (U.S., coalition forces, and Iraqi forces) of 20 per thousand based on the population of the entire country—higher (but undetermined) for the actual area of operations. In Afghanistan, on the other hand, force densities achieved during the period covered by the study were much lower.

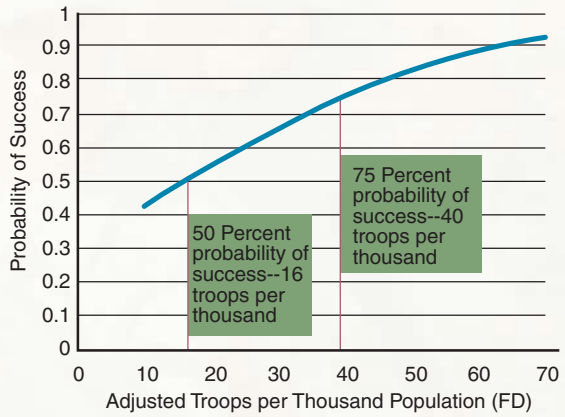


Figure 2: Force Density vs. Conflict Outcome Determined by Logistic Regression.

Force Size Projections

Figure 3 indicates the type of force size projections developed by the study. These projections were developed in a three-step process. First, historically-derived data were used to estimate the size of the total counterinsurgency force. Then, based on both historical and more recent experience in Iraq and Afghanistan, the proportion of the total force that likely will need to comprise non-indigenous, or intervention, forces was estimated. Thirdly, using subjective factors developed in the 2006 study, the proportion of the intervention force that would likely comprise U.S. forces was computed.

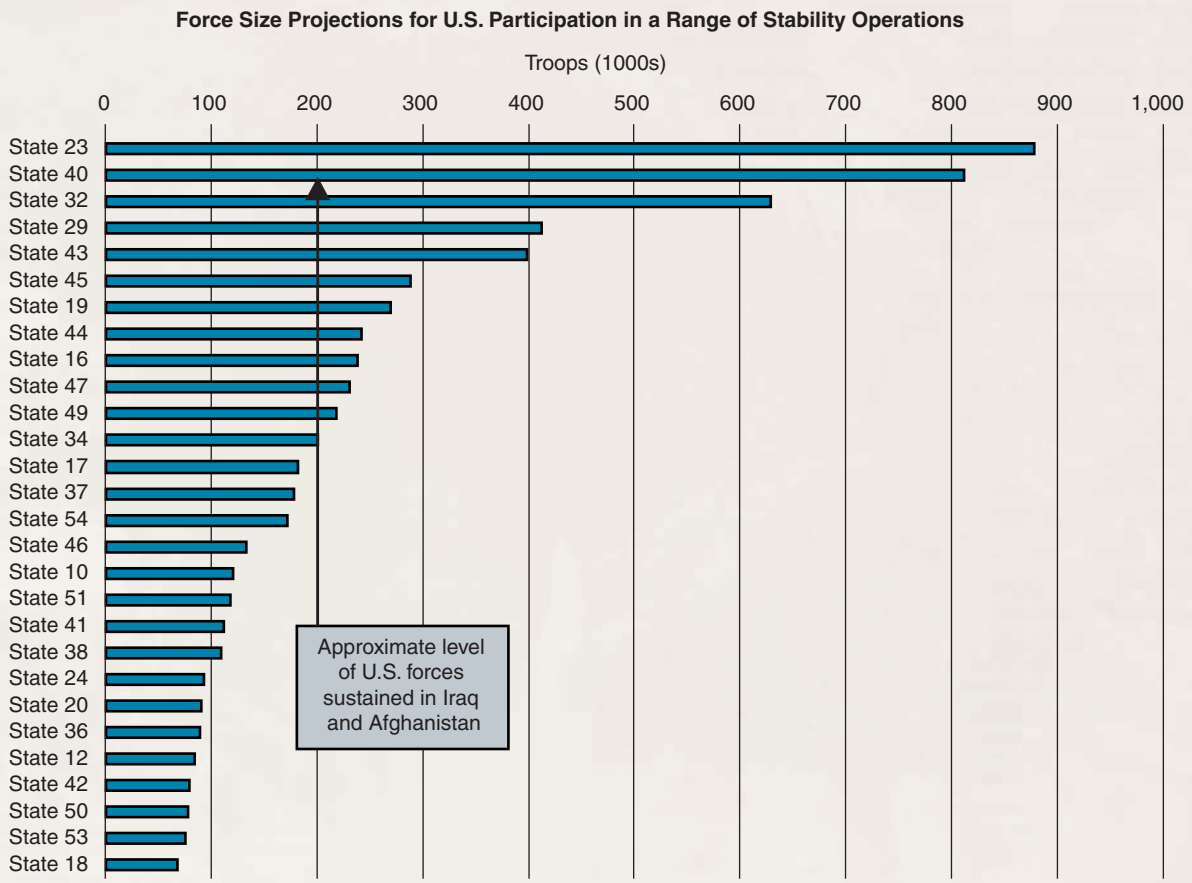


Figure 2: Estimates of the Size of U.S. Ground Forces Participating in Stability Operations.

Summary

Using newly compiled historical data, the study found evidence to support the guidance found in a key Army and Marine Corps field manual that 20 counterinsurgency troops per thousand inhabitants in the area of operations is the *minimum* for a successful outcome, while on the order of 40 to 50 troops per thousand are needed for a higher probability of success.

Drawing on the analyses summarized above, the study developed several techniques for estimating future force requirements for COIN-like stability operations and applied them to postulated operations in 54 countries. Using different approaches, estimates were found to vary by factors of two or more. Thus, projecting force requirements for future stability operations is subject to a large degree of uncertainty. Using mid-range estimates, the current U.S. ground force posture could probably sustain a COIN-like stability operation in most of the countries considered, but several key countries with larger-populations would likely be infeasible, unless the area of operations within the country could be limited significantly.

Planning Forces for Steady State Foreign Internal Defense and Counterinsurgency

Dr. John Shea

This article explores the parameters of rebalancing general purpose forces (GPF) for a "steady state" environment. Its horizon is nominally around 2014, and it assumes the war in Afghanistan will have diminished in intensity and no other major regional conflict will have risen.

Background

After the 2006 Quadrennial Defense Review, DoD developed a program of five initiatives termed the Irregular Warfare (IW) Roadmap.[1] The initiatives and their focus are outlined in Figure 1.

Data underpinning the IDA research came from the Combatant Commands (COCOMs) and Services. Their responses are referred to here as demands. The effort's objectives were:

- Identify IW capabilities the COCOMs need to support their current plans.
- Identify which of those capabilities GPF could reasonably provide.
- Identify other changes to GPF (units or individuals) necessary to realize or enhance these capabilities.

Analytical Framework

Discussions of irregular warfare capabilities tend to be abstract because related definitions (e.g., foreign internal development (FID), counterinsurgency (COIN), and counter-terrorism (CT)) tend to cover broad and unspecified ranges of functional activity, all with special identifying characteristics. For example, a wide range of activity can constitute FID, in which U.S. forces help a friendly host nation deal with lawlessness, subversion or insurgency. Those same activities apply to COIN, but only if the problem is insurgency (not simply lawlessness or subversion) and whether or not helping the host nation is a primary U.S. concern. The table at Figure 2 lists activities either cited directly in data responses or that appeared plausible in context even if they were not among the responses.

Capabilities were organized into three broad categories,1) the training, advising and equipping of foreign forces; 2) IW-intensive activities; and 3) the use of traditional units in IW environments. Responses to the data call, clustered under these categories, required some creativity to sort through the ambiguities and overlaps.

1. Transform Personnel Management for IW	Focused on the Process for Personnel Management
2. Rebalance GPF to Enhance IW Capability	■ Force Structure (size, organization, types of units) ■ Individual Shills (MOS types, number of people) ■ Capabilities and Composition of IW Units ■ C2 Capabilities ■ Material Requirements (specific to IW)
3. Enhance SOF IW Capability	Generally Similar to Focus for GPF, but Addressing SOF; Greater Emphasis on Capacity Than on Capability
4. Improve Strategic Communications to Counter Terrorist Networks	Generally Similar to Focus for GPF, but addressing Intelligence and ISR Capability and Focused on Pro-Active Actions Against Adversary Communications
5. Re-design DoD Education and Training for IW	Focused on the Process for Training and Education and its Support, Including the Conduct of Exercises

Figure 1. Five IW Roadmap Initiatives from the 2006 QDR.

[1] Quadrennial Defense Review Execution Roadmap for Irregular Warfare, 26 April 2006.

Foreign Force Train, Equip, or Advise	IW-Intensive Activities	Traditional Units in IW
■ Foreign Military Sales and Related Training ■ Exchange /ClassroomTraining ■ Military Training ■ Advise Host Nation Forces	■ Civil Affairs and Civil-Military Operations ■ Intelligence: Human Intelligence/ Counterintelligence ■ Psychological Operations ■ Electronic Warfare ■ Computer Net Ops ■ Planning and Command and Control Support ■ Law Enforcement	■ Joint/Multi-National Exercises ■ Logistics Support ■ Intelligence or Communications Sharing ■ US Force Protection ■ Operations

Figure 2. Functional Areas of IW Specified in the Study's Data Request to COCOMs.

In the first group, demands for *military training* capabilities were generally for teams of around twelve special operations or general purpose forces personnel to train and advise *host nation forces*. Demands for advising host nation forces are difficult to distinguish from those related to *military training*. Another related item in the group is *foreign military sales and related training*. An example would be instructing host nation forces on use of a newly acquired tactical radio system. Here, a few U.S. military members or contractors might go to the recipient country to brief its military communications experts on how to use the capabilities. Those experts would in turn train their own forces.

In the second main group, different forms of interaction are identified, each distinct from the other. *Civil Affairs/ Civil Military Operations* covers engineering projects and medical aid visits. Here, analysts needed to decide which was the primary purpose—engineering and medical support or training host nation forces. If training dominated, the demand was listed under *military training*, whereas if engineering or medical support seemed to be primary, the case was considered *Civil Affairs/ Civil Military Operations*. The grouping includes Provincial Reconstruction Teams, although they receive training similar to that given to Military Transition Teams.

The third category, *Traditional Units*, covers a range of dissimilar, easier to differentiate, activity. Under this category, *military exercises*, for example, generally involve units of battalion size or larger going overseas for relatively brief periods of collective training. During that training, the forces interact with foreign forces, but not necessarily to train them. The frequency of demands for these activities is summarized in Figure 3.

Summary

The analysis produced rough quantitative estimates of forces needed to perform irregular warfare functions, sensitive to varying assumptions. A similar study is under way to address demands for *Security Force Assistance*. With increasing standardization in the database, it may be possible in the future to collect this information directly from routine operational data without the need for a special data request.

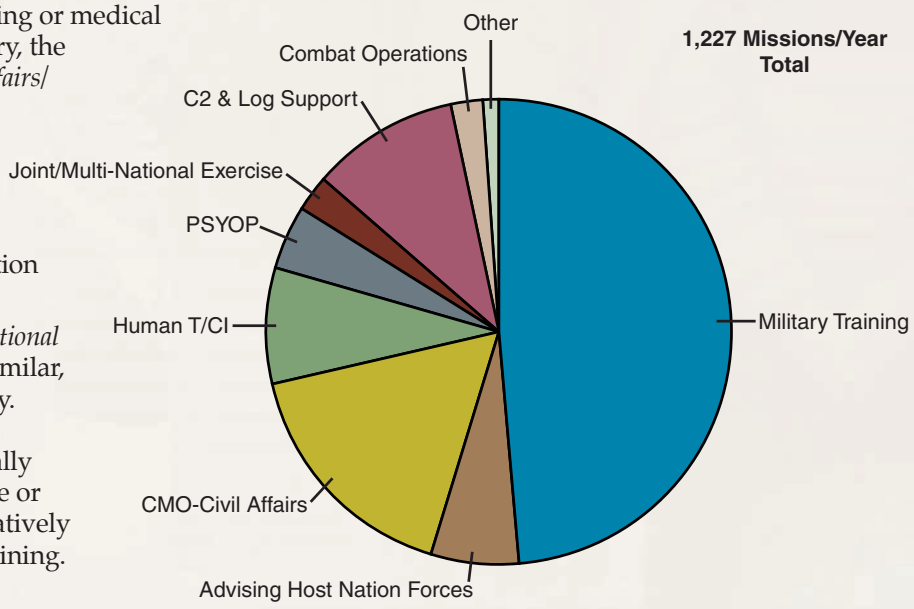


Figure 3. Frequency of Functional Demands.

Test and Evaluation for Rapid-Fielding Programs

Mr. Bob Holcomb

Since the beginning of the wars in Iraq and Afghanistan, DoD has been faced with the challenge of rapidly developing and testing new equipment to deploy to combatant commanders. With this rapid fielding challenge came the need to quickly assess the operational effectiveness and survivability of new equipment. Existing test and evaluation processes took too long, obliging the test and evaluation community to become agile as well. It has met the challenge, and in the process some practical guidelines emerged. This article will describe six of these, with examples of where they have contributed to the rapid fielding of operationally effective equipment.

Some Useful Principles

1. High-Level Attention Helps

The most obvious example of rapid fielding is the family of Mine Resistant Ambush Protected (MRAP) vehicles, which the Secretary of Defense personally and publicly assigned the highest category of industrial priority. By doing so, many normal bureaucratic processes were shortened, and in some cases by-passed. Production, testing, and fielding were concurrent—something highly unusual in DoD.

2. Exploit Something Already in Development

A second principle is that it is useful if the equipment is already in development prior to decision to accelerate fielding. Blue Force Tracker, a position location and dissemination system mounted in Army combat vehicles, is a good example. The system was under development in response to lessons from the first Gulf War, and some operational testing had already been completed when the decision to go to war in Iraq was made. As a result, the Army could rapidly adapt to provide the systems to divisions being deployed (as well as to Marine Corps and UK forces). Because of the prior operational testing, the Army understood which features worked well and which could either be postponed in development or eliminated in order to be operationally effective by the war's onset.

Figure 1: MRAP Vehicle in Iraq, July 2009.

3. Involve the Combatant Commands

The combatant commands and their representatives must be involved in the requirements process. Instead of requirements being developed primarily through the Services' training and doctrine organizations, the combatant commanders can provide urgent operational needs directly to the Office of the Secretary of Defense and the Joint Staff. This has generally resulted in a shorter list of required operational capabilities, more focused to the operation at hand; and proved a direct and rapid way to bring immediate operational needs to the attention of DoD's senior leadership. It also permitted the testing process to focus on a subset of operational conditions that would satisfy the urgent need.

4. Maintain Discipline

There must be discipline in the testing and acquisition processes, no matter how rapidly they transpire. This applies to assessments of the requirements as well as assessments of the

Figure 2: Blue Force Tracker system being used in Afghanistan, December 2003.

system's achieved capabilities during testing. Half-baked ideas have to be filtered out before they reach a theater of operations. Combat is not the place to discover that a promised capability doesn't exist. Separating advertising claims from operational performance is essential to rapid fielding. Instilling this discipline in the rapid fielding process requires that senior members of DoD and the combatant commands maintain an unusual level of personal involvement because much of the discipline built into the normal bureaucratic acquisition process is by-passed for rapid fielding. The ability to make hard judgments, the courage to stand up to the pressure for speed, and the wisdom to know what is important and what is not are all hallmarks of this discipline.

5. Abbreviate the Process, Don't Speed it Up

The fifth principle is that rapid fielding during wartime requires an abbreviated process, not the same process executed faster. Many steps normally part of acquiring major weapons systems must be eliminated in the interest of speed. An example is the requirement for testing weapons in extreme cold weather. Most systems are required to go to cold weather testing or chamber testing, but for rapid fielding, the focus is on the immediate operational need in a specific theater. This is not to suggest that such testing should be entirely eliminated, but it can and should be deferred. The Blue Force Tracker is a good example. When the war in Iraq began, many requirements the system was intended to satisfy were not met during operational testing. The Army deferred the less important ones and focused on the primary requirement of producing and disseminating position locations.

6. Experience Matters

A stable, experienced test team is critical to successful rapid testing and fielding. Rapid testing is not the place to use B-team testers or make team substitutions while underway. When agility is required, the test team must be able to work seamlessly together and be sufficiently experienced to know when and how to adjust when hurdles or new directions arise.

Conclusions

When necessary, DoD can accomplish rapid fielding, but there are drawbacks. Among them are often a diminished ability to provide equipment maintenance and spares, and the fact that the equipment, as delivered, may not be fully operational. Continued development and testing will still be required. Both systems described above continue to have developmental work done in the United States while in concurrent use in war zones. Furnishing spares and parts requires extraordinary effort because the new systems have not yet been introduced into the Services' logistical chains. Simply because a system has been fielded and is being used in combat does not mean its development stops.

The Department has demonstrated its ability to rapidly focus its requirements and quickly furnish operationally effective equipment to warfighters when necessary, but it requires significant effort to do so. A key point is that this cannot be accomplished by simply doing business as usual, only faster.

Understanding Security Threats in East Africa

Dr. Eliza Mary Johannes and Dr. Dominick' Wright

Believing that security interests in Africa will be of increasing concern, IDA is developing staff capacity to help Defense Department sponsors address emerging issues on the continent. This article is drawn from independent research conducted by two IDA scholars specializing in study of security environments in the region.

Introduction

In recent years, ethnic strife among pastoralist populations in East Africa has escalated. Additionally, given their location in arid ecological zones – cut off from central government administration – pastoral communities are increasingly used by rebel groups to smuggle arms in the region. The combined effect is that these marginalized and largely ignored pastoralists have become an important, though under-appreciated social force threatening national as well as regional security.

Throughout Africa, pastoral people and pastoralism as an economic activity have received scant attention from policymakers and development-oriented NGOs.[1] Whether marginalized for political gain or adversely affected by externally imposed development policies, the result for pastoralists has been the emergence of conflict, fundamentalism, and ethnocentricity. Rarely have African governments developed policies that enhance the pastoral way of life as a viable economic activity. More frequently, regional public policies are designed to dismantle pastoralism and incorporate its adherents into sedentary society.

Assessments of potential security issues related to pastoralist groups in the Horn of Africa are scarce. In existing literature, two views prevail. First is the widespread perception that pastoral populations are resistant to change and modernity, unable to move beyond traditional herding practices. The second view looks at the problem of underdevelopment in pastoralist communities in terms of inappropriate public policies enacted over many years.

East African Pastoralists

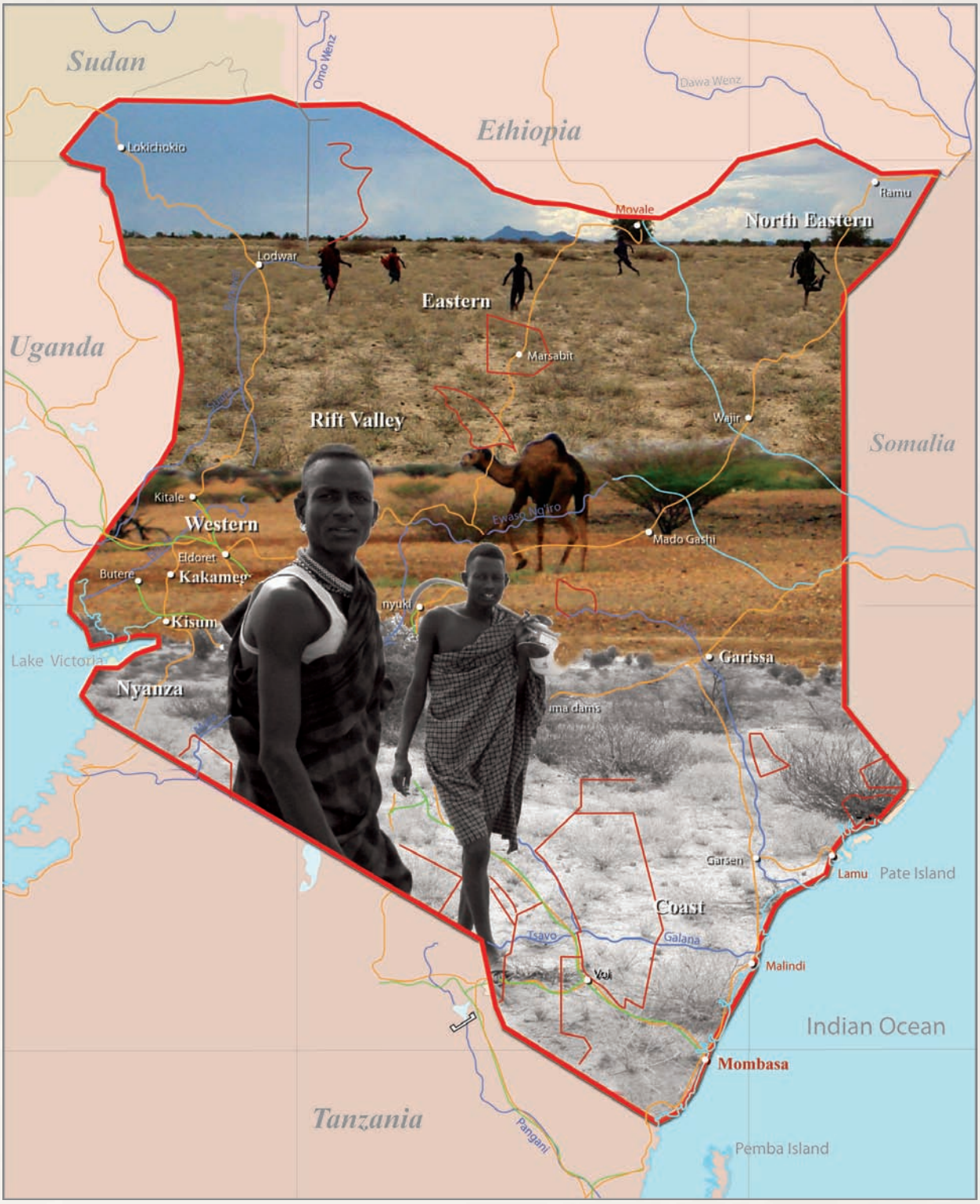
In Kenya for example, pastoralist groups are characterized by poverty, conflict over resources, movements across unsecured

Characteristics of Pastoralist Populations

- **Territorial Perceptions**
  - They do not recognize international territorial boundaries, focusing instead on the need to find lands anywhere suitable for pasture.
- **Attitudes toward Deviance**
  - Possess a strong belief that all cattle belong to them; hence, their practice of cattle raiding.
- **Group-State Relations**
  - Regional governments consider them to be "backward," having refused to develop.
- **Indigenous Governance & Law Enforcement**
  - Their self-organized governing structure is parochial, predicated on the accumulation of group beliefs and practices, which they enforce themselves.
- **Indigenous Economics**
  - Operate according to a bartering economy, placing a higher value on the number of livestock possessed than they do hard currency. This makes livestock herding essential to survival and directly determines social hierarchy, where size of a household herd reflects the family's social status.
- **Seasonal Movement**
  - They form satellite and base camps, using the former during the dry season as they search for green pastures and the latter during the wet season when families group together in encampments.

[1] See Galaty, 1981, Bennett, 1988, Rigby, 1985.

borders, and ethnic tensions. Religious and ideological elements sympathizing with Al-Qaeda and other Islamic extremists have made matters worse. There is a general atmosphere of fear and insecurity among the population, and governments are helpless in dealing with the menace. National governments have been ineffective at confronting these problems



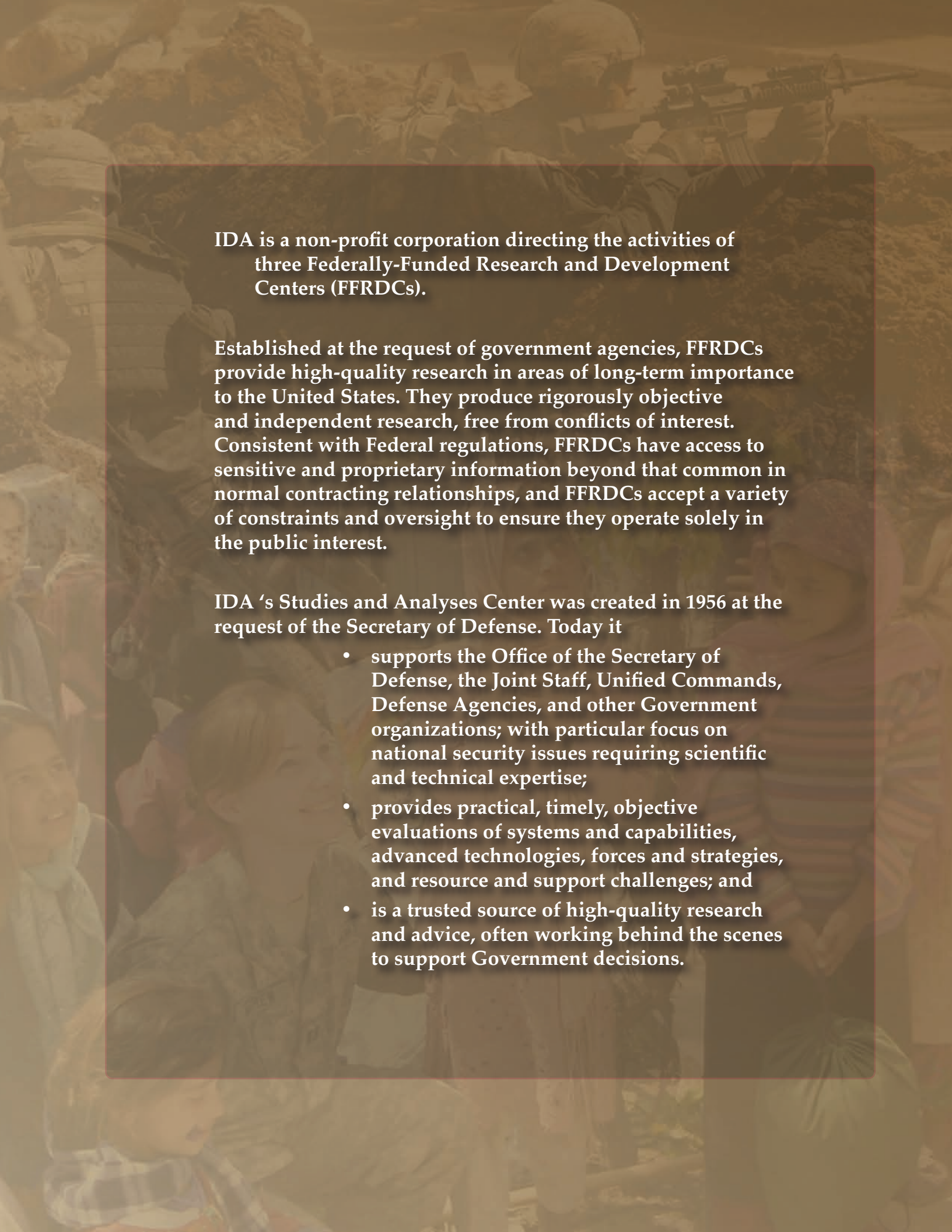
because of dwindling state resources and inadequate security forces.

Kenya, Sudan, Ethiopia, Uganda and Somalia are examples of states contending with the problem of pastoralists engaged in illegal trafficking of small arms and light weapons that often supply rebel groups. The collapse of the Somali state in 1991 created a power vacuum that triggered warlords of various persuasions to pick up arms, adding to regional insecurity. Other examples include activities of the Sudan People's Liberation Army/Movement (SPLA/SPLM) in Southern Sudan, and those of the Lord's Resistance Army (LRA) in Northern Uganda. Banditry and cattle raiding – not commonly viewed as a national security threat – have been responsible for the impoverishment and economic insecurity in nomadic communities. Such conditions have made the relatively more lucrative international gun trade alluring to the pastoralists.

Dealing with Arms Trafficking

Strategies implemented by East African states to limit arms trafficking by pastoralists should consider non-kinetic actions and efforts to establish the rule of law. Non-kinetic actions include investing in development of pastoral communities' well-being across a multitude of areas, building their trust in the state and engendering their appreciation of the benefits it brings. Rule of law operations could begin by establishing an official presence in pastoralist areas with the consistent demonstration that law-breaking will be met with commensurate force. Kinetic operations such as raids and frontal attacks on caravans should be considered only as a selected supplement to these other actions, lest the state risk antagonizing the entire pastoralist population, pushing them into even closer alignment with irregular forces. Currently, pastoralists' relations with the rebel groups are primarily economic. The state does not want to alter circumstances to a point where the pastoralists come to rely on rebel groups for both economic sustenance and security.

To deal effectively with this problem, East African countries must not only strengthen themselves internally but also coordinate the distribution of information and combinations of resources with regional and other partners. Such a dual approach could help limit internal as well as regional instability.



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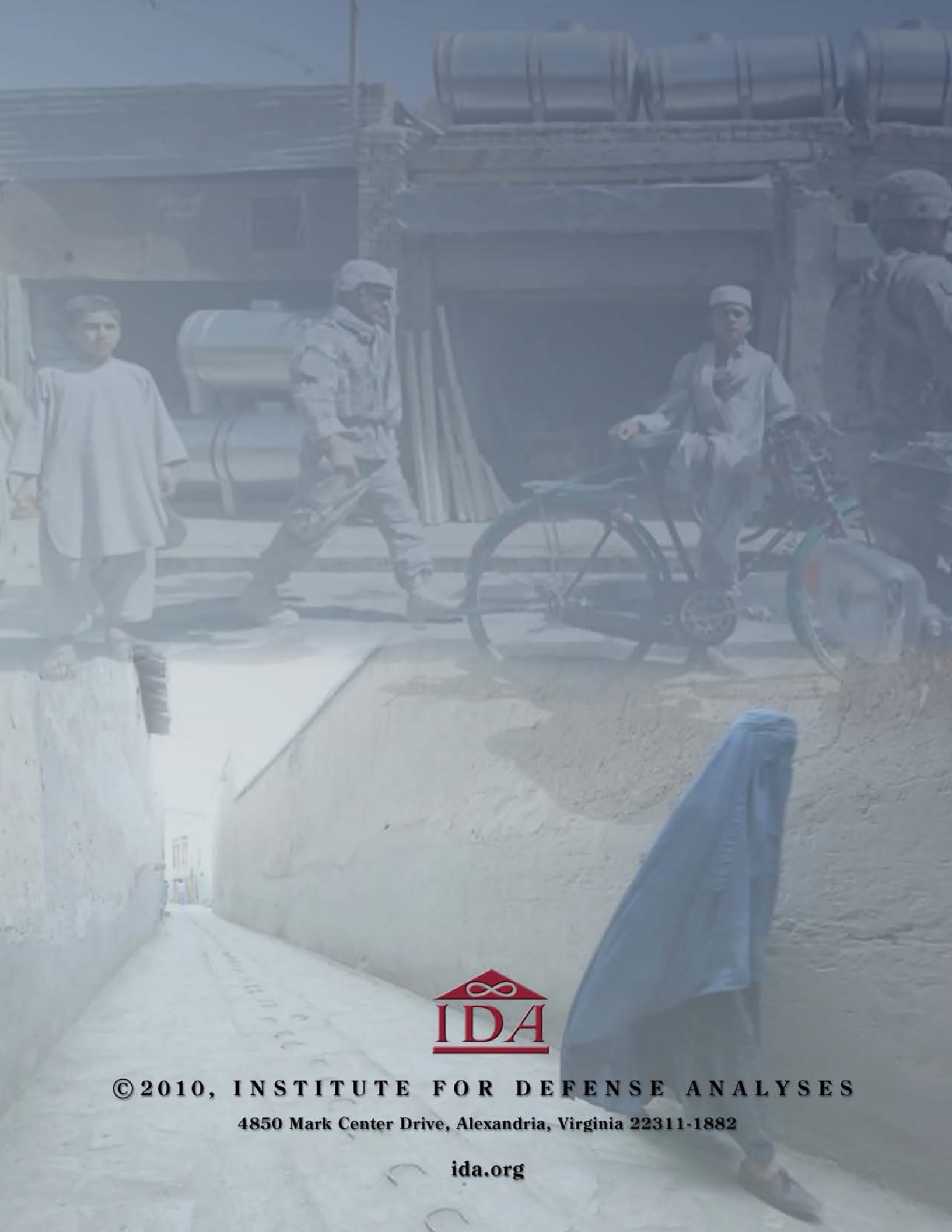

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