



ARROYO CENTER

2014



Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2015		2. REPORT TYPE		3. DATES COVERED 00-00-2015 to 00-00-2015	
4. TITLE AND SUBTITLE Rand Arroyo Center 2014				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) RAND Corporation, Arroyo Center, 1776 Main Street, P.O. Box 2138, Santa Monica, CA, 90407-2138				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 45	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



For more than 65 years, the RAND Corporation has worked side by side with government as a trusted adviser. Through high-quality, objective research and the development of sophisticated analytic tools, RAND researchers from diverse disciplines and perspectives collaborate to create strategies and solutions to keep our nation strong.

Message from the Director

Dear Soldiers and Leaders,

RAND Arroyo Center is the U.S. Army's federally funded research and development center (FFRDC) for studies and analyses. The year 2014 marked the Arroyo Center's 30th anniversary at RAND. Over these three decades, RAND has provided the Army with approximately 700 publications and many more briefings, seminars, and workshops. Through the Army Fellows Program, Arroyo has also provided professional military education in policy analysis to more than 200 mid-career Army officers.

While much has changed over the past 30 years, Arroyo's mission—described in Army Regulation 5-21—has remained the same: to help Army leaders make policy decisions that are informed by objective, high-quality analysis.

This 2014 Annual Report highlights some of the recent analyses we have conducted at the request of Army leaders. These analyses include in-depth work on the following topics:

- the Total Army force mix—including both the active and reserve components
- capabilities development and acquisition—delivering new and improved capabilities within reduced budgets
- Army roles in the Asia-Pacific—especially deterring and defeating aggression, countering the proliferation of weapons of mass destruction, and building partner capacity
- Army medicine—the health and well-being of soldiers and families, as well as medical diplomacy and support to other deployed missions
- building readiness—in the U.S. Army and in allies and partners
- cyber war—at the tactical through strategic levels
- logistics efficiencies—saving the Army money while maintaining or improving support
- special operations—better preparing for, planning, and executing special warfare operations and campaigns
- talent management—cultivating and optimizing individual expertise throughout an Army career.

Reports or briefings on each of these topics are available to U.S. Army soldiers and leaders. Please contact me if you wish to receive such materials or other information on any of the analyses conducted by Arroyo, including ongoing research activities.

As a final note, we have made some changes in our organization to better support the changing needs of the Army. Beginning in February 2015, we reduced the number of Arroyo research programs from five to three—while maintaining the same analytic lines of effort. The new programs are:

- Strategy, Doctrine, and Resources
- Personnel, Training, and Health
- Forces and Logistics.

Thank you for your service, and for helping RAND Arroyo Center help the U.S. Army.

With best regards,



Tim Bonds
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Photo by Diane Baldwin

Tim Bonds is the director of RAND Arroyo Center.

RAND Arroyo Center

RAND Arroyo Center is the U.S. Army's federally funded research and development center (FFRDC) for studies and analysis. As an FFRDC, Arroyo enables the Army to maintain a strategic relationship with an independent, nonprofit source of high-quality, objective analysis that can sustain deep expertise in domains of direct relevance to perennial Army concerns.

Mission

The Army has given the Arroyo Center a multifaceted mission:

- Conduct objective analyses on enduring policy issues.
- Help the Army improve effectiveness and efficiency.
- Provide short-term assistance on urgent problems.
- Be a catalyst for needed change.

To fulfill its mission, Arroyo conducts research and analyses to help the Army

- adapt to change and anticipate some of the most important changes in the world affecting the Army
- define new and innovative ways of operating
- maintain objectivity and balance in addressing controversial and sensitive subjects
- advance its knowledge in key areas of interest.

Oversight and Management

The Army stipulates the oversight and management of the Arroyo Center in Army Regulation 5-21. The regulation establishes a governing board of Army leaders known as the Arroyo Center Policy Committee (ACPC). (See facing page.) The ACPC provides overall guidance, reviews the annual research plan, and approves individual projects.

At RAND, Arroyo is managed within the Army Research Division, and its work for the Army is organized into three research programs:

- Strategy, Doctrine, and Resources
- Personnel, Training, and Health
- Forces and Logistics.



Photo by Diane Baldwin

Dr. Margaret Harrell is the associate director of RAND Arroyo Center.



Photo by Diane Baldwin

Marcy Agmon is the operations director.

Arroyo Center Policy Committee

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Command

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Major General Mark S. Inch

Provost Marshal General/U.S. Army Criminal Investigation Command
and Army Corrections Command

Lead Agent for RAND Arroyo Center

Brigadier General John G. Ferrari

Director, Program Analysis and Evaluation

Army Fellows Program

In addition to conducting research for the Army, RAND Arroyo Center provides professional military education (PME) to selected Army officers through the Army Fellows Program.¹ Each year, the Army awards volunteer officers—grades O-4 and O-5 (MAJ/LTC)—with one-year program fellowships.

At RAND, the officers join research teams that address critical policy issues facing the Army. The officers work side by side not only with top defense analysts but also with officers from other military services and government agencies (such as the Department of Homeland Security) who are participating in similar programs at RAND. Their participation enhances other researchers' understanding of the Army.

¹ This educational function reflects RAND's goal, stated in its 1948 Articles of Incorporation, to "further and promote scientific, educational, and charitable purposes, all for the public welfare and security of the United States of America."

Both in this way and through their direct analytic contributions, the officers improve the quality of studies and help to ensure their utility for the Army.

Participation in the Army Fellows Program enables officers to increase their abilities as analysts and as informed consumers of policy studies. The Army capitalizes on these gains by having the officers follow the fellowship year with a three-year utilization assignment on a senior-level Army or Joint staff.

Since the inception of the program in 1985, 206 officers have participated. Nine officers participated in the program in the 2014–2015 cohort. They included representation from the armor, artillery, engineering, force management, medical, and military intelligence branches of the Army.

For more information, including eligibility requirements and application instructions, see <http://www.rand.org/ard/fellows.html>.

The Army Fellows cohort of 2014–2015 with Bruce Held, director of Forces and Logistics Program



Photo by Diane Baldwin

Focus On

The following pages highlight RAND Arroyo Center studies on selected topics of importance to Army leadership.

- Total Army Force Mix
- Capabilities: Development and Acquisition
- Asia-Pacific Missions
- Army Medicine
- Building Readiness
- Cyber Operations
- Logistics Efficiencies
- Special Operations
- Talent Management

FOCUS ON

Total Army Force Mix



U.S. Army photo by Sgt. Jessi Ann McCormick

Budget and end strength reductions and new defense strategic guidance are causing the Army to reassess how it balances the mix of forces between its active component (AC) and reserve component (RC), which include the Army National Guard and the U.S. Army Reserve. RAND Arroyo Center has conducted extensive research and analysis for policymakers and planners, and it continues to provide critical support as they weigh future force mix decisions.

RECENT PROJECTS

Lessons Learned for Sustaining the Operational Capabilities of the Army's RC

Helping identify and document the elements of Army policy involved in developing the operational RC and assessing the impacts of these policies in terms of several factors, including readiness, mobilization timelines, mission requirements, and contingency response capabilities.

AC Responsibility in RC Pre- and Post-Mobilization Training

Examined historical readiness problems for the RC and the ways in which Congress and the Army have addressed them, including AC support to RC units, and provided recommendations for further changes to support future RC training plans.

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SELECTED PUBLICATIONS

Assessing the Army's Active-Reserve Component Force Mix

www.rand.org/t/RR417-1

Identifies the circumstances under which either AC or RC forces can sustain a given level of deployed output at a lower cost, concluding that the factors that make RC units cost less can also make them less rapidly deployable in the event of unexpected contingencies.

Measuring and Retaining the U.S. Army's Deployment Experience

www.rand.org/t/RR570

Analyzes recent data on soldiers and deployments given that the Army's AC and RC have contributed the bulk of deployed U.S. troops since 9/11 and have accrued substantial levels of deployment-related experience, but the majority of experienced soldiers leaving the AC are not affiliating with the RC, and the percentage that transition to the RC upon leaving the AC is on the decline.

Making the Reserve Retirement System Similar to the Active System: Retention and Cost Estimates

www.rand.org/t/RR530

Estimates that allowing vested reservists to receive military retirement benefits immediately upon retiring would decrease Army personnel costs by \$800 million per year, with small changes in AC retention and a shift to higher RC participation in midcareer years and lower participation after vesting.

Photo: Chinooks performed resupply, retrograde, and planned missions in Afghanistan.

FOCUS ON

Capabilities Development and Acquisition



U.S. Army photo by Staff Sgt. Christopher Calvert

In the past decade, the Army has had several notable program cancellations while simultaneously developing and acquiring wholly new capabilities for recent fights. Taken together, this has made for a complex set of competing interests to balance within a shrinking budget. RAND Arroyo Center works with the Army to help define those challenges and find solutions to help build the acquisition system for the future.

RECENT PROJECTS

Analytic Support to Program Manager Biometrics

Supported the program manager for biometrics with analysis in the lead-up to a Milestone B event in 2013 by developing the technology readiness assessment plan, providing a proof-of-principle technology evaluation on the reference alternative, and performing a high-level analysis of the Army's common operating environments with respect to Biometric Enabling Capability Increment 1 requirements, architecture, and acquisition.

Army System Safety and Engineering Review

Reviewed and assessed the Army system's safety engineering regulations and processes and recommended how to improve their effectiveness and risk management throughout the materiel life cycle for both standard and rapid acquisition.

Combat Vehicle Modernization for the Mid-Term (FY19–27)

Developed a road map to synchronize the modernization and replacement of selected combat vehicles across the Army's brigade combat teams during the period from 2019 to 2027.

SELECTED PUBLICATIONS

Lessons from the Army's Future Combat Systems Program

www.rand.org/t/MG1206

Documents the Future Combat Systems program's history and draws lessons from multiple perspectives, including the conditions leading up to the program, requirements generation and development, program management and execution, and technologies.

Rapid Acquisition of Army Command and Control Systems

www.rand.org/t/RR274

Identifies issues, challenges, and problems associated with nontraditional rapid acquisition processes and recommends ways that the Department of Defense can more rapidly develop, procure, and field effective command and control systems within the framework of current policies and processes.

Cost Considerations in Cloud Computing

www.rand.org/t/PE113

Finds that cloud provider costs can vary compared with traditional information system alternatives because of different cost structures, analyzes the cost drivers for several data management approaches for one acquisition program, and then develops structured cost considerations for analysts evaluating new cloud investments.

Point of contact:

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Photo: Gray Eagle unmanned aircraft systems await maintenance in the Fort Hood Unmanned Aircraft System Maintenance Hangar. Elements of this image were modified in the interest of operational security.

FOCUS ON

Asia-Pacific Missions



U.S. Army photo by Sgt. 1st Class Jeffrey Smith

While the nation is focused on terrorist organizations in the Middle East and on Russians in Ukraine, the Department of Defense's main focus is Asia, where China looms as a possible friend or competitor, and the potential for a regional rearming poses significant U.S. security challenges. RAND Arroyo Center is helping the Army consider the overall security situation and its part in it.

RECENT PROJECTS

Army Force Requirements for WMD Elimination in North Korea

Examined concepts of operation and the established force requirement for the weapons of mass destruction elimination (WMD-E) mission and helped the 8th Army and the 2nd Infantry Division commanders plan and coordinate evolving WMD-E efforts.

Dialoging with China on North Korea

Identified U.S./Republic of Korea (ROK) actions and policies that would improve military-related understanding and cooperation with China regarding North Korean contingencies, as well as U.S./ROK actions and policies that raise the risk of miscalculation with China, and proposed ways to improve U.S./ROK and Chinese cooperation in such cases.

Army Roles in U.S.-China Competitive Strategies

Developing and evaluating alternative U.S. competitive strategies for dealing with China, identifying key Army roles in executing them, and recommending actions that Army leadership can take.

SELECTED PUBLICATIONS

The U.S. Army in Asia, 2030–2040

www.rand.org/t/RR474

Examines future security challenges in Asia and concludes that the United States needs a strategy that balances between protecting U.S. interests in East Asia, where clashes with China's preferences are most likely, and cooperating with Beijing globally, where the two sides share common interests.

The U.S. Army in Southeast Asia: Near-Term and Long-Term Roles

www.rand.org/t/RR401

Examines the implications of recalibrating of U.S. foreign policy to the Asia-Pacific region for the U.S. Army and concludes that under current conditions, the Army's role will focus on supporting defense reform and modernization, helping nations in the region address nonconventional transnational threats, and instituting appropriate means to balance increased Chinese penetration.

Employing Land-Based Anti-Ship Missiles in the Western Pacific

www.rand.org/t/TR1321

Explores using ground-based anti-ship missiles in a U.S. anti-access/area-denial strategy against China and concludes that such capabilities would further U.S. efforts to provide security cooperation assistance to partner nations, could help deter conflict, and could contribute to victory in a future conflict.

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Photo: U.S. Army paratroopers, along with soldiers of the Bangladesh Army's 46th Independent Infantry Brigade, move in a file formation across rice fields during a tactical training exercise.

FOCUS ON

Army Medicine



U.S. Army photo by Sgt. 1st Class Erick Rodriguez, III Corps Public Affairs

As combat operations in Iraq and Afghanistan come to an end, health has been increasingly recognized as a “bridge to peace.” Army medicine is seeking to enhance international relations through global health engagement and shifting toward ensuring medical readiness for future contingencies while continuing to provide cost-effective care for soldiers, their families, and retirees. RAND Arroyo Center is helping to address this shift.

RECENT PROJECTS

Identifying Opportunities to Improve the Cost-Effectiveness of Health Care Delivery

Examining opportunities to better target care for retirees, while reducing costs and improving clinical proficiency, by deploying Army medical personnel to civilian facilities to provide care to Army beneficiaries and civilians, given that a significant portion of the health care services for retirees and their family is delivered by the civilian purchased care network.

Maintaining Deployment Clinical Proficiency During Peacetime

Developing recommendations for how to best develop and maintain the Army medical community’s clinical skills required for garrison operations, given the dual mission of caring for soldiers who become injured or ill during deployments and caring for soldiers, their dependents, and retirees in garrison-based military treatment facilities.

Enhancing the Effectiveness of the U.S. Army’s Participation in Medical Diplomacy: Implications from a Case in Trinidad

Evaluated the effectiveness of a medical engagement program in Trinidad designed to build a sustainable local capability for addressing a long-standing and significant backlog of cataract surgeries across the country.

SELECTED PUBLICATIONS

Toward Integrated DoD Biosurveillance: Assessment and Opportunities

www.rand.org/t/RR399

Reviews Department of Defense (DoD) biosurveillance programs, prioritizes missions and desired outcomes, evaluates how DoD programs contribute to these, and assesses the appropriateness and stability of DoD’s funding system for biosurveillance.

Sourcing and Global Distribution of Medical Supplies

www.rand.org/t/RR125

Investigates opportunities to gain efficiencies in the global military medical logistics enterprise without sacrificing capability, notably by minimizing intermediate materiel handling, seeking the greatest value from commercial freight, and streamlining warehouse operations.

New Equipping Strategies for Combat Support Hospitals

www.rand.org/t/MG887

Develops a new equipping strategy for the Army’s combat support hospitals (CSHs), proposing a strategy that would reduce total equipment costs from \$1 billion to less than \$700 million and leave the Army with enough funds to continually upgrade and maintain both home-station and shared equipment.

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Photo: Medical personnel perform medical screenings on troops returning to Fort Hood, Texas, from West Africa.

FOCUS ON

Building Readiness



U.S. Army photo by Sgt. Angela Parady

Army readiness includes operating force and generating force capabilities and intangible factors contributing to overall preparedness (e.g., values and processes). To make the right investments for the future and articulate shortcomings to Congress and the military, the Army needs effective processes for building and evaluating readiness, and work by RAND Arroyo Center has helped the Army in this regard.

RECENT PROJECTS

Developing and Testing Low-Cost and Valid Processes for Measuring Readiness

Through two recent projects, designing, testing, and validating new approaches to measuring and monitoring training and mission command readiness that provide senior leaders with information useful for tracking trends, unit status, and critical equipment, and for identifying shortfalls.

Assessing How SBCT Manpower Changes Improve Training and Readiness

Providing empirical and objective analyses of how alternate Stryker brigade combat team (SBCT) manpower designs would enhance operational performance and readiness levels.

Establishing Empirically Derived Training Readiness Thresholds

Developed and tested prototype methodologies to systematically measure and track collective training readiness thresholds and developed estimates of the resources needed to reach each threshold.

Tracking World Trends in Warfighter Functions and Impacts on the Army

Developed a picture of capability trends in other nations by warfighting function (mission command, fires, maneuver, etc.), which showed where the United States leads or trails in specific areas, and identified new concepts and modernization initiatives to remain a ready force.

Photo: Soldiers fired shots from M1A1 Abrams tanks at Adazi Training Area, Latvia, as part of U.S. Army Europe–led Operation Atlantic Resolve land force assurance training.

SELECTED PUBLICATIONS

Readiness Reporting for an Adaptive Army

www.rand.org/t/RR230

Examines the Army's readiness reporting system in light of changes experienced by Army units in the past decade, particularly the ability of units to adapt to emerging requirements by adding and training up new capabilities quickly.

France's War in Mali: Lessons for an Expeditionary Army

www.rand.org/t/RR770

Examines aspects of France's operations in Mali that make the French Army a case of building the kind of expeditionary force envisioned by the U.S. Army Chief of Staff, and one increasingly in line with future Army budgets, and examines France's rotational equipping strategy and its effect on readiness.

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FOCUS ON

Cyber Operations



U.S. Army photo by Lawrence Torres III

Be it by developing defensive cyber capabilities to protect and defend U.S. networks or offensive cyber capabilities to go after adversary networks, considerable cyber investments are being made, new concepts created, and warriors built to be the next front in cyber. RAND Arroyo Center's work has focused on doctrine, manning, training, technologies, and concept development in support of Army cyber.

RECENT PROJECTS

Battlefield Cyber

Identifying potential opportunities for the Army to develop offensive cyber capabilities that would provide useful options to commanders at the corps level and below for establishing local dominance of the electromagnetic environment in support of combat operations.

Building and Operationalizing the Cyber Mission Force

Assisted the Army in leveraging the capabilities of cyber protection teams in the planning and execution of defensive cyber operations missions (e.g., internal defensive measures and response actions) and developed lessons learned from the initial operational employment of cyber protection teams in support of exercises and real-world operations.

Structuring Open-Source Intelligence in the U.S. Army

Helped the Army intelligence branch define how open-source intelligence and information should be thought about and integrated and provided recommendations about how to support open-source intelligence through training and manning.

SELECTED PUBLICATIONS

The Other Quiet Professionals: Lessons for Future Cyber Forces from the Evolution of Special Forces

www.rand.org/t/RR780

Reviews commonalities, similarities, and differences between the still-nascent U.S. cyber force and early U.S. special operations forces, conducted in 2010, and offers salient lessons for the direction of U.S. cyber forces.

Redefining Information Warfare Boundaries for an Army in a Wireless World

<http://www.rand.org/t/MG1113>

Examines network operations, information operations, and the more focused areas of electronic warfare, signals intelligence, electromagnetic spectrum operations, public affairs, and psychological operations in the U.S. military to inform the development of future Army doctrine in these areas.

Lessons Learned from the Afghan Mission Network: Developing a Coalition Contingency Network

www.rand.org/t/RR302

Reviews and assesses the operational and technical history of the Afghan Mission Network (AMN)—the primary network for the International Security Assistance Force (ISAF) in Afghanistan—to identify lessons learned for future coalition networks.

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Photo: The Joint Cyber Control Center in Germany assesses a brigade's ability to provide a robust, flexible, and reliable network.

FOCUS ON

Logistics Efficiencies



U.S. Army photo by Georgios Moumoulidis

Since 1990, the Government Accountability Office has identified supply chain management in the Department of Defense as a high-risk area, noting that ineffective and inefficient inventory management practices have led to billions of dollars of inventory above current requirements. RAND Arroyo Center research is helping the Army make its logistics system more effective and efficient.

RECENT PROJECTS

Stock Positioning

Mapped the Army's current Class IX (spare parts) inventory policies, as well as the enterprise resource planning and information systems that govern Army Class IX stock positioning; developed metrics to measure the cost and performance of stock-positioning decisions; and recommended Class IX stock-positioning policies that reduce both distribution time and costs.

Identifying Dormant and Long Supply Inventory

Developed a process to help the Army identify Class IX inventory that is no longer required—that is, new methods that would also allow the Army to calculate the long-run cost of inventory—and illustrated the model with data from the Army Working Capital Fund.

Transition of Program Manager (PM)–Owned Inventory to Sustainment Phase

Examined the processes and policies by which PMs obtain inventory for initial sustainment and upgrades, and the management and transition of that inventory for sustainment.

SELECTED PUBLICATIONS

Methods for Identifying Part Quality Issues and Estimating Their Cost with an Application Using the UH-60

www.rand.org/t/RR369

Using a case study of the UH-60M Black Hawk, demonstrates how the Army can use readily available demand and end-item maintenance history to identify potential issues with repair part or process quality and estimate their associated incremental costs.

Improving Inventory Management of Organizational and Individual Equipment at Central Issue Facilities

www.rand.org/t/RR137

Provides an in-depth description of how inventory levels should be set for the Army's Central Issue Facilities (CIFs)—including which items to order, when to order, and how much to order—and addresses the question of how to identify materiel that is available for lateral transfer. This research has helped the Army reduce organizational clothing and individual equipment budgets by \$200 million while maintaining performance.

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Photo: U.S. Army Europe soldiers conduct forward arming and refueling point training with an M978 at the Oberdachstetten Local Training Area in Germany.

FOCUS ON

Special Operations



U.S. Army photo by SFC Andrew Kosterman

RAND Arroyo Center has completed and ongoing studies for the U.S. Army Special Operations Command on issues ranging from strategic lessons learned from Iraq and Afghanistan, through new operational concepts, to managing manpower more effectively. These efforts should help special operations forces (SOF), the Army, and the Department of Defense better prepare for, plan, and execute special warfare operations and campaigns.

RECENT PROJECTS

Improving the Integration Between Special Operations and Conventional Forces

Helping the Army develop doctrine, organization, training, material, leadership, personnel, facility, and policy options to more effectively and efficiently integrate SOF and conventional forces for current and future missions.

Improve Special Forces Recruitment, Assessment and Selection, and Retention

Developed empirical models to improve recruit selection and reduce training pipeline losses; assessed recent changes in Special Forces Assessment and Selection course-choice criteria intended to reduce losses in the Special Forces Qualification Course; assessed potential effects of end-strength reductions and force-regeneration requirements on the difficulty of SOF recruiting; and identified problem areas in the retention of Special Forces soldiers and policies to address them.

SELECTED PUBLICATIONS

Special Warfare: The Missing Middle in U.S. Coercive Options

www.rand.org/t/RR828

Demonstrates the need for special warfare to fill the missing middle between the costly indefinite commitment of conventional forces and the limitations of distant-strike options.

Improving Strategic Competence: Lessons from 13 Years of War

www.rand.org/t/RR816

Applies insights from the past 13 years of war to the future operating environment, which will include irregular and hybrid threats, and identifies the critical requirements for land forces and SOF to operate successfully in conjunction with other joint, interagency, and multinational partners.

National Guard Special Forces: Enhancing the Contributions of Reserve Component Army Special Operations Forces

www.rand.org/t/TR1199

Analyzes U.S. Army National Guard (ARNG) Special Forces capabilities and examines the prevailing legal and policy guidance that affects how the ARNG raises, trains, equips, sustains, mobilizes, and deploys its Special Forces.

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Photo: A U.S. special forces soldier assigned to 1st Special Forces Group (Airborne) conducts marksmanship training at Damyang, Republic of Korea (ROK), with ROK Army special operation troops.

FOCUS ON

Talent Management



U.S. Army photo by Capt. Eric Hudson

General Odierno, the U.S. Army Chief of Staff, has identified talent management as the Army's highest priority. RAND Arroyo Center researchers are studying talent management across the continuum—from bringing in the best available talent, to training, retaining, and developing them to maximize their capabilities, through facilitating transitions to civilian life after their service.

RECENT PROJECTS

Managing and Developing the Army's Cyber Force

Analyzing how to acquire, train, manage, and develop the Army's cyber force with a Total Force approach that integrates both the active and reserve components, given how concepts of operations, ever-changing technology, and the perceived cyber threat are rapidly evolving.

Quantifying the Value of Experience

Helping the Army better understand the relationships between tenure, experience, and productivity in key leadership positions and how their value compares with the costs of retaining those qualities in its enlisted force, given end strength declines and the conclusion of combat operations in Iraq and Afghanistan.

Facilitating Transitions to Civilian Life

Identifying civilian occupations in which soldiers' knowledge, skills, and abilities are valued to facilitate those transitions and mitigate potential negative effects on attitudes associated with involuntary separations in the Army.

SELECTED PUBLICATIONS

The Effect of Military Enlistment on Earnings and Education

www.rand.org/t/TR995

Looking out as many as 18 years after enlistment, estimates the causal effect of military service on labor market and educational outcomes.

Expectations About Civilian Labor Markets and Army Officer Retention

www.rand.org/t/MG1123

Describes the socioeconomic environment that officers will encounter if they leave service and how its major differences from military service can be effectively communicated to officers making stay/leave decisions.

Innovative Leader Development: Evaluation of the U.S. Army Asymmetric Warfare Adaptive Leader Program

www.rand.org/t/RR504

Presents the results of a systematic evaluation of the Army's Asymmetric Warfare Adaptive Leader Program, a course designed to enhance adaptive performance in leaders and promote innovative solutions in training.

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Photo: Soldiers from the 62nd Engineer Battalion, 36th Engineer Brigade, climb to the top of a building that overlooks Monrovia, Liberia, before a reenlistment ceremony.

Programs

This section describes the activities of RAND Arroyo Center's three programs: Strategy, Doctrine, and Resources; Personnel, Training, and Health; and Forces and Logistics.

- Missions and research streams
- Sponsors
- Research highlights
- Projects
- Selected publications



Strategy, Doctrine, and Resources Program

“The Army is the nation’s force of first recourse and last resort; the Strategy, Doctrine, and Resources program is available to help Army leaders think through their major challenges as the strategic context changes and as resources become more limited.”

—Dr. Terrence Kelly, director

Missions and Research Streams

The Strategy, Doctrine, and Resources Program conducts research to help the Army understand the emerging strategic context, identify and adjust to the Army’s demands, and maximize the use of its resources. The program provides objective, high-quality expertise and analysis developed over many years of focused and sustained research, as well as short-term, quick-response support on critical issues. In FY 2014, the program performed studies in the following areas:

- assessing potential operating environments and their implications for the Army
- analyzing how the operating and generating forces can meet their requirements
- analyzing active component/reserve component (AC/RC) institutional issues
- security cooperation and developing partner capabilities
- learning from past and present operations
- improving risk analysis and resource management
- Army war games and related analyses.

FY 2014 projects in these areas are listed on page 22.

Sponsors

Each study in the Strategy, Doctrine, and Resources Program is sponsored by one or more senior Army leaders (jointly sponsored studies are common). Before accepting funding for any new study, we work closely with the sponsor and the sponsor’s staff to ensure that the work focuses on a major policy concern and that its tasks are carefully scoped to allow objective, rigorous research in a timely manner.

The most frequent sponsors of studies in the Strategy, Doctrine, and Resources Program are the U.S. Army, Pacific; Deputy Chief of Staff, G-3/5/7, U.S. Army; Deputy Chief of Staff, G-8, U.S. Army; U.S. Army Training and Doctrine Command; U.S. Army Special Operations Command; and Assistant Secretary of the Army for Financial Management and Comptroller. In FY 2014, we also conducted research and analysis for a variety of other senior Army leaders, including the Under Secretary of the Army; the Assistant Secretary of the Army for Installations, Energy, and Environment; and the Assistant Chief for Installation Management.

Research Highlights

Recent and ongoing studies in the Strategy, Doctrine, and Resources Program have focused on helping the Army with the development of innovative strategies and operational concepts, decisions regarding force mix, and saving money in order to adjust to lower resource levels. Important examples of this work include the following:

- **Rebalance to the Pacific.** We have conducted studies that address the Army’s changing role in the Asia-Pacific region. These include studies focused on the Army’s changing roles in joint operations, engaging constructively with China, and preparing for the possible collapse of North Korea, resulting in the need to avoid dispersal of its arsenal of weapons of mass destruction (WMD). A recurrent theme in this body of work is the importance of the security cooperation mission to develop partner capabilities.
- **Force structure.** We have studied the historical use and costs of Army Reserve forces to inform decisions about the most effective AC/RC mix. Many of the findings were surprising and ran against conventional wisdom. We have also conducted studies to analyze the value, implications, and costs of regionally aligned forces (RAF).
- **Saving money.** We have analyzed approaches for saving money that include how to improve cost models for Army force generation (ARFORGEN), making cost-effective use of excess property on Army installations, and capitalizing on the Army’s deployment of enterprise resource planning (ERP) systems. We have helped the Army to identify candidate activities that it could stop doing at lower resource levels. We are also studying how Army spending affects local economies across the nation.

To conduct the studies needed as the Army enters a new era, we have developed new methods to analyze capabilities, capacity, and end strength and new approaches to analyze the cost and structure of Army institutions. Many

of our studies have had a strong impact and been used by Army and other defense leaders:

- The Army Chief of Staff cited our work on the Aviation Restructuring Initiative as the basis for Army policy on Reserve Component aviation.
- The Deputy Secretary of Defense has used RAND Arroyo Center analyses on the AC/RC mix.
- The Army Chief of Staff cited Arroyo work on anti-ship missiles in testimony to Congress.
- The Army has endorsed WMD elimination as a key mission for sizing ground forces.

Other important findings include:

- The Army has a significant role to play in the Pacific, and a conflict there could put a significant demand on Army combat support/combat service support (CS/CSS) forces beyond what current planning processes capture.

- The value of Regular Army and Reserve forces should be calculated based on availability, cost, and efficiency, with cost based on output rather than existence.
- Conflict trends, while downward globally, depend on several critical factors, including U.S. engagement.
- Lessons from the past 13 years of conflict indicate a need to remedy the nation's deficiencies at the levels of policy and strategy; war and statecraft should be viewed along the same spectrum—a marriage that wields the various elements of national power in a coordinated, seamless manner.
- The nation needs to develop the concepts, skills, and organizations required to plan for and prosecute special warfare campaigns, rather than considering all such efforts as tactical.

To increase the value and impact of the program's research for the Army, we continue to build close sponsor relationships with Army operational commands, including U.S. Army Pacific, Eighth Army, I Corps, 2nd ID, and U.S. Army Special Operations Command, among others.

Army paratroopers conduct airfield seizure training in Italy.

U.S. Army photo by Graigg Faggionato





Personnel, Training, and Health Program

"People are the Army's most important resource, and our research and analysis helps leadership develop policies that effectively manage and cultivate this resource."

—Dr. Michael Hansen, director

Missions and Research Streams

The **Personnel, Training, and Health Program** focuses on policies that help the U.S. Army attract and retain the right people, train and manage them in a way that maximizes their capabilities, save lives, and advance wellness. The program's research and analysis include all Army personnel: active component personnel, members of the Army Reserve and Army National Guard, civilians, and contractors.

The program sustains research streams in six policy domains related to personnel, training, and health:

- total force management
- recruiting and retention
- leader development
- training readiness and effectiveness
- soldier and family wellness and support
- access to, quality of, and cost-effectiveness of health care.

Within these streams, the program provides expertise and analysis developed over many years of focused and sustained research, as well as short-term, quick-response support on critical issues. FY 2014 projects in these areas are listed on page 22.

Sponsors

Each study in the Personnel, Training, and Health Program is sponsored by a senior Army leader or jointly sponsored by two or more leaders. Before accepting funding for any new study, we work closely with the sponsor and the sponsor's staff to ensure that the study focuses on a major policy concern and that its tasks are carefully scoped to produce objective, analytic research in a timely manner.

The most frequent sponsors of studies in the Personnel, Training, and Health Program are the Deputy Chief of Staff, G-1, U.S. Army; the Assistant Secretary of the Army for Manpower and Reserve Affairs; the U.S. Army Training and Doctrine Command; the Office of the Surgeon General; and the U.S. Army Medical Command. However, each year we conduct studies to support a variety of other senior Army leaders.

Research Highlights

Ongoing research and analysis in the Personnel, Training, and Health Program focus on critical human resource issues facing the U.S. Army as it navigates its operational and fiscal environments. Within the breadth of work we are conducting for senior Army leaders, a few examples are in the areas of regeneration, recruiting, and readiness:

- **Regeneration.** We are developing a framework for the Office of the Deputy Chief of Staff, G-3/5/7, to assess the Army's ability to regenerate end strength, articulating how changes in policy, processes, and force structure interact and what the costs and risks associated with different approaches are.
- **Recruiting.** Research for the Assistant Secretary of the Army for Manpower and Reserve Affairs is quantifying the resource levels required to support future recruiting given uncertain enlisted accession and labor market conditions, and recommending improvements to enhance the Army's use of its suite of available recruiting resources and policies.
- **Readiness.** Studies for multiple sponsors, including the U.S. Army Training and Doctrine Command, U.S. Army Forces Command, and the Office of the Surgeon General, are developing concepts for ensuring that the Army has valid and objective training readiness metrics, identifying approaches the Army can use to improve its leader education and foster human performance optimization, and developing recommendations for how the Army may prepare medical providers prior to deployment to improve patient outcomes.

Recent completed research has focused on the areas of civilian workforce management, compensation reform, the joint Departments of Defense and Veterans Affairs disability system, and deployments:

- **Civilian workforce management.** Analyses for the Assistant Secretary of the Army for Manpower and Reserve Affairs and the Deputy Chief of Staff, G-1, addressed three uncertainties in managing the ongoing

civilian drawdown: how many civilians the Army will need, how these needs match the projected labor force, and what civilian workforce the Army can afford. These analyses linked estimates of the future Army civilian labor supply with estimates of the demand implied by changes in operating force requirements; the research concluded that, to meet likely requirements, hiring rates will need to be lower than historical levels, but substantial hiring will still be required in most commands and occupations.

- **Compensation reform.** The Office of the Deputy Chief of Staff, G-8, asked RAND Arroyo Center to analyze a proposal allowing vested reservists to receive military retirement benefits immediately upon retiring from the Selected Reserve, just as vested members of the Regular Army currently do. This analysis concluded that Army personnel costs could decrease by \$800 million per year, with no adverse consequences for the Regular Army force and higher Selected Reserve participation in midcareer years.
- **Disability system.** A portfolio of research for the Office of the Surgeon General; the Office of the Deputy Chief of Staff, G-1; and the Assistant Secretary of the Army for Manpower and Reserve Affairs has focused on the Integrated Disability Evaluation System (IDES), a process that evaluates whether a wounded, ill, or injured soldier is fit to continue serving, and if not, determines his or her baseline disability level prior to medical separation. These analyses explored ways in which the evaluation process could be improved, the number of caseloads the Army should plan and budget for through 2020, and the medical profiles of soldiers who were processed through the disability system.
- **Deployments.** A study sponsored by the Office of the Surgeon General assessed the effects on patients in garrison whose treatment may be interrupted when a medical provider deploys. It found that family members' access to health care is not impinged when providers deploy, and soldiers who did not deploy with their units slightly increase use of health care during those times. In general, military treatment facility capacity is not greatly affected when soldiers and medical care providers deploy.

- **A series of analyses** for the Office of the Deputy Chief of Staff, G-8, continues to shape the way in which the contributions of soldiers are measured and the extent to which the U.S. Army has accrued, and is beginning to lose, deployment-related experience. Seminal work in this area changed the conversation about Regular Army soldiers, demonstrating that most who appear to have never deployed have actually not yet deployed, as they are recent recruits, are forward stationed in other overseas locations, or have contributed to recent operations by directly supporting the mission from the continental United States. More-recent work examined the growing contributions of the U.S. Army to recent operations and the extent to which soldiers transitioning from the Regular Army to the Selected Reserve allowed the Army to retain some of this deployment experience.
- **Ongoing studies** for the Assistant Secretary for Manpower and Reserve Affairs; the Office of the Deputy Chief of Staff, G-1; and I Corps are extending this series of analyses by quantifying the value of this experience to the Army, and they are developing recommendations to improve Regular Army to Selected Reserve transitions and to facilitate transitions to the private sector.

Fort Hood Air Assault School qualifies soldiers to conduct air mobile and air assault helicopter operations.

U.S. Army photo by Sgt. Ken Scar





Forces and Logistics Program

"Research and analysis to improve the effectiveness and efficiency of the Army's operational and generating forces will help ensure the nation retains the Army it needs into the future."

—Bruce Held, director

Missions and Research Streams

The **Forces and Logistics Program** analyzes how advances in technology, management practices, and organizational theory can be applied to Army organizations to improve operational effectiveness in current and future conflicts against adaptive adversaries, enhance logistical support to Army units, continually improve efficiency, and ensure technical and logistical readiness.

The program sustains research streams in eight policy areas:

- understanding past, current, and possible future Army operations
- understanding and improving cyber and network capabilities
- improving Army acquisition and modernization
- assessing and applying technology to Army combat and support operations
- improving Army supply chain operations
- maintaining and managing Army equipment
- improving Army capabilities to deploy to and sustain in operational theaters
- ensuring technical and logistics readiness.

FY 2014 projects in these policy areas are listed on page 23.

Sponsors

Each study in the Forces and Logistics Program is sponsored by a senior Army leader and in some cases may be jointly sponsored by two or more leaders. Before accepting funding for any new study, we work closely with the sponsor and the sponsor's staff to ensure that the study focuses on a major policy concern and that its tasks are carefully scoped to allow objective, analytic research in a timely manner. Frequent sponsors include the Army Deputy Chiefs of Staff, G-2, G-3, G-4, G-6, and G-8; the Assistant Secretary of the Army for Acquisition, Logistics and Technology; major Army commands, such as the U.S. Army Materiel Command and the U.S. Army Forces Command; and, more recently, the program has been supporting such operational commands as the U.S. Army Pacific (USARPAC), I Corps, XVIII Airborne Corps, and the 82nd Airborne Division with research and analysis.

Research Highlights

The program strives to provide Army leadership with tools, concepts, and recommendations that they can quickly put to use. Several recent studies illustrate such impact:

- **Capabilities and capacities of Army forces.** In research for the G-8, Arroyo modeled Army deployments to assess risks that would arise from changes to force modernization, size, and composition over several different possible scenarios.
- **Enabling the Global Response Force (GRF).** In research for the 82nd Airborne community, Arroyo detailed how operations might unfold in regions worldwide for the Army's portion of the GRF.
- **Rebuilding an expeditionary Army.** A G-8-sponsored study detailed recent French operations in Mali to help the Army envision alternative approaches to performing expeditionary operations.
- **Operating in the Pacific.** A study sponsored by USARPAC analyzed new roles and missions for the Army as a result of the U.S. strategic rebalance toward the Pacific region and provided estimates of the level of effort that would be necessary to realize new missions.
- **Revamping open-source intelligence.** The Army has implemented several of Arroyo's recommendations regarding manpower and training in support of open-source intelligence capabilities.
- **Trading performance, schedule, and costs in acquisition.** Arroyo created a detailed analytic model to integrate risks from performance, schedule, and cost in acquisition programs to help the community track and make critical decisions about investments.
- **Operation Enduring Freedom drawdown.** Arroyo provided empirical data for a policy that dramatically reduced transportation costs by increasing reliance on mixed-mode movements—equipment was flown to nearby seaports and transferred to ships for movement to the continental United States (CONUS) versus flying directly to CONUS. Arroyo



A combat engineer deploys an unmanned aircraft during a simulated route clearance mission as part of a certification exercise.

U.S. Army photo by Staff Sgt. Heather Denby

also developed and transitioned tools for setting retention levels on a regional basis to manage the drawdown of sustainment stocks in theater, reducing both the workload in theater and the transportation costs of retrograding sustainment back to CONUS.

- **Enterprise resource planning (ERP) fielding.** Arroyo identified changes in the Army's ERP-based logistics information systems to improve the setting and management of inventory levels throughout the supply chain.
- **National-level inventory.** Arroyo identified inventory that is dormant, in long supply, or not available for issue and assisted the Army with modifying how inventory is positioned across distribution centers to leverage the Defense Logistics Agency's move to a three-hub distribution system.
- **Program manager (PM)-owned inventory.** Arroyo analyzed the processes for managing PM-owned inventories of secondary items and identified inventory that could offset future procurements or repairs.
- **Organizational clothing and individual equipment (OCIE).** Arroyo worked with the Army to reduce system-wide inventory requirements and the generation of excess inventory resulting from upgrades or changes in patterns.
- **Army Prepositioned Stocks (APS).** Arroyo developed a framework for assessing the effectiveness of APS across multiple scenarios to incorporate measures of robustness.
- **Part quality.** Arroyo integrated OPTEMPO and demand data to identify parts experiencing statistically significant

increases in failure rates and developed a web-based tool for item managers to gather additional diagnostic information about potential part-quality problems.

- **Logistics force structure.** Arroyo developed a tool that analyzed the supply and demand of logistics units over time and across multiple scenarios and their ability to mitigate any shortages. The result was a dashboard that can be used by logistics leadership to rapidly assess deployment risk by unit type.

Ongoing projects are addressing top concerns of the Army and nation, as the projects develop and understand their roles in meeting the nation's needs.

- **Combat vehicles for the future.** For the Maneuver Center of Excellence, Arroyo detailed a midterm strategy for the Army's combat vehicle fleet.
- **Getting to the fight.** As part of a consortium of analytic agencies in the Army and joint force, Arroyo is analyzing the policies, statutes, and laws governing how the Army prepares, deploys, and engages in operations to understand what might be done to increase their speed and deployability.
- **Building a coalition GRF.** As NATO is standing up new "tip of the spear" coalition-based forces for operations, Arroyo is analyzing how interoperability among armies is created.
- **ERP implementation.** Arroyo continues to conduct analysis to further leverage the integrated environment of the Army's ERPs to improve readiness and reduce support costs.

FY 2014 Projects by Program and Research Area

Strategy, Doctrine, and Resources

Assessing Operating Environments and Their Implications for the Army

- Army Force and Resource Requirements to Support AFRICOM
- Army Operational Roles in the Pacific
- Army Roles in U.S.-China Competitive Strategies
- Assessment of the Peaks and Valleys of Conflict over the Last 200 Years
- Changes in Power, Strategy, and Capabilities
- China Pivots to the Middle East
- Communicating the Army's Strategic Narrative
- Conflict Trends and Propensity for U.S. Intervention
- Cost of Regionally Aligned Forces
- Dialoging with China on North Korea
- Promoting Security Cooperation in the Asia-Pacific Through Humanitarian Assistance and Disaster Relief

Analyzing How the Operating and Generating Force Can Meet Their Requirements

- Analytic Support to the Asymmetric Operations Working Group
- Army QDR Analytic Support
- Assessment of Operational Performance of Army Units and Individuals

Analyzing AC/RC Institutional Issues

- Assessing Active/Reserve Force Mix Options
- Estimating Costs for Army Reserve Component Support of Military Engagement Missions
- A History of the Army Reserve Component: Historical Trajectory, Current State of the RC, and Recommendations for the Future
- An Independent Assessment of the Army's Total Force Mix Decision Process in Support of the President's Budget Request for Fiscal Years 2015–2019
- Reassessing the Army's Force Mix: Providing Needed Forces While Reducing Costs, Phase II

Security Cooperation and Developing Partner Capabilities

- Applying Security Cooperation as a Preventive Tool
- Assessing the Value of Regionally Aligned Forces in Army Security Cooperation

Learning from Past and Present Operations

- The Future of Warfare: Learning from the Past 12 Years
- Improving Integration Between Special Operations and Conventional Forces

Improving Risk Analysis and Resource Management

- The Army's Local Economic Effects
- Assessing the Army's Implementation of Its Federated ERP Strategy
- Cost Effective Use of Excess Property on Army Installations
- Enhancing the ARFORGEN Cost Tool (ACT)
- How to Use Public-to-Public Partnerships in the Department of Defense
- What the Army Should Stop Doing

Army War Games and Related Analyses

- Analytical Support to Unified Quest 2014
- Operational Support for JICM—2014

Personnel, Training, and Health

Total Force Management

- Boots on the Ground and Dwell Time for U.S. Forces: Implications on Unit Effectiveness, Training, and Soldier Well-Being
- Efficient Retirement Accrual Charges
- Maintaining the Capabilities and Efficiency of the Army Civilian Workforce
- Manpower for the Army Special Victims' Counsel Program
- Readiness of the Individual Ready Reserve
- Shaping the TRADOC Workforce: A Functional Analysis
- Sizing the Army Test & Evaluation Enterprise Workforce

Recruiting and Retention

- Army Accessions Prior Service-Civil Life Gains (PS-CLG) and Continuum of Service Market Potential Study
- Improve Special Forces Recruitment, Assessment and Selection, and Increase Retention to Successfully Man Army Special Forces and Reduce Manning Shortfall Impacts at the Tactical Level
- Improving the Army's Marketing for Recruitment, Hiring, and Retention of DA Civilians in Critical Occupations
- Marketing and Resources Needed to Meet Army's Future Personnel Requirements
- SROTC Unit Productivity and Proposed Reinvestment of Resources

Leader Development

- Effectiveness of the ROTC Officer Development Program
- Evaluation of Incultation of Army Core Values to Maintain and Build a Culture of Respect, Acceptance, and Inclusion of All Soldiers
- Identifying Optimal Leadership Information and Leadership Response for Localized Suicide Prevention
- Manpower and Professional Development Implications of the Regionally Aligned Forces Concept
- SHARP: Improving Guidance for Commanders and Identifying System Improvements

Training Readiness and Effectiveness

- Assessing Analytic Proficiency
- Enabling the Validation of Adaptability Training in the U.S. Army
- Establishing Empirically Derived Training Readiness Thresholds

Soldier and Family Wellness and Support

- Assessing Effects of Tour Length and Dwell Length on Soldier Health and Well-Being
- Assessing the Needs of Soldiers and Their Families
- Future Army Installations: Alternative Constructs
- Medical Conditions, Profiles, and Other Characteristics of the Integrated Disability Evaluation System (IDES) Soldier Population

Access to, Quality of, and Cost-Effectiveness of Health Care

- Encouraging Army Retirees and Their Family Members to Use the Military Health System
- R2C Program Synergy
- Synergies with Civilian Hospitals

Forces and Logistics

Understanding Past, Current, and Possible Future Army Operations in the 21st Century

- Analytic Support to the QDR Office: Assessing Close Support Capabilities and Needs for Future Conflicts
- Army Support of Joint Air Operations from Cluster Bases
- Assessing the Speed of Change
- Concept Options for Land-Based Operations in the Asia-Pacific
- Defining the Capacity and Capability to Seize and Secure WMD
- Enabling the Global Response Force to Meet Future Needs
- Metrics for Locally Focused Stability Operations
- The Role of Ultralight Tactical Mobility in Army Operations
- Strategic Framework for Army Capabilities and Capacity

Understanding and Improving Cyber and Network Capabilities

- Battlefield Cyber
- Building and Operationalizing the Cyber Mission Force
- Evaluation of Army Wideband Satellite Communications Bandwidth Needs
- Mission Command Readiness
- Structuring Open Source Intelligence in the US Army

Improving Army Acquisition and Modernization

- Analytic Support to the Ground Combat Vehicle Program
- Army System Safety Engineering Review
- Combat Vehicle Modernization for the Mid-Term (FY19–27)
- Systems Engineering Support to PM Biometrics

Assessing Technology Development and Its Application to Army Operations

- Defining Biometric Gold Standard Test Data
- Interfacing Agent-Based Simulation Tools with High-Resolution Network Models
- Rest-of-World Armies Comparison: Mission Command

Supply Chain Management

- Identifying Dormant and Long Supply Inventory
- Stock Positioning
- Transition of Program Manager (PM)—Owned Inventory to Sustainment Phase

Organizational Clothing and Individual Equipment

- Designing an Alternative OCIE Distribution System
- Managing OCIE Inventory Drawdown

Enterprise Resource Planning—Related

- Logistics Readiness Center (LRC) Supply Support Activity (SSA) Performance Metrics
- Managing Theater Inventories During OEF Drawdown
- Metrics and Analysis to Support Fielding of Global Combat Support System (GCSS)—Army (GCSS-A)

Army Programming/Logistics Readiness

- Improved Empirical Methods of Forecasting Second Destination Transportation (SDT) Budget Requirements
- Supporting the Implementation and Execution of the Department of the Army's Emerging Concepts for "Seeing Equipment Readiness"

Fleet Management

- Implementation of Automated Quality Monitoring Tools
- Potential to Reduce the Use of Army's Non-Tactical Vehicles

Deployability and Sustainability

- Army Prepositioned Stocks (APS): Setting the Theaters for a Broad Spectrum of Future Contingencies
- Assessment of AC/RC Mix for Logistics Force Structure
- Examining the Use of Theater Provided Equipment in Future Contingencies: Policies, Processes, and Trade-Offs
- Quality of Life for Contingency Bases
- Strategies and Tools for Managing Retrograde from Afghanistan
- Supporting the Implementation and Execution of the Army's Operational Energy Campaign

Selected 2014 Publications

Assessing Locally Focused Stability Operations

www.rand.org/t/RR387

Assessing Security Cooperation as a Preventive Tool

www.rand.org/t/RR350

Assessing the Army's Active-Reserve Component Force Mix

www.rand.org/t/RR417-1

Changing the Army's Weapon Training Strategies to Meet Operational Requirements More Efficiently and Effectively

www.rand.org/t/RR448

Cost Considerations in Cloud Computing

www.rand.org/t/PE113

The Deployment Life Study

Methodological Overview and Baseline Sample Description

www.rand.org/t/RR209

Developing Army Leaders

Lessons for Teaching Critical Thinking in Distributed, Resident, and Mixed-Delivery Venues

www.rand.org/t/RR321

Enhanced Army Airborne Forces

A New Joint Operational Capability

www.rand.org/t/RR309

France's War in Mali

Lessons for an Expeditionary Army

www.rand.org/t/RR770

The Future of the Army's Civilian Workforce

Comparing Projected Inventory with Anticipated Requirements and Estimating Cost Under Different Personnel Policies

www.rand.org/t/RR576

How Deployments Affect the Capacity and Utilization of Army Treatment Facilities

www.rand.org/t/RR257

How Much Will Be Enough?

Assessing Changing Defense Strategies' Implications for Army Resource Requirements

www.rand.org/t/RR239

Improving Strategic Competence

Lessons from 13 Years of War

www.rand.org/t/RR816

Innovative Leader Development

Evaluation of the U.S. Army Asymmetric Warfare Adaptive Leader Program

www.rand.org/t/RR504

Lessons Learned from the Afghan Mission Network Developing a Coalition Contingency Network

www.rand.org/t/RR302

Making the Reserve Retirement System Similar to the Active System

Retention and Cost Estimates

www.rand.org/t/RR530

Measuring and Retaining the U.S. Army's Deployment Experience

www.rand.org/t/RR570

Methods for Identifying Part Quality Issues and Estimating Their Cost with an Application Using the UH-60

www.rand.org/t/RR369

The Other Quiet Professionals

Lessons for Future Cyber Forces from the Evolution of Special Forces

www.rand.org/t/RR780

Rapid Acquisition of Army Command and Control Systems

www.rand.org/t/RR274

Sourcing and Global Distribution of Medical Supplies

www.rand.org/t/RR125

Special Warfare

The Missing Middle in U.S. Coercive Options

www.rand.org/t/RR828

Strategy-Policy Mismatch

How the U.S. Army Can Help Close Gaps in Countering Weapons of Mass Destruction

www.rand.org/t/RR541

The U.S. Army in Asia, 2030–2040

www.rand.org/t/RR474

The U.S. Army in Southeast Asia

Near-Term and Long-Term Roles

www.rand.org/t/RR401

Vulnerability Assessment Method Pocket Guide A Tool for Center of Gravity Analysis

www.rand.org/t/TL129

Army personnel can request a complete list of 2014 publications from Marcy Agmon at 310.393.0411, x6419, or Marcy_Agmon@rand.org

Summaries

This section presents summaries of recently published research.

- Best Practices for Assessing Locally Focused Stability Operations
- Closing the Strategy-Policy Gap in Countering Weapons of Mass Destruction
- Developing a U.S. Strategy for Dealing with China—Now and into the Future
- Evaluating the Development of Adaptable Army Leaders and Teams
- Filling the Missing Middle with Special Warfare
- How Can the Army Retain Accrued Deployment Experience?
- Lessons from 13 Years of War Point to Better U.S. Strategy

Best Practices for Assessing Locally Focused Stability Operations

KEY POINTS

- Locally focused stability operations (LFSO) are a powerful way to help destabilized areas create safety, foster economic growth, and establish accountable governance.
- But assessment must be done properly to ensure that the hard work of LFSO practitioners actually helps achieve strategic goals.
- Assessment planning should be done concurrently with campaign or mission planning and should rely on a commander's theory of change, which will drive the metrics chosen.
- Assessment should be done by trained staff in support of assessment-aware commanders, as part of a process that includes robust input from subordinate commands and staff.
- Assessment should favor real and potentially messy data over clean but inaccurate data.

In recent years, U.S. and NATO forces have practiced locally focused stability operations (LFSO) to help Afghan villages create their own defensively oriented local police units, bring in appropriate development projects, and create links with district governments. LFSO are a bottom-up approach to fostering security, development, and governance—an approach that works with and through communities experiencing conflict. While often facilitated by U.S. military advisers, LFSO are ideally a whole-of-government, host nation (HN)-led effort.

Because every LFSO is distinctive, it is hard for LFSO practitioners to assess if mission objectives are being met, if LFSO personnel have what they need to achieve mission objectives, and if new developments require adjusting objectives or methods. But doing such assessments is important, both to support specific LFSO efforts and to suggest best practices to inform evolving doctrine for stability operations.

RAND Corporation researchers identified challenges related to LFSO assessment, surveyed relevant practices, and created concrete guidance for assessment planning, based

on reviewing available tools, prior research, and input from assessment experts and LFSO practitioners.

Challenges and Solutions for LFSO Assessment

The study identified nine challenges that commanders and assessment experts face when conducting LFSO assessments and proposed some solutions to address them. For example, the United States, coalition partners, HNs, nongovernmental organizations, and other stakeholders may have competing visions of stability. To address this challenge, the study suggests establishing an interagency/international working group to identify the set of variables to track across all lines of effort (security, governance, development) and developing a customized assessment capability that is accepted by the broader stakeholder community.

Best Practices for Designing LFSO Assessment

When it comes to designing an LFSO, three best practices emerged from the study. First, *assessments should be based on a clear theory of change*—how and why the commander believes the tasks that have been laid out will result in the desired end state. The theory of change is the underlying structure that connects activities, desired outcomes (effects), and superordinate objectives through a chain of consequences and illustrates how outputs at a given stage may become inputs at the next stage. Building a clearly articulated theory of change will enable the assessment team to identify appropriate inputs, outputs, and outcomes to measure.

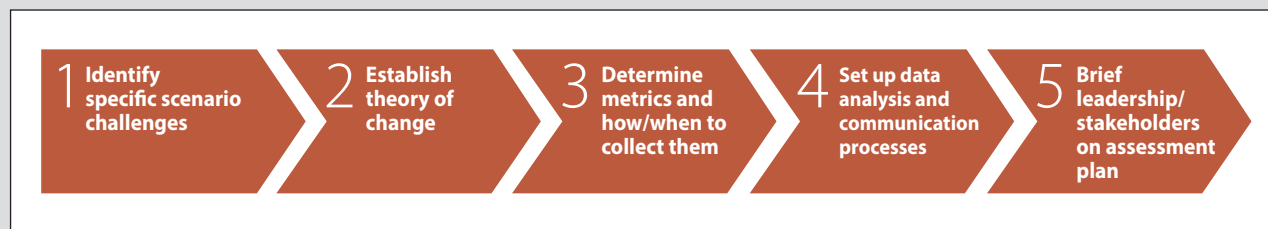
Second, *assessments should be commander-centric*—they should directly support the commander's decisionmaking. This also means the assessment process should start during campaign or mission planning and be reviewed and assessed regularly to determine if changes are needed.

Finally, *assessments should triangulate the truth*—they should fully exploit the data and methods available, leveraging the strengths of a given source against the weaknesses of others to obtain valid estimates for the ground truth.

Planning an LFSO Assessment

The figure shows the five-step process for planning an LFSO assessment that is derived from the study findings.

Five-Step Process for Planning LFSO Assessments



First, *specific challenges to reliably and validly assessing an LFSO must be identified and documented at the beginning of the planning process*. In particular, the assessment team must also identify and mitigate the potential for biased data stemming from organizational self-interest.

Establishing the theory of change behind the operation is a critical second step. It would include identifying LFSO actions (e.g., recruiting, training, and equipping), chain of consequences (e.g., improved security), immediate goals (e.g., local guard force established), main goals (e.g., sustainable stability in a village), and higher-level goals (e.g., reduced threat to the HN government), and how they all connect.

The theory of change should drive the third step—*determining the kinds of metrics to use and the data to be collected and how and when to do that*. The metrics should be organized by line of effort (security, development, governance, or stability), metric type (quantitative, qualitative, or mixed data), collection frequency, and the parties charged with information collection (the assessment team, LFSO teams in the villages, HN staff, or others). As one example, if one metric is “number of guard patrols per week,” these quantitative data can be collected by the LFSO team on site, every other week.

Processes to analyze the collected data and communicate the results to decisionmakers must be developed—the fourth step. Practitioners should remember that too much aggregation of data obfuscates nuance but that too little aggregation can overwhelm analysis. Results should be presented so they efficiently and clearly summarize results but can support a more detailed exploration of data if the need arises.

After the first four steps of the planning process, the final step involves *discussing the assessment with the leaders involved in the LFSO effort*. The goal is to obtain additional guidance and—after potentially revising the assessment plan to address any concerns—to gain approval and support from the organizations involved.

Conclusion

LFSO can be a powerful way to help destabilized areas create safety, foster economic growth, and establish accountable governance. But LFSO practitioners must ensure that their hard work actually helps achieve those strategic goals. Thus, LFSO assessment is vital and, if done properly, gives LFSO practitioners and their commanders the needed perspective of their actions. Specifically, assessment planning should be done concurrently with campaign or mission planning, should rely on a commander’s theory of change, should be done by trained assessment staff in support of assessment-aware commanders as part of a process that includes robust input from subordinate commands and staff, and should favor real and potentially messy data over clean but inaccurate data.

The research described in this summary is published in *Assessing Locally Focused Stability Operations*, by Jan Osburg, Christopher Paul, Lisa Saum-Manning, Dan Madden, and Leslie Adrienne Payne, RR-387-A, 2014. The Asymmetric Warfare Group sponsored the research.
www.rand.org/t/RR387

Closing the Strategy-Policy Gap in Countering Weapons of Mass Destruction

KEY POINTS

- There is a serious gap between the magnitude of the weapons of mass destruction (WMD) threat and the Department of Defense's (DoD's) resource priorities for counter-WMD missions.
- The size, complexity, and strategic importance of WMD-elimination (WMD-E) operations will require a joint task force and substantial ground forces.
- The best estimate in a collapsed North Korea scenario is 188,000 U.S. ground troops.
- Policymakers must determine the number and size of WMD sites the United States is prepared to assault, secure, and neutralize simultaneously.
- DoD should promote countering WMD to the status of missions that drive resourcing priorities.
- The Army should assess requirements for the WMD-E mission.

Two successive presidents have determined that weapons of mass destruction (WMD) pose the greatest of threats to the American people. Further, the Department of Defense (DoD) has named countering WMD a primary U.S. military mission. Paradoxically, DoD has decided that counter-WMD missions will not drive the capacity of U.S. forces, which leads to a potentially critical gap. Relatively little investment has been made in the forces and capabilities needed to eliminate WMD arsenals vulnerable to theft as a result of civil war, state failure, or other pathways to loss or transfer of WMD.

RAND Corporation researchers addressed the gap between national security strategy and DoD's resource policy relating to force size (capacity) and structure (capabilities) and showed the magnitude of the force structure required to eliminate WMD, including the types and size of Army forces.

What Is the Gap Between WMD Proliferation Threats and Resourcing Priorities?

There appears to be a serious gap between the magnitude of the WMD threat and DoD's resource priorities. Specifically,

the Defense Strategic Guidance does not elevate countering WMD to the status of threats that drive military capacity or military capabilities. Also, less than 2 percent of the budget for countering WMD appears to be allocated to eliminating WMD stockpiles.

What Is Needed for Potential WMD-E Operations?

Eliminating WMD—and the industrial-scale capabilities to build and maintain them—is very challenging. As such, a joint task force (JTF) should be assigned the WMD-elimination (WMD-E) mission. This JTF should include specially trained and equipped multifunctional and combat-capable task forces (TFs) responsible for cordoning off and conducting search operations in site facilities and for finding, identifying, and securing or removing WMD, materials, and components. The TFs must also be large and capable enough to provide their own security in the context of a broader joint campaign.

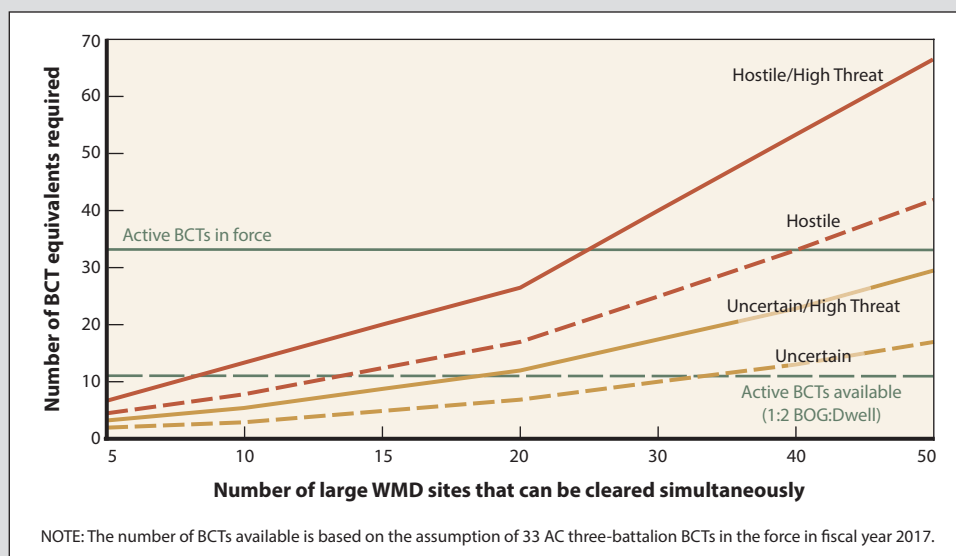
Ground forces are well suited to performing the WMD-E mission, and Army forces, in particular, are especially capable of leading these kinds of joint operations.

How Many Ground Forces Could WMD-E Operations Require?

Analyses of illustrative scenarios converge on a striking finding: *The potential ground force requirements for WMD-E are substantial; they could consume most or all the Army's ground maneuver and assault aviation forces.* The figure illustrates this finding. It shows the ground force requirements in terms of the estimated number of brigade combat teams (BCTs) for WMD-E operations against different assumed numbers of WMD sites, which will be assaulted concurrently in initial operations in four different threat environments. The figure depicts 33 active component (AC) BCTs with 11 operationally available under a 1:2 boots-on-the-ground (BOG):Dwell rotation policy (one BCT forward, one preparing for deployment, and one in reset from a previous deployment).

The number of North Korean WMD sites are estimated to be as high as 200. If the threat environment were Hostile/High Threat, Army force structure limits would be reached by simultaneously clearing 23 large WMD sites—even if all Army BCTs were committed with no rotation. Only eight large WMD sites could be simultaneously cleared if the

Number of BCTs Required for WMD-E Operations at Large WMD Sites



Army's BCTs were committed at a 1:2 BOG:Dwell ratio. At a 1:2 ratio, AC forces can clear 18 sites simultaneously in an Uncertain/High Threat environment or 34 sites simultaneously in an Uncertain environment.

The authors' best estimate is that 188,000 U.S. ground troops would be needed for the WMD-E mission in a collapsed North Korea scenario—to seize key sites, secure them, search and clear them of WMD, and establish and protect the logistics routes needed to sustain operations. This estimate could be as low as 73,000 if the risk from North Korea military remnants were low, or as high as 273,000 if the environment worsened to become High Threat. Importantly, these estimates exclude any additional forces to conduct stability operations, humanitarian assistance, large-scale combat operations against intact state military forces, or other counter-WMD missions.

The findings have two key implications. First, joint force commanders—not just WMD specialists—must understand WMD-E operations and carefully consider, in contingency and operational planning, their potentially large force requirements. Second, the potential claim of WMD-E operations on available Army force structure is sufficiently high that DoD resource policy decisions involving Army force structure should consider the conventional ground force requirements of WMD-E operations in DoD force sizing.

Concluding Observations

To close the national strategy–resource policy gap, policy-makers must first determine the number and size of WMD sites the United States should be prepared to assault, secure, and neutralize simultaneously. Then, DoD should:

- Promote countering WMD to the status of missions that drive resourcing priorities.
- Assess the force requirements for missions countering and eliminating WMD across a wide range of scenarios and in both contingency and operational campaign planning.
- Perform a capabilities gap analysis of countering and eliminating WMD.

For its part, the Army should:

- Consider preparing each of its three corps for this mission, with I and III Corps acting as JTF-elimination in the Pacific Command and Central Command theaters, respectively, and XVIII Airborne Corps available worldwide.
- Develop alternative concepts of operations for conducting WMD-E operations in a joint campaign and assess the number of simultaneous WMD-E TFs that could be supported by existing and planned technical units.

The Army cannot redress gaps in countering WMD alone. But the Army—properly resourced—is essential to protecting the American people from this “gravest of threats.”

The research described in this summary is published in *Strategy-Policy Mismatch: How the U.S. Army Can Help Close Gaps in Countering Weapons of Mass Destruction*, by Timothy M. Bonds, Eric B. Larson, Derek Eaton, and Richard E. Darilek, RR-541-RC, 2014. That report resulted from the RAND Corporation's continuing program of self-initiated independent research. Support for such research is provided, in part, by donors and by the independent research and development provisions of RAND's contracts for the operation of its U.S. Department of Defense federally funded research and development centers. www.rand.org/t/RR541

Developing a U.S. Strategy for Dealing with China—Now and into the Future

KEY POINTS

- China and the United States share common global interests but have real potential for friction in the Western Pacific.
- The United States needs a strategy that balances protecting U.S. interests in East Asia and cooperating with Beijing globally.
- The U.S. Army will have six key roles in supporting U.S. strategy in the Asia-Pacific: (1) provide training and support to regional partners, (2) defend key facilities, (3) provide key enabling support to the joint force, (4) project expeditionary combat power, (5) contribute to new conventional deterrent options, and (6) engage with the People's Liberation Army.

Asia as a whole is important to the United States, but U.S. military strategy in Asia focuses on China. Whatever military strategy is pursued should account for changes that will reshape Asia's security environment down the road. China's strong economy and sustained investment in military modernization has the potential to be the most powerful disruptive influence in the future security environment in the Western Pacific.

A RAND Arroyo Center report looked at Asian security challenges in 2030–2040, examined U.S. and Chinese interests and how the U.S. Department of Defense (DoD) could help defend those interests, and explored the role the U.S. Army would play in a DoD strategy.

Chinese and U.S. Interests: Global Convergence, Regional Divergence

U.S. policymakers must be prepared for several distinct Asian futures:

1. *systematic continuity*—China continues to operate within the international system, though perhaps more assertively
2. *hegemonic China*—China uses or threatens to use force to secure historic claims and prevail in new disputes
3. *systemic breakdown*—economic success ceases to maintain the international political order, or the region suffers some significant political shock, with governments

seeking to secure popular support by offering something other than rising prosperity.

The current situation points to something between the first two futures. China is asserting itself regionally but not seeking conflict, because a peaceful and stable international environment best serves its three core national interests—regime survival, social order, and economic growth.

As for U.S. interests, a mutually beneficial relationship with China is important. Globally, the United States shares important economic, political, and security interests with China, such as good trade relations, control of extremism, and limits on proliferation. But there is regional tension between Chinese and U.S. interests, with increasing concern that China may, and could, threaten U.S. allies and interests in the Western Pacific.

Balancing Global Shared Interests with Regional Tensions

Protecting and advancing U.S. interests in Asia will require a strategy for balancing shared global interests while deterring Chinese encroachment on the core interests of the United States and its allies and friends. Theoretically, this is possible; practically, it will be very difficult.

U.S. strategy should have clear and realistic goals that flow from U.S. interests, should account for U.S.–Chinese cooperation on global security and economic issues, should be flexible and responsive to Chinese policy changes and seek to influence such decisions favorably, and should reflect the realities in Asia given China's real military and economic power. Developing such a strategy would rest on five key pillars: (1) the U.S. ability to deliver and sustain combat and support forces and strike rapidly, (2) the advantage of having highly capable and reliable allies, (3) the creation of operational difficulties for China to project force beyond its borders and over water, (4) the exploitation of technology to reduce vulnerability to Chinese targeting, and (5) a range of non-nuclear options for U.S. leaders.

U.S. Military Strategy and Army Roles in It

The U.S. military will also play a role in encouraging U.S.–Chinese cooperation in the global context and helping

Key Army Roles in Support of U.S. Strategy for the Western Pacific

1. Provide training and support to regional partners	Improved partner capabilities can deter Chinese adventurism, extend the timeline for U.S. intervention, and stiffen defense against attack; most Asian militaries are ground force-centric, so the Army is best suited to establishing lasting ties with most of them.
2. Defend key facilities	Army theater missile defense assets will provide the vital last line of defense for dozens of critical targets—e.g., command and control facilities, air bases, ports, logistics depots and hubs, critical geography, and host-nation infrastructure and urban populations.
3. Provide key enabling support to the joint force	The Army is responsible for providing many enabling capabilities to the joint force under Title 10 of the United States Code (e.g., logistics, communication, engineering, and medical care).
4. Project expeditionary combat power	Rapid deployment of Army combat units could, in a crisis, communicate to Beijing U.S. resolve and commitment and provide a range of critical capabilities.
5. Contribute to new conventional deterrent options	The Army should help develop the self-defense capacity of Asian allies and friends and new U.S. anti-access/area-denial approaches to help turn China's anti-access/area-denial approach back on itself and limit China's ability to project coercive power beyond its borders.
6. Engage with the People's Liberation Army	Robust army-to-army relations should be part of the overall U.S. effort to improve understanding and increase transparency between the two countries' militaries.

extend that cooperation into Asia and the Western Pacific. U.S. military strategy must avoid creating situations where either side's calculations begin to shift in favor of preemption. Rather than inflexible concepts of operations, it should include deterrent gestures that show an ability to impose costs on China without increasing the vulnerability of U.S. forces and allies. Ultimately, the United States should place the onus of determining whether China will be isolated or involved in regional security arrangements squarely on Beijing.

Conclusion

The proposed strategy will be both technologically and operationally challenging, but the greatest priority is to not sacrifice the goal of U.S.–China cooperation unless no other option exists.

The research described in this summary is published in *The U.S. Army in Asia, 2030–2040*, by Terrence K. Kelly, James Dobbins, David A. Shlapak, David C. Gompert, Eric Heginbotham, Peter Chalk, and Lloyd Thrall, RR-474-A, 2014.
www.rand.org/t/RR474

Evaluating the Development of Adaptable Army Leaders and Teams

KEY POINTS

- Students were extremely satisfied with course structure, content, and delivery.
- There was substantial improvement in self-efficacy and interest and an increase in the perceived need for adaptive performance, as well as related leader behaviors, in the students' current jobs.
- Students showed a considerable increase in knowledge of Asymmetric Warfare Adaptive Leader Program (AWALP) concepts.
- AWALP graduates reported substantial application of adaptive performance principles on the job, especially with coaching, training, delegating, and seeking subordinate input.
- AWALP, supported by systematic course evaluation, provides a promising approach for training as the Army seeks to further develop adaptable leaders and teams.

The U.S. Army's shift from a doctrine of "command and control" to "mission command" calls for adaptable soldiers and leaders—individuals who can rapidly recognize changes in the environment, identify critical elements in unfamiliar situations with less-than-perfect information, and facilitate timely action to meet new requirements, all while under considerable stress. The principles of mission command also emphasize leaders who value a bottom-up rather than a top-down approach and who develop teams that can anticipate and manage transition.

The Army's Asymmetric Warfare Group (AWG) implemented the Asymmetric Warfare Adaptive Leader Program (AWALP)—a ten-day course to enhance adaptive performance in leaders and promote innovative solutions in training for and conducting unified land operations. The course is based on a theory of adaptive performance that posits eight dimensions of such performance, including solving problems creatively and dealing with changing or ambiguous

situations. Although much Army training focuses on standardized procedures for accomplishing tasks, AWALP emphasizes an *outcomes approach*, focusing on the results the commander intends to achieve.

RAND Corporation researchers evaluated AWALP (using data from 104 students enrolled in three AWALP courses in 2013), addressing multiple aspects of individual and team adaptive performance and identifying potential areas for improvement in AWALP curriculum and delivery. Researchers also provided a set of instruments and protocols to foster ongoing assessment and improvement in AWALP and in other courses or events that include adaptive performance training.

The Effectiveness of AWALP

Multiple measures of adaptive performance—including piloting new ones—were used to assess a range of training outcomes. The evaluation assessed *reactions* to the course and changes in *attitudes* and *learning* through pretraining and posttraining surveys and tests. Researchers also developed a measure to assess adaptive performance at the team level for practical exercises, using both the students and guides (i.e., instructors) as raters. Finally, the evaluation assessed *perceived transfer performance*—how training results in payoffs to the organization—by conducting telephone interviews with AWALP graduates and their supervisors about how graduates apply AWALP principles on the job and the longer-term impact of the course on behavior and attitudes related to adaptive performance.

Overall, *the results of this evaluation provide evidence of AWALP success across a range of measures*. For example, students were extremely satisfied with the course structure, content, and delivery, attributing learning largely to course content and training methods; they also showed increased knowledge of AWALP concepts, with average scores on a multiple-choice test of 60 percent correct pretraining and 76 percent correct posttraining. Moreover, graduates reported substantial application of AWALP principles.

Recommendations and Lessons

Students had few recommended improvements to AWALP, but other evaluation results point to ways to improve

Key Recommendations

Improvements to AWALP	<ul style="list-style-type: none"> • Put more emphasis in the curriculum on responding to potential challenges in implementing adaptive performance principles on the job. • Provide additional feedback to students about individual and team adaptive performance. • Integrate additional concepts about team adaptive performance into the curriculum.
Ongoing evaluation of AWALP	<ul style="list-style-type: none"> • Continue to administer the knowledge test, questions about attitudes toward adaptive performance and related leader behaviors, course reactions, and ratings of teams, but make some changes to reduce respondent burden. • Assess additional aspects of team performance associated with adaptive performance. • Continue to assess training transfer through interviews with course graduates to assess how they are using AWALP principles and to identify lessons learned.
Future evaluation of AWALP	<ul style="list-style-type: none"> • Conduct systematic behavioral observations during the course to further evaluate individual and team adaptive performance. • Assess training transfer by measuring the association of individual performance in training with subsequent job performance, where graduates' supervisors would provide independent, quantifiable ratings of job performance. • Modify recruiting processes to improve success in obtaining feedback from supervisors.

AWALP and the future assessment of the course. The table summarizes key recommendations.

To assist related efforts by the U.S. Army's Training and Doctrine Command (TRADOC), the researchers proposed two options for expanding the AWALP approach. One is to increase the number of students receiving training, either by increasing throughput in the current course or by continuing AWG's efforts to stand up local versions of AWALP through mobile teams to teach trainers. Another way to disseminate AWALP more broadly is to incorporate adaptive performance principles into existing professional military education courses, such as advanced leader courses for noncommissioned officers. TRADOC can further support mission command principles by creating a follow-on course that expands instruction at the team level, addressing such topics as shared mental models, transactive memory systems, team trust, and team facilitation.

Conclusion

The shift in Army doctrine from command and control to mission command calls for profound changes in leader and team conduct, with a concomitant transformation in training. AWG's successful development and implementation of AWALP exemplifies mission command principles in terms of both course content and how it is taught. AWALP, supported by systematic course evaluation, provides a promising approach for the Army as it seeks to further develop adaptable leaders and teams.

The research described in this summary is published in *Innovative Leader Development: Evaluation of the U.S. Army Asymmetric Warfare Adaptive Leader Program*, by Susan G. Straus, Michael G. Shanley, Carra S. Sims, Bryan W. Hallmark, Anna Rosefsky Saavedra, Stoney Trent, and Sean Duggan, RR-504-A, 2014.
www.rand.org/t/RR504

Filling the Missing Middle with Special Warfare

KEY POINTS

- Special warfare (SW) can serve as a “missing middle” for interventions between committing conventional forces and using precision-strike capabilities.
- This option requires developing a campaign mind-set, operational art, and the attendant planning capabilities for SW campaigns.
- SW campaigns have both advantages (e.g., improving understanding and shaping of the environment) and risks (e.g., having undesirable partner behavior); the risks can be mitigated, but rarely resolved.
- SW can be used to meet strategic challenges as part of armed forces missions (e.g., provide a stabilizing presence, supporting a distant blockade, and countering genocide).

Despite policymakers’ antipathy toward committing conventional forces, they still must act to protect U.S. interests. Short of committing conventional forces, they can unilaterally intervene using precision-strike capabilities from unmanned aerial systems (or drones), direct action by special operations forces (SOF), and aircraft and Tomahawk missiles. But such options may be too little to compel desired changes in behavior.

Between these two options, there is a “missing middle” for intervention that can be filled by special warfare (SW). This alternative requires developing a “SW campaign” mind-set, operational art, and the attendant planning capabilities. SW involves campaigns to *stabilize a friendly state* (e.g., foreign internal defense [FID]) or *destabilize a hostile regime* (e.g., unconventional warfare [UW]) by operating through and with local state or nonstate partners, rather than through unilateral U.S. action. SW is not new, but more than a decade of focus on counterterrorism and large-scale counterinsurgency has atrophied SW campaign skills in the military and diminished the appreciation of its use as a strategic tool in the policy community.

A RAND Corporation report examines what characterizes SW, its advantages and risks, and its uses to meet strategic challenges as part of armed forces missions.

What Are Key SW Characteristics?

SW campaigns are not just an SOF activity—they involve the comprehensive orchestration of U.S. government capabilities to advance policy objectives. Specifically, such campaigns (1) stabilize or destabilize the targeted regime; (2) use local partners as the main effort; (3) maintain a small U.S. footprint in the targeted country; (4) are typically of long duration and may require extensive preparatory work better measured in months (or years) than days; (5) require intensive interagency cooperation (the Office of the Secretary of Defense [OSD] may be subordinate to the State Department or the CIA); and (6) use methods that influence the political coalitions that sustain or challenge power, from tactical to strategic levels.

What Are SW’s Advantages and Risks?

SW can improve the understanding and shaping of the environment, enable the United States to pursue cost-imposing strategies, help policymakers manage escalation and credibility risk, and provide more-sustainable solutions.

SW campaigns are often placed at risk by divergent partner objectives, ineffective partner capability, unacceptable partner behavior, policy fratricide, and disclosure. All these risks can be mitigated, but rarely resolved.

How Can SW Be Used to Meet Strategic Challenges?

Given the primary U.S. armed forces missions and the history of SW operations, researchers identified eight illustrative campaign types that might address strategic challenges, as shown in the table. These campaign types do not exhaust the ways SW can be employed to address these strategic challenges; rather, they illustrate scenarios that could be used for contingency and force planning.

Conclusion

When the United States seeks to achieve its goals through SW, it will require a different conceptual model to design and conduct campaigns from what it is accustomed to.

How SW Can Be Used to Meet Strategic Challenges

U.S. Armed Forces Primary Missions	Illustrative SW Campaign Type
Deter and defeat aggression	1. Defensive hybrid guerrilla warfare: Deter revisionist states with the prospect of fighting against a protracted insurgency armed with high-end tactical weapons and operational depth.
Project power despite anti-access/area denial (A2/AD) challenges	2. Counter A2/AD: Employ nonstate actors to disrupt targeted state's A2/AD capabilities. 3. Support to a distant blockade: Degrade a peer competitor's access to overseas resources crucial to its economic growth and political stability.
Combat weapons of mass destruction (WMD)	4. Covert FID for eliminating WMD: Provide direct support to a partner state to strengthen the security of its WMD assets and indirect support by using unilateral U.S.-sponsored networks. 5. Counterproliferation against a global network: Interdict and degrade the global proliferation of black markets and front companies.
Provide a stabilizing presence	6. FID in a fractured state: Build governance and security capacity in a state with multiple competing sources of authority and legitimacy. 7. Building a regional security exporter: Stabilize a partner state through security and economic assistance to enable its regional engagement as a security provider.
Conduct humanitarian, disaster relief, and other operations	8. Counter-genocide UW: Organize, train, and equip for self-defense and evasion a social group targeted for genocide by the incumbent regime.

This is because SW works principally through local actors, employs political warfare methods, and requires the integration of a much broader suite of U.S. government agency capabilities than are typically envisioned in conventional campaigns (e.g., economic sanctions). SW is not, in military parlance, purely a shaping effort, which implies an effort to either prevent or set the conditions for success in conflict. Nor is it purely a supporting effort to conventional campaigns. It is a way of achieving strategic goals, and given recent trends in security threats to the United States and

its interests, SW may often be the most appropriate way of doing so. Thus, the U.S. national security community needs to begin thinking seriously about SW capabilities, authorities, and options in strategic and operational planning.

The research described in this summary is published in *Special Warfare: The Missing Middle in U.S. Coercive Options*, by Dan Madden, Dick Hoffmann, Michael Johnson, Fred Krawchuk, John E. Peters, Linda Robinson, and Abby Doll, RR-828-A, 2014. www.rand.org/t/RR828

How Can the Army Retain Accrued Deployment Experience?

KEY POINTS

- Through years of large-scale deployments to combat operations in Iraq and Afghanistan, the Army acquired a great deal of deployment-related experience.
- As operations end and experienced soldiers are replaced with new recruits, the Army could lose more than half its accrued deployment experience over the next five years.
- The Reserve Component (RC) is an important mechanism for retaining deployment-related experience, not only for Reserve and Guard soldiers but also for Active Component (AC) soldiers if they choose to transition to the RC.
- Currently, among those leaving the AC, the soldiers who possess the bulk of deployment-related experience do not choose to transition to the RC, and are instead leaving the Army altogether.
- Actions to improve AC transitions to the RC should be informed by an understanding of how much deployment experience is valuable and what types of deployment experience are most critical to retain.

Previous RAND Arroyo Center research showed that the Army has provided the bulk of deployed U.S. troops since 9/11, accruing substantial levels of deployment-related experience. But three factors will reduce the rate of accumulation. First, with combat operations ending, the number and pace of deployments are expected to decline. Second, as soldiers separate, the Army loses its deployment experience, and replacements are new recruits without any experience. Third, ongoing reductions in Active Component (AC) end strength could exacerbate this second factor, depending on how reductions are applied across the force. But if soldiers with deployment experience who are separating from the AC choose to affiliate with the Reserve Component (RC)—either the Army National Guard (ARNG) or the U.S. Army Reserve (USAR)—the Army will still have ready access to their experience and skills.

A new Arroyo study extends the earlier analyses by updating the Defense Manpower Data Center (DMDC)

data on soldiers and deployments through December 2012; it then analyzes the deployment experience of ARNG and USAR personnel in more depth and incorporates information on the retention of deployment experience accumulated in the AC through RC transitions since 9/11.

A Large but Declining Base of Deployment-Related Experience

Consistent with previous research, the Army has provided most of the deployed troop-years between September 2001 and December 2012—1.65 million across the AC, ARNG, and USAR—accounting for almost 60 percent of all deployed troop-years from all the services.

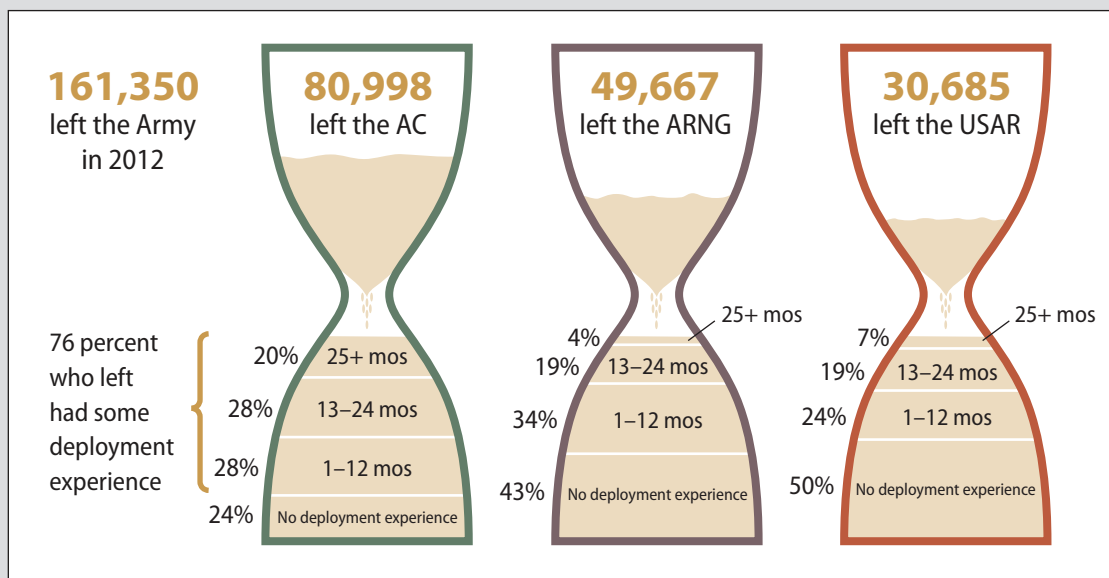
But the accumulation rate has decreased in recent years. Army soldiers were deployed for over 180,000 troop-years in 2009, but just over 100,000 troop-years in 2012. With this decline has come a loss in deployment-related experience resident in the Army. By December 2012, Army personnel had collectively accumulated almost 1 million troop-years of deployment experience—around 60 percent of the 1.65 million deployed troop-years the Army had accrued since 9/11. As more people with deployment experience leave and less experience is accumulated through new deployments, the overall net amount of deployment experience will decrease.

Preserving Deployment-Related Experience in the RC

Some of RC soldiers' deployment experience was acquired when those soldiers were members of the AC. As of December 2012, approximately 27 and 11 percent of the deployment experience resident in the USAR and ARNG, respectively, had been acquired during soldiers' previous service in the AC. This finding highlights an opportunity for the Army to preserve some of its accrued deployment experience as its AC end strength declines: Encourage soldiers with deployment experience who are leaving the AC to affiliate with either the ARNG or USAR.

From September 2001 through December 2012, roughly 20 to 35 percent of soldiers separating from the AC affiliated with either the ARNG or USAR within two years. Retaining these soldiers has allowed the Army to retain roughly 20 to 35 percent of the deployment experience leaving the

How Deployment Experience Slipped Away in 2012



AC. But although these percentages increased from 2004 to 2008, they have declined appreciably since then. Even at the highest point of retaining deployment experience in the RC (34 percent in 2008), the data imply that soldiers who possess the bulk of deployment-related experience when leaving the AC did *not* choose to transition to the ARNG or USAR but instead left the Army altogether.

The analyses allow us to show the loss of personnel—and deployment-related experience—across the AC and the ARNG and USAR (see the figure). Between December 2011 and December 2012, for example, more than 161,000 soldiers left the Army, and 65 percent of them had accumulated some deployment experience during their Army careers (not shown). As shown, 76 percent of AC soldiers leaving the Army had some deployment-related experience, and about 20 percent had more than two years of cumulative deployment time. The ARNG and USAR are losing less deployment-related experience, in that less experience is resident in these components, but these losses are still considerable: More than 20 percent of soldiers leaving each component have more than one year of cumulative deployment time in their Army careers.

Conclusion

Not accounting for force reductions, which would likely reduce the resident deployment experience even more quickly, the Army could lose more than half of its accrued

deployment experience over the next five years. To manage this process, the Army must determine how much deployment experience is valuable and what types of deployment experience are most critical to retain. Determining the relative benefit of experience by key characteristics (e.g., military occupation or rank) would allow the Army to focus on strategically retaining soldiers with the most-valuable experience.

The Army may also want to consider focusing on effectively transferring the *knowledge and skills* accumulated during deployment to new or less experienced soldiers rather than retaining *personnel*. It seems likely that the expertise derived from deployment experience degrades over time; if so, transferring the knowledge and skills accumulated may be the most promising avenue of retention.

Finally, as operational experience declines in all Army components, peacetime training will become increasingly important as the only venue through which soldiers and units have the opportunity to become proficient at warfighting skills.

The research described in this summary is published in *Measuring and Retaining the U.S. Army's Deployment Experience*, by Caolionn O'Connell, Jennie W. Wenger, and Michael L. Hansen, RR-570-A, 2014.
www.rand.org/t/rr570

Lessons from 13 Years of War Point to Better U.S. Strategy

KEY POINTS

- An analysis of past U.S. military operations shows that land warfare has evolved away from conventional combat against state actors and their standing forces and toward irregular warfare fought by joint forces against nonstate actors.
- While the U.S. military has learned many tactical and operational lessons from past military operations, it has often struggled to incorporate the broader strategic lessons.
- The study offers specific recommendations to remedy the deficits in the “American way of war,” to improve the ability of U.S. personnel to integrate the political dimension of war into military strategy, and to explore new combinations of special operations forces and conventional forces to meet future security challenges.

The rise of irregular threats and the decline of national budgets have posed an acute dilemma for those crafting U.S. global strategy. In particular, U.S. land forces must become more agile in adapting their strategy as circumstances warrant and more capable of working with all manner of partners. Given this need, what can be learned from the past 13 years of military operations that can help policymakers planning U.S. global strategy?

As of 2014, there had been no governmentwide effort to synthesize lessons at the strategy and policy levels from the past 13 years. An initial study of the lessons from 2001 to 2011 was produced in June 2012 and provided a starting point for this RAND Corporation effort. Researchers reviewed documents, conducted interviews, and convened a workshop in which experts in national security, civil-military relations, and strategy and former officials discussed their research, insights, and experiences. The results were then applied to the expected future operating environment to identify critical requirements for civilian personnel, conventional forces, and special operations forces (SOF). The effort yielded seven lessons from the recent conflicts and offered seven recommendations to improve the creation and implementation of a national security strategy.

Seven Lessons from Past Trends

In looking back at past U.S. military operations, researchers identified trends that show that since World War II, land warfare has evolved away from conventional combat against state actors and their standing forces and toward irregular warfare fought by joint forces against nonstate actors. This has led to an increasing reliance on SOF, which have recently participated in a wider range of operations than at any time in their history. These trends are expected to continue and might even accelerate.

While the U.S. military has learned many tactical and operational lessons from the wars it has fought over the past several decades, it has often struggled to incorporate the broader strategic lessons. Both the Army and the rest of the joint force have, for example, been quick to adopt new technologies for improving the mobility, survivability, and situational awareness. Yet the joint force and the U.S. government as a whole have displayed an ongoing ambivalence about, and a lack of proficiency in, the noncombat aspects of warfare against nonstate actors, despite their rising frequency.

Based on these trends, seven lessons were identified:

1. Making national security strategy has suffered from a lack of understanding and application of strategic art.
2. An integrated civilian-military process is a necessary, but not sufficient, condition of formulating an effective national security strategy.
3. Because military operations take place in a political environment, military campaigns must be based on a political strategy.
4. Technology cannot substitute for sociocultural, political, and historical knowledge.
5. Interventions should not be conducted without a plan to conduct stability operations, capacity-building, transitions to civil authority, and, if necessary, counterinsurgency.
6. Shaping, influence, and unconventional operations may cost-effectively address conflict and obviate the need for larger, costlier interventions.
7. The joint force requires multinational and nonmilitary partners, as well as structures for coordinated implementation among agencies, allies, and international organizations.

Seven Recommendations from Seven Lessons

This changing character of warfare reflected in the trends and the lessons learned from past conflicts suggests the need for a theory of success that places greater emphasis on innovative ways to prevent conflicts, shape environments, and preemptively win without major combat operations. Such a theory would recognize the continuum of politics and war and the desirability of achieving sustainable, if not maximal, outcomes. The study posited seven recommendations to improve national strategy and adapt the “American way of war” to prevail against future threats:

1. Enhance U.S. strategic competence by adopting an integrated civilian-military planning process and improving the strategic education of both the U.S. military and civilian policymakers.
2. Examine ways for the U.S. military to build effective, tailored organizations that are smaller than brigades yet equipped with all the needed enablers (e.g., intelligence and communications technology and airlift) to respond to a range of contingencies.
3. Expand the ability of SOF and conventional forces to operate together seamlessly in an environment of irregular and hybrid threats.
4. Create systemic incentives to reward personnel for being creative, taking risks, and acquiring multiple specialties.
5. Preserve and refine joint and service regional expertise, advisory capabilities, and other special skills for irregular warfare and stability operations.
6. Retain civilian expertise, which is essential for placing due emphasis on the political dimension of war.
7. Improve the preparation of U.S. personnel to serve in coalitions and to employ non-U.S. expertise.

Conclusion

A deliberate effort should be undertaken to remedy the deficits in the American way of war, to improve the ability of U.S. personnel to integrate the political dimension of war into military strategy, and to explore new combinations of SOF and conventional forces to meet the security challenges of the future. The executive branch and the U.S. Congress could also consider educational and policy reforms designed to raise civilian competence and capability in national security strategy, the benefits of which would more than compensate for the relatively modest costs.

The research described in this summary is published in *Improving Strategic Competence: Lessons from 13 Years of War*, by Linda Robinson, Paul D. Miller, John Gordon IV, Jeffrey Decker, Michael Schwille, and Raphael S. Cohen, RR-816-A, 2014.
www.rand.org/t/RR816

Flatbed trucks carrying vehicles and other cargo are lined up and ready for departure on Contingency Operating Base Adder.

U.S. Army photo by Spc. Anthony Zane



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On the cover (clockwise from top right):

Paratroopers conduct an airfield seizure at dusk at Rivolto Italian Air Force Base.
U.S. Army photo by Graigg Faggionato

Gray Eagle unmanned aircraft systems await maintenance in the Fort Hood Unmanned
Aircraft System Maintenance Hangar. Elements of this image were modified in the
interest of operational security.
U.S. Army photo by Staff Sgt. Christopher Calvert

Soldiers move their M1 Abrams tank into a defensible position during a simulated
battle at Network Integration Evaluation 13.2 near Dona Ana Base Camp, New Mexico.
U.S. Army photo by Sgt. Todd Robinson

A health care specialist and a UH-60 Black Hawk helicopter maintainer assist a wounded
soldier being transported to Bagram Air Field, Afghanistan.
U.S. Army photo by Spc. Joseph Green

An M142 High Mobility Artillery Rocket System assigned to the 41st Fires Brigade,
Fort Hood, Texas, fires a rocket during a live fire at the Udairi Range Complex, Camp
Buehring, Kuwait.
U.S. Army photo by Sgt. Marcus Fichtl, 2nd ABCT PAO, 4th ID

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