

PROCEEDINGS OF THE 2011 ZVI MEITAR INSTITUTE FOR LAND WARFARE STUDIES “WAR’S CHANGING ENVIRONMENT” CONFERENCE

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<http://www.ilws.org.il/eng/>

The Zvi Meitar Institute for Land Warfare Studies (ILWS) was founded in 2007 as an offspring of the 2006 Second Lebanon War. A belief that “Wisdom never dies” stood as the motivation behind this birth. Veterans of the Israeli Armor Corps Association (IACA), in particular Brigadier General (Israel Defense Forces, retired) Gideon Avidor, believed that the lessons learned on Israel’s many battlefields at so great a cost should be assembled, organized, and made available to current generations of Israeli soldiers and those of other friendly nations for use in readying for the security challenges of tomorrow. The ILWS now stands as a forum through which veterans’ insights, the IACA archives, and access to experts within the international security community are made available to students and practitioners of conflict around the world. Formal and informal Institute for Land Warfare Studies relationships with military organizations, academic institutions, and subject matter experts in Israel, the United States, and elsewhere makes this access exceptionally broad in scope and deep in expertise.

Since its creation, the ILWS has conducted a number of conferences during which veterans and practitioners discuss issues vital to national and international agendas. Subjects addressed in the past include “Land Maneuver in the 21st Century,” “Fighting in Urban Terrain,” and this year’s “War’s Changing Environment.”¹ These and other events span a wide spectrum of land warfare operations including combat, combat support, logistics, intelligence, information warfare, technology in support of the war fighter, leadership, and soldier performance to note but a small sampling. Institute members are proud to have supported a considerable number of Israeli and international research efforts and educational initiatives at both the individual and organizational levels in these first years of the organization’s history.

We encourage you to take advantage of the institute’s considerable resources and contribute to our partnership of knowledge in the service of security and peace.

For further information, please feel free to contact us at via the information at the bottom of the title page.

¹ The English language proceedings for these and other ILWS conferences are accessible at <http://www.ilws.org.il/eng/>.

Preface

The Zvi Meitar Institute for Land Warfare Studies (ILWS) held its fifth annual conference on September 6-8, 2011 at the Israeli Armor Corps Museum and Memorial, Latrun, Israel. The event was co-hosted by the ILWS, Israel Defense Forces (IDF) Logistics Command, Israeli Armor Corps Association (IACA), and *Small Wars Journal* website and foundation.

As was the case the year before, a considerable number of corporate sponsors contributed presentations and provided industry displays at Latrun throughout the three-day period. Speakers from Israel, the United States, Switzerland, and United Kingdom addressed challenges regarding the following topic areas:

- September 6, 2011 (Logistics Challenges in Light of Land Warfare Constraints)
 - Morning session: Logistics Challenges
 - Afternoon session: Logistics Solutions
- September 7, 2011 (War's Changing Environment, Day 1)
 - Morning session: Man in War's Changing Environment
 - Afternoon session: Preparing for the Human Dimension of Conflict
- September 8, 2011 (War's Changing Environment, Day 2)
 - Morning session: The New Technological Environment
 - Afternoon session: New Dimensions in Land Warfare

Over 300 attendees participated in the event during the above sessions, to include over 50 international representatives from 12 countries.

Research in support of this document was conducted within the Global Security Warfighter Solutions group of A-T Solutions, Inc. For more information on A-T Solutions research, other capabilities, or enquiries regarding this document, please contact the author at russglenn@a-tsolutions.com or visit the company website at www.a-tsolutions.com.

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Executive Summary

The Zvi Meitar Institute for Land Warfare Studies (ILWS) conducted its fifth annual conference in Latrun, Israel from September 6-8, 2011. The overarching theme of war's changing environment guided a first day co-sponsored by the Israel Defense Forces Logistics Command. Day two broadened the spectrum of consideration to encompass the impact of those changes on the soldier more generally. The third day opened the floor to viewpoints regarding the role of technology 's influence on modern conflict and the evolution of land warfare in recent decades.

Attended by over 300 military, other governmental, academic, media, and other representatives from 13 countries, the format was one of presentations on key challenges in today's security environment followed by stimulating question and answer periods. The following are lessons identified either directly by presenters or others derivative of their comments and related discussion. More robust analysis of a given lesson appears in the main body of these proceedings adjacent to the callout containing each. This and additional investigation of significant points appear in five chapters:

1. Introduction
2. Logistics Operations on an Ever-Changing Battlefield
3. Main in War's Changing Environment
4. Further Implications of War's Changing Environment
5. Conclusion

*

LESSONS

Proliferation of surface-to-surface missiles of increasing range and accuracy – a proliferation not dissimilar to that of anti-tank systems in the 1970s – suggests greater consideration be given to preserving the continuity of civilian and military functions. Potential responses include actions taken to improve survivability, redundancy, cross-organizational sharing of resources, and recovery.

*

Improved medical care, better personal protective gear, and more efficient medical evacuation procedures mean more wounded are surviving even grievous bodily injuries, many of which have significant implications for physical and psychological recovery.

Treatment and reintegration capabilities have yet to fully account for the lasting consequences for recovering soldiers.

*

As is the case with the increase in intelligence tasks, irregular warfare can burden logistical units with a broader range of responsibilities than their Cold War-derivative organizational structures were designed to handle.

*

As when loading ships for transporting equipment and personnel to war, stores locations must ensure redundancy by taking steps to avoid exposing all critical materiel and supplies to loss in a single attack. Such precautions are likewise important in ground environments when indirect fire or aerial bombardment is a significant threat.

*

Timely adaptation requires well-designed, systematic procedures for collecting and distributing observations and insights from those at every level and providing these to users both within and outside a unit.

*

Even seemingly obvious lessons from the past are sometimes overlooked during high-tempo preparations for deployment. Leaders – especially those more experienced – should regularly survey their commands to ensure well-intentioned haste is not undermining effectiveness.

*

Issuing new equipment items to deploying units should be undertaken only after an effective – and, ideally, rehearsed – system for training, maintenance, and integration that minimizes the negative impact of the late fielding is in place.

*

The wide spectrum of potential challenges inherent in irregular warfare virtually assures that soldiers will confront situations not covered during training. Preparation must therefore include readying those at all ranks to deal effectively with the shock and surprise of the unexpected.

*

Effective training both prepares the soldier for expected events and readies him to deal with the never before experienced. Such training, fed by insights from debriefings and other lessons learned sources, must continue once a unit is deployed in order to continuously hone skills and introduce ways of dealing with newfound challenges.

*

Irregular warfare operations are a “franchise endeavor.” Higher echelon leaders provide guidance and resources, but it is the leader at the point of contact who will carry the day or harvest failure.

*

One might extend the concept of irregular warfare as a “franchise endeavor” to include the need to involve local national perspectives in decisions regarding community security, choice of neighborhood improvement projects, and other relevant issues.

*

Developing the capability to deal effectively with the unexpected and never previously experienced is crucial regardless of echelon.

*

“Management” of the media is not equivalent to “control.” Establishing standards and cultivating mutual trust may prove more effective than manipulation.

*

It may be valuable to conceptualize “maneuver” more broadly than is doctrinally currently the case.

*

Building – or rebuilding – a security force demands planning and other preparations be an integral part of campaign planning, resourcing, and execution.

*

Train-the-trainer approaches to security force preparation may be preferable for a number of reasons, to include early establishment of leaders in unit chains of command and reduced reliance on translators.

*

Counterinsurgencies and other irregular warfare operations require relevant courses of action and plans be analyzed from the perspectives of noncombatants much as others demand consideration of threat reactions.

Acknowledgments

The powers behind the fifth annual ILWS conference were once again the venerable trio of Brigadier General (IDF, retired) Gideon Avidor, Mr. Zvi Meitar, and MG (IDF, retired) Chayim Erez. General Avidor's persistence, inspiration, and seemingly endless commitment were as ever key to crafting the event. The philanthropy of Zvi Meitar provided the foundation without which the event – indeed, the continued existence of the Institute – would founder. MG Erez and his fellow members of the Israeli Armor Corps Association (IACA) have consistently backed the growth of their nonprofit cousin and the professional education it offers to their own Israel Defense Forces and militaries of partner nations worldwide.

Sponsorship by David Dilege and the Small Wars Foundation joined that by an impressive array of industry leaders whose support was fundamental to the success of the three days. The exhibits provided by the following companies complemented a world class speaker slate representing Israel, Switzerland, United States, and United Kingdom to offer attendees a broad spectrum of educational opportunities to hone readiness for future security challenges. (Descriptions of each industry sponsor appear in Appendix 4.)

- Elbit Systems, Ltd.
- Israel Aerospace Industries (IAI)
- Israel Military Industries, Ltd. (IMI)
- Ness Technologies
- Palbam Defense Products
- RADA Electronic Industries, Ltd.
- Urban Aeronautics, Ltd.
- Urdan

A special thanks goes to the conference presenters. The considerable effort dedicated to preparing their invaluable offerings and personal willingness to debate what are among today's premier security challenges are, as ever, much appreciated by conference organizers and attendees alike.

Glossary

Acronym	Expansion/Explanation
AD	armored division
AESA	active electronically scanned array radar
AEW	airborne early warning
AHRS	attitude heading reference system
AIF	Anti-Iraqi Forces
ANGLICO	air naval gunfire liaison company
APC	armored personnel carrier
AQI	Al Qaeda-Iraq or Al Qaeda in Iraq
ASA(ALT)	Assistant Secretary of the Army for Acquisition, Logistics and Technology
AT/FP	anti-terrorism/force protection
ATBM	anti-tank ballistic missile
BA	Bachelor of Arts
BCT	brigade combat team
BG	brigadier general
BSM	bronze star medal
C4I	command, control, communications, computers, and intelligence
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CasEvac	casualty evacuation
CEO	chief executive officer
CF	coalition forces
CJT	combined joint task force
CLP	combat logistics patrol
CMATTI	Coalition Military Assistance Training Team, Iraq
COIN	counterinsurgency
Col	colonel
COMINT/COMJAM	communications intelligence/communications jamming
COSCOM	combat support command
CV-22	Osprey tilt-rotor aircraft
DCO	deputy commanding officer
DRLC	Directorate Royal Logistic Corps
EGI	embedded GPS (global positioning system) inertial navigation system
ELINT/ESM	electronic intelligence/electronic support measures
EW	electronic warfare
FAA	Federal Aviation Administration
FP	force protection
G3	staff section responsible for operations in an organization commanded by a general officer

G3/5/7	staff section responsible for operations, plans, and training in an organization commanded by a general officer
G4	staff section responsible for logistics in an organization commanded by a general officer
GHQ	general headquarters
HBCT	heavy brigade combat team
HHC	headquarters and headquarters company
HLS	homeland security
HQ	headquarters
HUD	heads-up display
IACA	Israeli Armored Corps Association
IAF	Israeli Air Force
IAI	Israel Aerospace Industries
ICRC	International Committee of the Red Cross
ID	infantry division
IDF	Israel Defense Forces
IED	improvised explosive device
IFOR	Implementation Force
IGO	inter-governmental organization
ILWS	Institute for Land Warfare Studies
IMI	Israel Military Industries Ltd.
INS	inertial navigation system
INSS	Institute for National Strategic Studies
ISTAR	Intelligence, Surveillance, Target Acquisition and Reconnaissance
IT	information technology
J3	staff section responsible for operations in a joint command
JAM	<i>Jaish al Mahdi</i> or <i>Jaysh al-Mahdi</i>
JSF	Joint Strike Fighter
LTC/Lt Col/LtCol	lieutenant colonel
Ltd	limited
LTG	lieutenant general
MA	master of arts
MAJ	major
MD	doctor of medicine
MEMS	microelectromechanical systems
MG	major general
MIT	Massachusetts Institute of Technology
MOD	Ministry of Defence
MS	Master of Science
NATO	North Atlantic Treaty Organization
NCO	noncommissioned officer
NGO	nongovernmental association
Op	operation
PJHQ	Permanent Joint Headquarters (British armed forces)

RDF	rapid deployment force
Ret	retired
RLC	Royal Logistics Corps
S1	staff section responsible for personnel and administration in an organization commanded by a field grade officer
S3	staff section responsible for operations, plans, and training in an organization commanded by a field grade officer
SIGINT	signals intelligence
SO1	staff officer of lieutenant colonel rank (British Army)
SO2	staff officer of major rank (British Army)
SOF	special operations forces
STARS	Surveillance, Target Acquisition, and Reconnaissance
TASE	Tel Aviv Stock Exchange
TRADOC	Training and Doctrine Command (U.S. Army)
UAS	unmanned aerial system
UAV	unmanned aerial vehicle
UCLA	University of California, Los Angeles
UK	United Kingdom
USMC	United States Marine Corps
USS	United States Ship
VA	Virginia
VCP	vehicle control point
VTOL	vertical takeoff and landing
WWII	World War Two

1. Introduction: The Changing Face of Conflict

All is flux. Nothing stays still.

Heraclitus,

Diogenes Laertius, Lives of Eminent Philosophers

The birth and maturation of Israel is nearly coincident with a belatedly recognized, dual-faceted revolution in warfare: the (1) diminishing primacy of force-on-force engagements by technological peer competitors, and (2) related rise of less high-tech foes capable of effectively challenging better equipped and more professional militaries at the strategic level. Kursk-like clashes of steel-on-steel have become the exception. They have been increasingly so for developed countries since Allied and Axis powers signed the agreement ending war in the Pacific aboard the *USS Missouri* in 1945. One could argue that the Japanese helped to usher in in this era with their island defense tactics designed to neutralize the superior firepower of the U.S. Navy. Israel's wars in 1948, 1967, and 1973 are in part responsible for delays in recognizing this revolution, one less visible for its being brought about by foes of the world's most developed armed forces rather than members of professional armed forces. By the end of the 20th century the transformation from peer confrontation to conflicts characterized by tactics of technological neutralization had hit full stride. Americans had confronted Chinese and North Koreans willing to meet firepower with human waves, North Vietnamese adept at hugging U.S. defensive perimeters to keep air strikes at bay, and insurgents in Iraq and Afghanistan employing urban structures and noncombatants as tactical cover. The Israel Defense Forces (IDF) saw much the same in southern Lebanon during the closing decades of the last century, again in 2006 when combating Hezbollah, and in Gaza during Operation Cast Lead. Exceptions interspersed these and related events – Britain's Falklands War in 1982, Operation Just Cause in 1982 Panama, and – some might say – NATO's conflict with Serbia in the fading years of the last millennium among them. These anomalies shared the common outcome of the less technologically endowed adversary suffering a sound beating in little time. Believers in the perpetuation of World War II style competition took comfort, relishing the possibility of war as they felt it was meant to be. Less wealthy and relatedly less well equipped actors

– state and non-state alike – took notice and learned from those who had earlier recognized the futility of bringing a knife to a gunfight.

The playing field therefore leveled, slowly in terms of one lifetime but in very short order from a historical perspective. Terrain, a neutral player in traditional engagements, became the ally of the less gifted, especially when that terrain was densely packed with manmade features and noncombatant innocents.

This is not to say that technology does not help the outgunned at times. Mao read Sun Tzu and Clausewitz, developing his tactics and strategy over many years. The 21st-century insurgent, terrorist, or criminal leader far more quickly acquires tactical knowledge via the Internet and email. Globalization brings with it access to off-the-shelf technologies previously available only when a nation state supplied favored surrogates with weapons.

Just as they had done during the Boer War at the turn of the previous century, once dominant powers took shocked notice. No longer was the fight one of spear versus musket. The enemy had learned to use its capabilities to maximum advantage while avoiding the strengths it could never compete with in a “fair” fight. More recent events have seen threats adopting specific technologies to provide them the means to attack remotely. Nor is the enemy soldier the sole target of these response-avoidant tactics. Israel’s Minister for Homeland Defense reminded the conference audience of his nation’s particular vulnerability in this regard as he considered the perspective of Israel’s foes on the last day of the conference:

Every one of us is a soldier to them whether enlisted in the military or not. From cradle to grave you are a soldier. This is nothing new. In 1948 the enemy attacked Tel Aviv with many bombs and killed many, to include dozens when they hit the bus station that was at the time the center of Tel Aviv life.²

No longer able to bomb Tel Aviv with manned aircraft, Israel’s enemies today turn to rockets, missiles, and mortars difficult for even sophisticated technologies to counter.

² Matan Vilnai, “The Home Front is the Main Front,” briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 8, 2011.

What Change Has Meant to the Logistics Soldier

At first little seemed changed from the perspective of professional soldiers. They recognized the significant strategic threat posed by peer competitors even as they underestimated the consequences of conflicts with less technologically gifted adversaries. The revolution was initially unobvious; much during operations remained little changed regardless of the foe's character. A logistician still had to transport supplies and thereafter secure storage, provide transport, and offer essential services. Those responsible for supply, transport, provision of medical care, and other forms of logistical support did find themselves primary agents of providing increased support to the civilian population. However, like their brethren in the intelligence field, the resulting additional burdens went largely unnoticed by others.



Figure 1.1: British Army Gurkha Medic Provides Aid to an Afghan Child³

Logistics soldiers in particular but in reality all personnel in a combat zone also experienced the disappearance of “the rear,” that portion of the operational area relatively free of threat attacks by other than the occasional strike from the air. Threat

³ Lee Daley (Lt Col, British Army), “Latrun 2011,” briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 6, 2011.

of death or maiming now loiters in villages, streets, and buildings as soon as one exits the gates of a forward operating base. Improvised explosive devices (IEDs) in their myriad forms can lurk along any byway, beneath the road's surface, within an approaching vehicle, or hung on the frame of man, woman, or child. Nor are installations untouchable sanctuaries. Bases suffer rocket, missile, or mortar strikes.

Counterinsurgency missions are particularly demanding of the soldier's presence amongst a population. As ambassador of the alternative, he or she no longer bivouacs comfortably within some huge installation replete with fast food facilities, recreation centers, and gymnasiums. The cramped confines of a concrete barrier-protected joint security station become home for weeks at a time. Soldiers find themselves exposed themselves to danger more consistently than during past conflicts. Days, weeks, and even months could pass between World War II engagements. Operations in Vietnam were followed by down time at firebases where days might pass before a new mission took a soldier outside the gates. The soldier in Afghanistan or Iraq may by contrast patrol several times a week if not more often.

Though the logistics soldier is more likely to obtain a night's rest at a larger, less exposed installation, once outside its gates the danger of attack once again exists immediately. IEDs are only one form of threat. Ambushes may accompany the detonation of a device or come in isolation. It is impractical to expect others to provide security when every kilometer of a route can hold danger. Convoys must be self-sufficient. This demands improved and more numerous means of communications, greater availability of weapons, training to prepare for any possible contingency, and a debriefing and lessons learned exchange process no less effective than that for the infantryman. "Resupply convoys" become "combat logistics patrols," a seemingly benign change of terms until one realizes how much better trained, equipped, and responsive to attack the latter must be compared to vehicles moving in tandem along a route with little threat other than boredom.

Nor are new demands on the soldier limited to those at the sharp end of conflict. Increasing urbanization means that planning factors and tactics from yesteryear are of questionable value. Doctrinal usage rates and casualty estimates do not isolate built-up areas as a unique environment. Fuel, ammunition, maintenance, water, and other rates of consumption for irregular warfare in urban environments simply aren't available. The likelihood of wound types are likewise difficult to predict, a challenge exacerbated

by the increased use of body armor. This complicates medical supply planning and personnel decisions regarding what types of medical specialists to send to a theater.

The Impact of Change on Ground Forces More Broadly

Such unfamiliar familiarity extends military wide – unfamiliar because of its relative newness historically, familiar because recent periods of extended conflict mean soldiers have seen more in the way of active operations than has long been the case. Civilians have also become all too familiar with attacks as threat rockets and missiles reach farther with improved accuracy.

The demands on the 21st-century soldier extend beyond those on man and woman as warfighter. Just as the logistics soldier can no longer be comfortable with merely his or her specialized training and an occasional trip to the rifle range, those manning traffic control points or patrolling a city's streets must possess the skills of warrior, diplomat, nation-builder, and humanitarian while being able to switch from one role to another in the flash of headlights from an approaching vehicle that may or may not have deliberately ignored signs and signals demanding it halt. At times technology can help in meeting the challenges an enemy designs to confound technical superiority. Israel's anti-missile systems seek to deprive threats of their indirect fire attacks' effectiveness. Air refueling of helicopters and the combined rotary/fixed-wing design of the CV-22 Osprey now permits U.S. forces to reach all but the remotest of threat sanctuaries.⁴ Yet ultimately it is the soldier who dictates success or failure just as has been the case since man first took up arms against an opponent.

The skills a soldier must possess to meet that responsibility are ever changing. The following pages summarize perspectives provided by a speaker slate consisting of Israeli, American, British, and Swiss speakers addressing today's dynamic nature of conflict. The fifth annual Institute for Land Warfare Studies (ILWS) conference, held in Latrun, Israel from September 6-8, 2011, consisted of three days of presentations and debate. Day one consisted of briefings related to logistics issues. The following two continued to address the theme of change in modern conflict while expanding the scope to include all forms of ground operations. Chapters 2 through 4 reflect this sequence.

⁴ LTG U.S. Army) Joseph L. Votel, "Rapid Deployment Forces in the 21st Century," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 8, 2011.

Chapter 2 provides an overview of the first day. Chapters 3 and 4 first consider the influence of change on militaries and then its impact on nongovernmental organizations, nation states, and other organizations that are often a soldiers' partners in an area of operations.

Several appendices follow a concluding Chapter 5. In order:

- Appendix 1: Conference Agenda
- Appendix 2: Speaker Biographical Sketches
- Appendix 3: Presentation Abstracts
- Appendix 4: Industry Sponsors
- Appendix 5: International Attendees.

2. Logistics Operations on an Ever-Changing Battlefield

Logistics has no relevance on its own but rather must reflect and function in light of the overarching maneuver and operational situation.

MG Dan Biton,
Head of the IDF Logistics and Technology Branch

Perhaps no country's armed forces are more impacted by the waning of a protected rear area than those of the Israel Defense Forces. As a country under attack by indirect fire during the 2006 Second Lebanon War, Operation Cast Lead from December 2008-January 2009, and sporadically before, between, and during those events, any activity near the nation's borders are at risk. It is a risk the more potent for the condensed nature of Israel's territory, a compactness that means forces operate in less space resulting in a density that increases the chances of even a poor delivery system gaining the occasional significant success. Major General (MG) Dan Biton, head of the IDF's logistics branch, sees his army having a five component course of action in response, the objective of which is to allow the armed forces and nation as a whole to continue uninterrupted functioning even during intense enemy missile attack:⁵

- Dispersion: Distribution of stockpiles over as wide an area as is feasible and, similarly, avoiding consolidation of forces and critical infrastructure
- Versatility: Drawing on civilian capacity and facilities as backups to military resources should the latter be damaged or destroyed
- Protection: Improving the survivability of both military and civil infrastructure, particularly command and control systems
- Redundancy: Establish redundant infrastructure and supply stockage within reasonable budgetary constraints
- Reconstruction: Plan and prepare for rapid reconstruction in the aftermath of lost infrastructure capacity

⁵ MG Dan Biton, "War's Logistics Challenges," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 6, 2011.

Taking a lesson from their recent adversaries to the north and west, Biton sees Israel employing greater use of subterranean facilities both in rural and urban terrain, an aspect of the “protection” element in his course of action as outlined above.

Lesson

Proliferation of surface-to-surface missiles of increasing range and accuracy – a proliferation not dissimilar to that of anti-tank systems in the 1970s – suggests greater consideration be given to preserving the continuity of civilian and military functions. Potential responses include actions taken to improve survivability, redundancy, cross-organizational sharing of resources, and recovery.

Is it Logistics? Debate Regarding Medical Services’ Place in the IDF Structure

None argued with the wisdom of taking action to ensure the effective functioning of IDF logistical support in a missile-dense environment. The same could not be said for discussions regarding what “logistics” ought to encompass in Israeli doctrine. MG Biton envisions his armed forces’ logistics as encompassing two primary functions – (1) mobilizing forces and moving them about an area of operations or theater, and (2) sustaining those forces once they are fielded. He explains that successful execution of these two functions in turn relies on five primary functional areas:

- Supply
- Medical Support
- Maintenance
- Transportation and Monitoring of Movements
- Infrastructure and Construction

Similar to arguments in several other countries’ armed forces, Biton argues for inclusion of medical as a logistical responsibility. Brigadier General (BG) Mofid Ganem does not agree.⁶ The IDF’s Chief Logistics Officer stated he felt medical should not be a part of logistics, a statement perhaps driven by the difficulty of incorporating often highly perishable medical items into a supply system otherwise dominated by stores suitable for use even in the extreme conditions of extended storage and vagaries of the battlefield. Combine this perishability issue with the need for hyper-responsiveness in

⁶ BG Mofid Ganem, “Logistics Support in a Multi-front Theater,” briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 6, 2011.

evacuating casualties along with special status under the laws of land warfare and reasons underlying Ganem's argument become clearer.

Despite the line of reasoning for separating medical from logistics more generally, both the North Atlantic Treaty Organization (NATO) and U.S. military continue to put medical affairs under the logistics umbrella. This is evident in their respective definitions for logistics:

NATO definition: The science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, the aspects of military operations which deal with:

- Design and development, acquisition, storage, transport, distribution, maintenance, evacuation, and disposal of material;
- Transport of personnel;
- Acquisition or construction, maintenance, operation and disposition of facilities; acquisition of furnishing of services; and
- *Medical and health service support.*⁷

U.S. definition: Planning and executing the movement and support of forces. It includes those aspects of military operations that deal with: a. design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; b. *movement, evacuation, and hospitalization of personnel*; c. acquisition or construction, maintenance, operation, and disposition of facilities; and d. acquisition or furnishing of services.⁸

It is evident that both the NATO alliance and U.S. military have sided with those holding that the appropriate place for medical services remains in the realm of logistics. So too has the IDF to this point, a decision that seems in keeping with fiscal efficiency. The weight of logic seems to argue for maintaining the status quo despite the reasons for separation. Counterargument factors include the cost of creating, equipping, and maintaining a separate medical infrastructure, an infrastructure that would at once introduce arguably unnecessary redundancy into military organizations and threaten

⁷ *NATO Logistics Handbook*, Brussels, Belgium: NATO Headquarters, 2007, p. 4 (emphasis added).

⁸ Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, Washington, D.C.: Joint Chiefs of Staff, November 8, 2010 as amended through September 15, 2011, pp. 202-03 (emphasis added).

the many informal and formal ties between medical and other logistics activities at present (e.g., the sharing of vehicles for transport of equipment and patients).

Maintenance of the organizational status quo by no means implies a lack of change in the medical field's challenges on the battlefield. BG Ganem noted a striking statistic regarding fatalities on modern battlefields. He cited research finding that 84% of combat deaths now occur instantly or in a brief period after receipt of a mortal wound. Dramatic improvements in personal protective equipment and medical care (to include the training of individual soldiers in more advanced medical techniques) have significantly improved a wounded soldier's chances for survival if the initial damage is not immediately fatal. Impressive and desirable to be sure, the full impact of having to deal with the physical and psychological effects of soldiers surviving once almost assuredly fatal wounds has yet to be dealt with in most militaries.

Lesson

Improved medical care, better personal protective gear, and more efficient medical evacuation procedures mean more wounded are surviving even grievous bodily injuries, many of which have significant implications for physical and psychological recovery.

Treatment and reintegration capabilities have yet to fully account for the lasting consequences for recovering soldiers.

Broader Logistics Implications of a Changed Battlefield

We see that conflicts facing developed countries' militaries today involve (1) more and a broader range of tasks for logisticians, (2) increased responsibilities for unit self-defense, and (3) additional responsibilities involving the support of civilian populations. The strategic corporal mans the ranks of logistics units no less than those of other organizations.

Lesson

As is the case with the increase in intelligence tasks, irregular warfare can burden logistical units with a broader range of responsibilities than their Cold War-derivative organizational structures were designed to handle.

Adaptations in the field demonstrate that logistics leaders recognize these changes. The

British Army's Lieutenant Colonel (Lt Col) Lee Daley explained his armed forces' transition from traditional logistics convoys to the increased-capability combat logistics patrols highlighted in the discussion above.⁹ Such in-the-field adaptations have counterparts in pre-deployment preparations. British officers of major rank are now provided the option of attending a Battlespace Management Course previously reserved only for those from maneuver branches. The realization that service members of all branches must be soldiers first, specialists second is accompanied by in-unit training acknowledging the realization and the allocation of increased and more sophisticated communications equipment to logisticians. Colonel (Col) Keith Sledd emphasized the former issue. His U.S. logistics battalion underwent mock IED attacks as it readied for deployment to Iraq. It was brigade policy that every individual, regardless of specialization or gender, ready himself or herself to employ any available weapon, assist in the management of casualties, and otherwise respond effectively to situations they might expect to encounter in combat. Sledd used the example of his battalion dentist being the soldier who connected the tow bar for a disabled truck to its recovery vehicle during a training exercise to reinforce his point.¹⁰ Training continued once Sledd's battalion reached Iraq, training essential to meeting requirements that became evident only after deployment. These included drills for suppressing vehicle fires, a task that included evacuating casualties from the disabled and sometimes ammunition-laden vehicles. (See Figure 2.1.)

Adaptations were not limited to those at the tactical level. MG (IDF, Ret) Hagai Shalom described the Israel Defense Forces 2002 reorganization during which his army went to a regional logistics support model, one found unsatisfactory in that it deprived forward commanders of the responsiveness and flexibility necessary during operations. The IDF has since returned to a divisional-based support system.¹¹

Such adjustment may require taking lessons from previous conflicts and molding them to the requirements imposed by new environments (an activity that assumes professional study and understanding of previous operations). MG Shalom provided one such example, recalling the loss of \$50 million of IDF Northern Command spare

⁹ Lee Daley (Lt Col, British Army), "Latrun 2011," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 6, 2011.

¹⁰ Keith Sledd (Col, U.S. Army), "Supporting the Dagger Brigade in Iraq 2006-2007," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 6, 2011.

¹¹ Hagai Shalom (MG, ret, IDF), "Logistics in Support of the Fighting Community," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 6, 2011.

parts due to a single warehouse fire, an event reminiscent of units losing the entirety of their equipment when all was loaded on a single ship during earlier wars. Based on this event, Shalom reinforced his colleagues' call for dispersion of assets, dispersion notably critical when a foe has a missile attack capability.¹²



Figure 2.1: American Soldiers Prepare to Suppress a Vehicle Fire After an Attack on a Logistics Convoy in Iraq¹³

Lesson

As when loading ships for transporting equipment and personnel to war, stores locations must ensure redundancy by taking steps to avoid exposing all critical materiel and supplies to loss in a single attack. Such precautions are likewise important in ground environments when indirect fire or aerial bombardment is a significant threat.

Remaining Logistics (and Often More General) Challenges

Dispersion, use of underground storage, and employment of other forms of protection go a long way toward preserving vital logistics stores. Leaders in the IDF are looking yet farther forward in time, however, to days in which an enemy's indirect fire capabilities may be able to reach out farther, faster, and more accurately. Shalom proposes moving

¹² MG Shalom noted that the IDF has subsequently adapted its storage policies to avoid such over-centralization.

¹³ Keith Sledd (Col, U.S. Army), "Supporting the Dagger Brigade in Iraq 2006-2007," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 6, 2011.

entirely away from static storage of supplies to truck-mounted “depots,” a recommendation responsive to Israel’s strategic situation but one that might prove overly expensive given the number of trucks, drivers, and loading/unloading equipment it implies. Further, while individual trucks could be dispersed and having supplies uploaded would theoretically improve response time, aligning each truck’s load to meet specific (and often last minute) field needs, monitoring every truckload location, and providing fuel for the increased fleet of carriers would pose further burdens and financial costs. Whether or not to employ mobile depots is a decision that might also be influenced by the capabilities Israel continues to develop to interdict indirect fire attacks, e.g., the Iron Dome missile defense system.

Continued logistics adaptation nonetheless remains a need at every level of war. Colonel Sledd recalled the unceasing cat-and-mouse game of dealing with IED technologies and tactics in Iraq, one that continues in that nation, Afghanistan, and other theaters around the world. The debate remains unsettled as to whether traveling at the top speed of a combat logistics patrol’s slowest vehicle is the wisest tactic or whether instead proceeding at a more moderate speed and thus increasing the chances of visually spotting emplaced munitions is the better choice. It, like so many choices in the adaptation competition, presents a situation in which today’s answer may differ from both that of yesterday and tomorrow. Timely recognition of the better – if not the best – response to a threat demands cooperation across commands, a cooperation in turn demanding a systematic approach to debriefing, analysis of observations, and dissemination of new lessons between as well as within organizations. Soldiers in Vietnam found enemy tactics differed as U.S. units moved about the country. Colonel Sledd discovered the men and women in his command had to adapt by *neighborhood* within Baghdad. His soldiers could not operate the same way in Sunni neighborhoods as in Shia. Threat tactics viewed the safety of innocent civilians differently in each. *Jaish al Mahdi* (JAM) insurgents attacking coalition forces in Shia neighborhoods sought to avoid detonating IEDs if the result would endanger noncombatants. Al Qaeda in Iraq (AQI) fighters emplacing IEDs in Sunni neighborhoods, however, had few reservations regarding civilians being collateral damage to IED attacks targeting U.S. personnel. Sledd’s soldiers therefore allowed civilian cars and personnel to approach their vehicles more closely in Shia than Sunni neighborhoods where innocents’ could be used to conceal an attacker. Sledd further recognized the need to adopt not only in terms of space (neighborhoods), but also over time. His leaders debriefed their units after every mission to ensure quick identification of new lessons or trends so that they could be

shared with others within the battalion and beyond. Constant collection, analysis, and sharing of such observations and insights is vital at the individual unit level just as it is within other commands and coalition partners so that word quickly reaches both those in the field and trainers readying organizations for deployment.

Lesson

Timely adaptation requires well-designed, systematic procedures for collecting and distributing observations and insights from those at every level and providing these to users both within and outside a unit.

There remain the frustrating lessons relearned, practices developed at cost – often serious – during previous conflicts that for various reasons initially go undiscovered during later operations. More than one presenter observed the unfortunate and often avoidable decreased effectiveness caused by breaking habitual unit relationships established during weeks of pre-deployment training and, often, years of continuous association during which trust is built and partner unit leaders, soldiers, and procedures become familiar. Here again the observation spans more than logistics units alone, demonstrating that despite decades of maintaining habitual relationships being a “best practice” there are managers who violate the tenet despite the apparent absence of good cause. Such last-minute task organizations can be particularly difficult for logistics units if sufficient preparation time is not given. Task organizations that put tank or mechanized battalions together with an airborne or airmobile unit, for example, considerably complicate maintenance, parts ordering, and numerous other support functions due to the greater variety of equipment types involved.

Lesson

Even seemingly obvious lessons from the past are sometimes overlooked during high-tempo preparations for deployment. Leaders – especially those more experienced – should regularly survey their commands to ensure well-intentioned haste is not undermining effectiveness.

Ms. Heidi Shyu, the U.S. Department of Defense acting Assistant Secretary of the Army (Acquisition, Logistics, and Technology), cautioned against errors potentially influencing decision making at even the topmost echelons. Shyu warned against “requirements

creep” (the constant expansion of a system’s specified capabilities) when contracting for an end item in the acquisitions process. Overly ambitious definitions of requirements can only be met with not-yet-developed capabilities.¹⁴ The result is higher costs as contractors understandably account for the risk undertaken in having to rely on timely maturation of embryonic technologies. There can also be danger in leaning too far in the other direction, however. Seeking economies by opting for cheaper, simpler, and less capable systems can put receiving soldiers at unnecessary risk. An audience member noted the case of United States Marine Corps (USMC) personnel working alongside army counterparts during operations in Iraq. USMC Air Naval Gunfire Liaison Company (ANGLICO) personnel were taken to task after disproportionately requesting fire support from the more capable (and army) Apache helicopter gunship than that the USMC’s older Cobra platform. It turned out the ANGLICO team was only communicating requests as passed to them by marines requiring the support.

The increased scope of responsibilities confronting the logistics leader translates to a training challenge. He or she must somehow prepare a unit for the full range of potential contingencies in the time available. Colonel Sledd emphasized his unit’s continuing to practice its bread and butter fundamentals in addition to new and unfamiliar tasks such as readying for more frequent interactions with members of the local population and erecting barriers to safeguard civilian neighborhoods.

New equipment constitutes a mixed blessing during preparations for a pending deployment. Its enhancement of unit capabilities is a plus, but the need to train operators, maintainers, supply personnel, and others to support the life cycle of the additional items adds further tasks to an already full bag of requirements. Here, as more generally, a systems approach is critical. Those at higher echelons need to balance the benefits of introducing new items with the impact that introduction has on the already high tempo of preparations a potential recipient experiences. Ways to reduce the burden of introduction might include sending training teams forward with the new equipment, early identification of receiving units (thereby allowing the unit to send its own personnel to remote locations for training well before deployment), and making the items in question available at combat training centers or large installations when numbers are insufficient for immediate issue so that those tagged to get the equipment can familiarize personnel at an earlier date than would otherwise be possible. Such

¹⁴ Heidi Shyu, “Army Acquisition in Times of Constant Change,” briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 7, 2011.

familiarization is crucial. It also comes with costs. The IDF's chief surgeon recalled that the country's military leaders reversed their original decision to take state-of-the-art tourniquets away from soldiers prior to the 2006 Second Lebanon War, later reissuing them despite the additional expense involved, presumably to allow those who might find it necessary to use them the opportunity to train with the item prior to combat.¹⁵

Lesson

Issuing new equipment items to deploying units should be undertaken only after an effective – and, ideally, rehearsed – system for training, maintenance, and integration that minimizes the negative impact of the late fielding is in place.

Various logistics speakers identified additional lessons recognized anew during recent operations. One called for equipping support units with vehicles on par with maneuver systems in terms of speed and maneuverability. A second cited the need for improved intelligence capabilities in the service of logistics operations, a natural extension of the expanded range of tasks units confronted and early tragedies in Iraq such as the 2003 enemy ambush of an American maintenance unit that became disoriented in Nasiriyah, Iraq.

Perhaps foremost amongst the lessons relearned was another pertinent to members of all services regardless of duties: the ability to respond effectively to the unfamiliar, unforeseen, and therefore unexpected challenge. Training cannot address every possible contingency a soldier will face. Properly designed, however, it can ready the individual to better deal with situations he or she has never before experienced in training or combat. Such preparation is part of what Israel's BG (Ret) Meir Elran called organizational resiliency, "the capacity of a system to (a) contain major catastrophes, (b) react in accordance with their severity and length, (c) bounce back quickly, and (d) return to improved and effective functionality."¹⁶ Training for the shock and surprise of the unexpected provides yet further benefits. Not limited to "major catastrophes" alone, it prepares the soldier's mind for those moments when the situation will overwhelm the judgment of the less well prepared, allowing the individual to appraise a crisis quickly, take appropriate action, and thereby increase the chances of survival and mission

¹⁵ Dr. Nachman Ash, "Medical Support During Ground Operations, briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 6, 2011.

¹⁶ Meir Elran, "Logistical Resilience as a Key Response to Asymmetric Threats," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 6, 2011.

accomplishment. Such training provides a “soldier’s *coup d’oeil*” akin to that element of character Clausewitz so valued in a commander.¹⁷

Lesson

The wide spectrum of potential challenges inherent in irregular warfare virtually assures that soldiers will confront situations not covered during training. Preparation must therefore include readying those at all ranks to deal effectively with the shock and surprise of the unexpected.

¹⁷ Carl von Clausewitz, *On War*, Princeton, NJ: Princeton University Press, 1976, p. 102.

3. Man in War's Changing Environment

Every aspect of training was tactical. Movement to the range was tactical. Operations on the range were conducted under tactical conditions. These operations were led by empowered junior leaders without the traditional tower in control of the action and without red and white safety paddles controlling the execution of live fire activities. Every training activity was a BCT-level exercise with training objectives linked from the BCT-level to the smallest tactical unit. The objective was to transition from a "We're in garrison environment" to one in which everyone realized we were preparing for combat.

Brigadier General J.B. Burton,
Commander, Dagger Brigade Combat Team

While Israel has seen extended years of conflict during the Second *Intifada*, Second Lebanon War, and Operation Cast Lead, the U.S. and other nations – many of which were represented at the Latrun conference – have experienced nearly a decade of fighting in Afghanistan, going on eight years of operations in Iraq, and commitments of significant length elsewhere worldwide. Reservists have repeatedly been activated and, in the case of the United States, soldiers have been deployed for periods sometimes exceeding a year on two, three, and – too frequently – more occasions.

The impact on individual soldiers and their families can be significant. Somewhat less recognized is the turmoil the short spans between returns to theater have on units. Colonel Sledd described difficulties more widely representative of units throughout the U.S. military in noting the personnel turnover experienced by his 299th Forward Support Battalion after returning from Iraq in early 2005. Unit strength dropped to 57% in the aftermath of the return with that for noncommissioned officers (NCOs) declining to 36%. Sledd had approximately a year and a half to rebuild his command before it once again returned to Iraq for a 15-month tour that would begin in August 2006. His brigade commander, Brigadier General J.B. Burton, observed that such personnel shortages were brigade-wide. Additionally, the need to start training virtually from scratch – to train on the basics at the individual level and achieve unit readiness at brigade level – meant the preparation period would be one of great intensity, an intensity magnified by the unit's not knowing exactly when it would deploy or where that deployment would take it. Equipment maintenance challenges accompanied these personnel shortages. Brigade systems had recently returned from a previous deployment to Iraq during which tracked vehicles accumulated the equivalent

of five year's wear. The limited time available demanded that leaders prioritize readiness efforts. They ensured every training activity was nested within the brigade's comprehensive training strategy in efforts to prepare the unit before its soldiers once again walked onto the planes that would land them at Baghdad International Airport.¹⁸

Whether in Israel, Iraq, or elsewhere, today's soldier finds himself tasked to be more than a soldier in the traditional sense. As noted, every man and woman in a ground combat unit had not only to be skilled in tasks beyond his or her assigned specialty, but additionally had to be soldier diplomat, soldier humanitarian, and soldier judge in addition to that of soldier warrior. In the jargon, he would have to be able to "hit the on and off switch" instantaneously when conditions demanded, being equally adept at transitioning from hours of tranquility to sudden engagement of a threat to staying the trigger finger when the unfortunate innocent entered his field of fire in the seconds after an enemy fled. Burton, perhaps tongue in cheek, announced to the audience that his brigade spent a lot of money on paint. Every target was painted with a human image, forcing his warrior-peacemakers to make decisions regarding whether to engage what could be enemy or innocent, friend or foe. Burton also partnered with local German *Polizei* outside the unit's Schweinfurt garrison to assist in readying the brigade for war. Techniques employed in identifying and tracking local gang members received close scrutiny so that commanders, intelligence personnel, and soldiers on patrol in Iraq would better be able to detect telltale behaviors of criminal or insurgent activity and effectively compile and analyze resulting information. The comprehensive approach to training included a requirement that all 2nd Brigade Combat Team personnel be qualified on every weapon in the organization short of the 25mm cannon and 120mm tank gun. The intention behind every aspect of the brigade approach to training was that of any good commander preparing his soldiers for combat: to do all possible such that his personnel never experienced anything in a fight they had not confronted in training or, barring that, that their training had prepared them to effectively deal with the never before seen. As was the case with his logistics battalion, training continued after arrival in Iraq. At times Burton found it fell short of operational requirements, believing the COIN (counterinsurgency) Academy in Taji, for example, overly emphasized living on large forward operating bases, large-scale clearing operations, and mounted patrols rather than employing tactics more effective when interfacing with local populations.

¹⁸ J.B. Burton (BG, U.S. Army), "Shaping the Combat Environment," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 7, 2011.

Lesson

Effective training both prepares the soldier for expected events and readies him to deal with the never before experienced. Such training, fed by insights from debriefings and other lessons learned sources, must continue once a unit is deployed in order to continuously hone skills and introduce ways of dealing with newfound challenges.

Presenters, regardless of country, recalled how they sought to equip their personnel with the items they knew would prove vital in combat. All wanted to avoid any of their men or women suffering the fate of a U.S. marine who – lacking a stun grenade during an assault on an Iraqi home – bravely attacked with rifle alone rather than use a lethal fragmentation grenade and risk killing innocent occupants. (He lost his life to enemy fire during the attack.) Leaders likewise discussed how they trained subordinate positions to act on their own. BG Burton labeled irregular warfare a “franchise endeavor.” He and his staff provided overarching guidance to subordinate commanders, junior officers, and NCOs leading their men in combat. Ultimately, however, the brigade leadership knew it was those at the section, squad, platoon, and company levels who they had to trust – and train – to make the right decision in the face of enemy opposition and other challenges inherent in their area of operation’s extremely complex social and physical environment.

Lesson

Irregular warfare operations are a “franchise endeavor.” Higher echelon leaders provide guidance and resources, but it is the leader at the point of contact who will carry the day or harvest failure.

Training the Warrior to be More than a Warrior

As we have already more than once noted, today’s conflicts require skills in addition to those involving the use of lethal force. Soldier-humanitarian yes, but the goals served by the warrior demonstrating just restraint extend beyond ethical considerations alone. Tactical demonstrations of good will and concern for the welfare of a population can reap rewards at the operational and strategic levels. BG Burton’s area of operations in western Baghdad was the scene of sectarian violence for much of the brigade’s tour. The areas shown in lighter orange in Figure 3.1 are those in which – driven by fear of

Sunni armed groups or sympathy for *Jaish al Mahdi* or other Shia militias – no Iraqi security forces would venture. Areas shown in purple are neighborhoods where those Shia groups were particularly active in attempts to purge Sunni residents. Areas depicted in green show where the population was predominantly Sunni and even moderate Sunnis leaned support to extremist Al Qaeda elements to obtain some modicum of security from Shia extremists, understandable given the lack of protection. The Dagger Brigade commander described the extremist driven Shia expansion across northwest Baghdad as “a campaign of exhaustion executed by kinetic and non-kinetic means” with an objective of creating a pure Shia-based constituency prior to Iraq’s national elections.

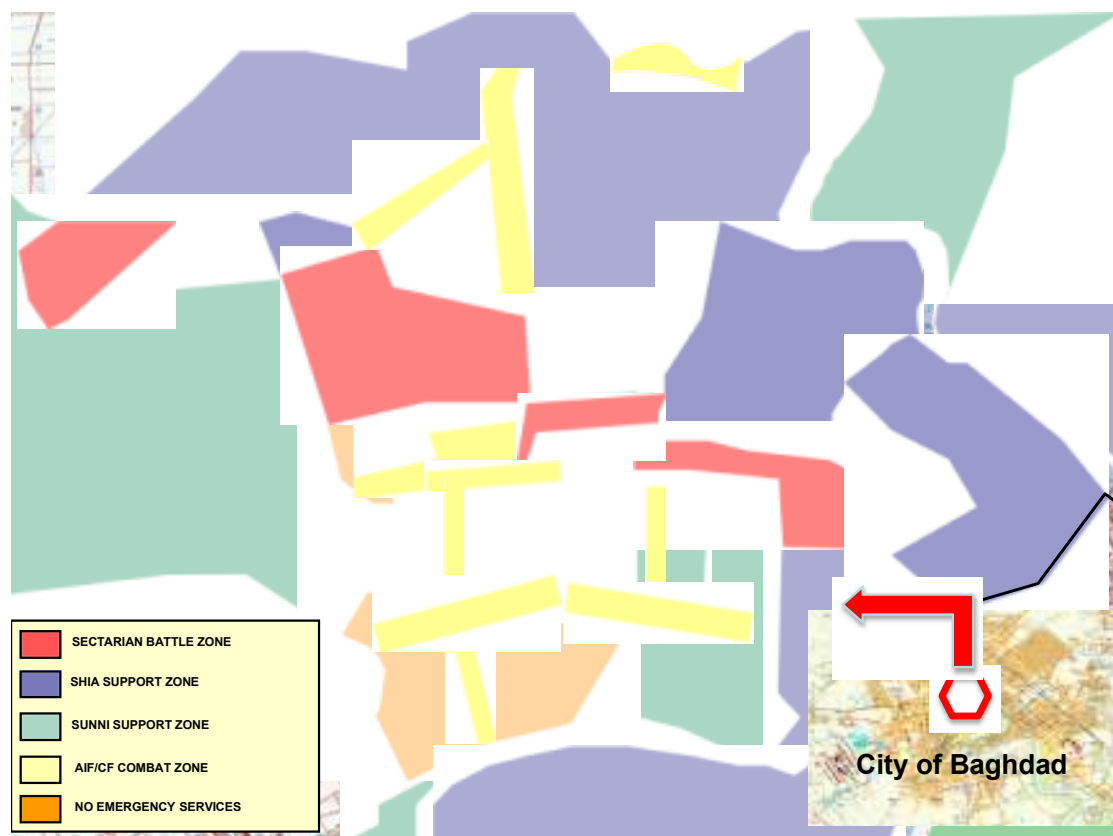


Figure 3.1: 2nd BCT, 1st Infantry Division Area of Operations, Baghdad, Iraq (Shia Neighborhoods Without Iraqi Government Security Forces are shown in Light Orange)¹⁹

Though protecting one group from assault by another might be justified on humanitarian grounds alone, here the stability and security of Baghdad’s population

¹⁹ J.B. Burton (BG, U.S. Army), “Shaping the Combat Environment,” briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 7, 2011.

impacted the overall legitimacy of coalition efforts, that of the immature national government, and the long-term viability of the country. Brigade leaders therefore sought out Sunni leaders in the affected areas and negotiated procedures that held promise of shielding the latter's neighborhoods from Shia militia intrusion. Together Iraqi and American agreed on locations for 14 combat outposts and the traces of concrete walls surrounding what would become "gated" communities. Burton gave U.S. Military Mobile Training Teams a new mission: train Iraqi security force battalion staffs. Brigade organizations partnered with security force and volunteer formations at platoon level and above, the objective being both individual and collective proficiency in the Iraqi units. Burton's soldiers also worked to instill in Sunni volunteer forces the skills they needed to initially work alongside the Americans and Iraqi security forces and eventually to assume security duties unilaterally. The local and wider influence of these actions was significant in propelling Baghdad forward toward what in ensuing months became a much reduced number of sectarian attacks. Speaking soon after Brigadier General Burton, BG (IDF, Ret) Nachman Shai reemphasized the criticality of such acts of public diplomacy, concluding that despite its apparent importance it had become a neglected element of modern conflict.²⁰

Lesson

One might extend the concept of irregular warfare as a "franchise endeavor" to include the need to involve local national perspectives in decisions regarding community security, choice of neighborhood improvement projects, and other relevant issues.

Obtaining such flexibility of mind is one objective when training for the never before seen, making that mind fertile ground for rapid evaluation and decisive decision-making. But instilling such mental capacity to succeed is by itself insufficient. Burton's earlier remark regarding operations being a franchise endeavor hints at yet another key ingredient: trusting leadership. A commander unwilling to delegate decision-making authority smothers subordinate leader initiative. Allowing – or better yet requiring – subordinates to demonstrate independent thinking within the purview of the commander's intent means a command benefits from the thinking of many fertile minds rather than the dictates of but one. BG Sean MacFarland and Burton both benefited in this regard when subordinates approached them with offers of assistance in defeating Al

²⁰ MG (IDF, Ret) Nachman Shai, "Preparing the Human Mind for Modern Conflict," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 7, 2011.

Qaeda from local Sunni leaders. Recent history suggested caution; these were the same men who were suspected of directing attacks against Americans and participating in illicit activities undermining U.S. efforts to restore Iraqi stability. Both MacFarland and Burton listened to their battalion commanders, trusted that their more intimate knowledge of the situation in their areas of operation trumped their own, and approved pursuit of the offer. History demonstrates that the trust paid off. Alliances with Sunni leaders were key in the subjugation of AQ-I and the subsequent progress toward much reduced sectarian violence between Shia and Sunni. Burton additionally highlighted the need for the leader himself to prepare his mind for the wider perspective preparedness for dealing with the unexpected demands. “Never stop seeking clarity,” he advised. “If we had continued to seek the defeat of Sunni insurgents and not adapted [to changing conditions], we would have ended up helping Shia extremists purge our area of operations of Sunni” rather than resetting the course that led toward resolving differences between the two religious groups.

Lesson

Developing the capability to deal effectively with the unexpected and never previously experienced is crucial regardless of echelon.

The importance of effective media operations has been clearly and repeatedly demonstrated in all of the theaters familiar to conference attendees. That is perhaps nowhere more true than in Israel where loss on the battlefield need not translate to strategic defeat. BG Shai queried his audience: “What is victory when both sides declare it, as was the case in the aftermath of the August-September 2006 Second Lebanon War?” Effective management of relevant media – relevant in the sense of having the ability to impact audiences significant to the managing party – can harvest strategic victory from tactical stalemate, even overcoming defeat on the field of battle.

Burton and his soldiers cultivated the trust of media representatives. His guidance to media representatives reporting on Dagger Brigade operations was threefold in character and straightforward:

- Never communicate anything but the truth
- Never print anything that puts my soldiers in danger

- Never get in the way of operations

The brigade's forthrightness was reciprocated; though the outsiders were privy to sensitive information provided for context, they did not compromise the safety of the soldiers relying on their good judgment. Establishing this mutual trust sometimes necessitated an aggressive approach to media relations. Once, confronted by a reporter attacking the concept of gated communities, Burton provided the opportunity for the individual to meet with local community leaders who confirmed they had agreed to emplacement of the barriers protecting the residents behind them.

Lesson

“Management” of the media is not equivalent to “control.” Establishing standards and cultivating mutual trust may prove more effective than manipulation.

“Maneuver” Redux: More than Movement and Fires?

The 2008 Latrun conference, second in the ongoing series, featured a bit of sparring regarding the appropriate conceptualization for “maneuver” in support of 21st-century land operations. General Rupert Smith of the British Army and Dr. Russell Glenn argued for expanding its application, Glenn suggesting it could be defined as “the employment of relevant resources to gain advantage with respect to selected individuals or groups in the service of achieving specified objectives.”²¹ Colonel (U.S. Army, Ret) Clinton Ancker countered that the standing definition as employed in American military doctrine – “employment of forces in the operational area through movement in combination with fires to achieve a position of advantage in respect to the enemy in order to accomplish the mission” – was well understood and appropriate to the U.S. military’s practice in the field.²² Speaker presentations at the event three years later addressed the concept of maneuver both explicitly and implicitly. MG Gershon HaCohen, commander of the IDF’s armed forces colleges, reached back to the writings of Richard Simpkin and his *Race to the Swift* to compare doctrines based on attrition and those favoring maneuver.²³ HaCohen concluded that victories in World War I, World War II, and 1973 Israel

²¹ Russell W. Glenn, *Land Maneuver in the 21st Century: The 2nd Latrun Conference for Land Warfare*, Latrun, Israel: Institute for Land Warfare Studies, 2009, p. ix.

²² Department of Defense Dictionary of Military and Associated Terms, Joint Publication 1-02, Washington, D.C.: Joint Chiefs of Staff, April 12, 2001 as amended through May 30, 2008, p. 324.

²³ MG (IDF) Gershon HaCohen, “Is There a Balance Change between Fire and Maneuver?” briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 8, 2011. HaCohen was referring to Richard Simpkin, *Race to the Swift: Thoughts on Twenty-first Century Warfare*, London: Brassey’s, 1985.

supported a doctrine of attrition in the sense that battles favored the force on the tactical defensive. Yet current Israeli doctrine touts maneuver as an essential ingredient for victory. “Is this the case?” HaCohen asked his listeners. Approaching the question differently, he queried, “How does one unbalance the enemy” and thereby persevere? Maneuver can unbalance an enemy – say, via an envelopment that inspires panic in a foe – in a way fires alone cannot. During the 2006 Second Lebanon War neither side dominated on a battlefield characterized by Hezbollah attacking Israel primarily through the use of missiles while the IDF relied primarily with fires in return to neutralize that threat. The general continued to challenge his audience: “Who was on the offensive during the Second Lebanon War? Who was on the defensive?” He concluded that the results of the struggle during those two months in the summer of 2006 (1) reinforces the need for offensive maneuver even when a force is on the strategic defensive, and (2) confirms that offensive and defensive *ground* operations can be delegated to secondary importance during some conflicts. Hezbollah never conducted nor did it ever have the intention of conducting offensive ground maneuver during the Second Lebanon War. They never conducted offensive maneuver *in the physical sense*. They did, however, conduct maneuver *in the information realm* as briefly touched on above, e.g., with their declarations of victory. HaCohen’s analysis supports an expanded employment of “maneuver,” one consisting of “the employment of relevant resources” rather than movement and fires alone. BG MacFarland’s discussion of his brigade’s operations in Anbar Province would seem to do the same.²⁴ Employment of the unit via the traditional movement + fires conceptualization of maneuver was fundamental to his successes in Iraq, notably through the expansion of combat outpost usage from a single such installation at the time of his organization’s arrival to some 30 by the time of its departure. Yet that success also relied on the development and fielding of a crucial non-military asset, the Iraqi police. Preparing this force, allowing local national leaders to position outposts where they thought it appropriate (in terms of simultaneously accomplishing the ends of community security and protecting their families), and tolerating approaches not in keeping with U.S. traditional thinking all combined to propel the ouster of Al Qaeda and other threats from the brigade area of operations. Such open-mindedness in turn brought another “relevant resource” to bear in the service of coalition objectives: popular support. Previously undetected underground weapons caches were suddenly uncovered as tribes opened new police sub-stations or neighborhood watch stations. In summarizing, MacFarland noted, “We

²⁴ Sean B. MacFarland (BG, U.S. Army), “The Sunni Arab Awakening in Iraq and its Implications for Counterinsurgency Operations,” briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 8, 2011.

were the air in the fuel + air + spark metaphor for what makes an internal combustion engine run. The fuel was the Iraqi police. The spark was the insurgents' bombing an Iraqi sheik and hiding his body to preclude his being buried in accordance with Muslim custom."

Lesson

It may be valuable to conceptualize "maneuver" more broadly than is doctrinally currently the case.

4. Further Implications of War's Changing Environment

Our modus operandi is that we speak with whoever is in charge...to ensure that there is a free flow of information so that we can operate independently and safely.... We want to be as transparent as possible.²⁵

Michael Khambatta,
International Committee of the Red Cross

When Neutrality is Not Enough: The Increasingly Dangerous Task of Providing Aid

Those knowledgeable with regard to today's irregular warfare operations are familiar with an evolution unrecognized by others: a dramatic expansion in the number of participants seeking to influence a conflict's outcome with their personal presence in a theater. These include the various arms of the militaries involved, multinational partners (to include those representing the host nation when appropriate), and select representatives of other government agencies from some or all of the participating countries. There has more recently been an influx of nongovernmental organizations (NGOs), both international and those from the host nation, the number of which can be and often is greater than the combined quantity of nation state organizations. Intergovernmental organizations (IGOs) and commercial enterprises likewise can be found in numbers greater than was the case in the past. The extent to which the objectives of these many players overlap varies widely. The result is considerable breadth in the willingness of individual participants to cooperate – even to merely communicate – with each other. International Committee of the Red Cross (ICRC) speaker Raoul Bittel emphasized the importance of finding at least some extent of common ground despite differences. Some extent of coordination is crucial to minimize the chances of NGO, IGO, or other groups' members being inadvertently engaged by armed forces.

Some sense of the challenge inherent in bringing about this coordination is apparent in the motivations underlying the activities of these many players. Clausewitz states, "war is not merely an act of policy but a true political instrument."²⁶ In stark contrast, Mr.

²⁵ Michael Khambatta interview with Dr. Russell W. Glenn, Washington, D.C., February 26, 2008.

²⁶ Carl von Clausewitz, *On War*, Ed. and trans. Michael Howard and Peter Paret, Princeton, NJ: Princeton University Press, 1984, p. 87.

Bittel informed his audience, “the ICRC charter is to assist people in need regardless of demographics. *Politics plays no role*. There are no good, bad, or civilian victims; there are only victims.”²⁷ Such an attitude is commendable. It can nonetheless lead to misunderstandings and, potentially, considerable friction between organizations that should ideally be working together in the interest of both their respective organizations’ objectives and the welfare of the local population. Another member of the ICRC previously interviewed by the author provided an example that further clarifies the perspectives of his organization, perspectives that could at first glance be difficult for some to accept. When asked whether the ICRC would inform one side or the other that improvised explosive devices or mines were being laid on a road used by military forces of the opposing side, the ICRC’s Mr. Michael Khambatta reasonably responded:

We will not inform either side of the other’s pending military operations.... If the weaponry is indiscriminate, we would respond differently than if it was specifically targeting one side or the other. If we see indiscriminate weapons being laid, we would approach those who are doing it.... We would share with other NGOs, but not the military.... I think it’s important that we say these things out loud and clearly.... I think that the military also understands that if we did share with the military, it would be the end of our operations there. There would be no access to prisoners... The military should not rely on us for their intelligence.... We are the people who will be the neutral intermediary.... We have to preserve that role.²⁸

Bittel noted that despite their neutrality, organizations such as his own have increasingly been targeted over the past two decades for reasons often difficult to discern. Is it due to the national origins of the NGO in question, he asked. Or is it because of differing religious, political, or other beliefs? Is the reason less specific and just the result of generally increased violence in some environments? Regardless, Mr. Bittel concluded, humanitarians are increasingly challenged in delivering their services due to concerns regarding the welfare of their personnel.

Bittel went on to propose that part of the solution might be to better distinguish between military and NGO representatives. An ICRC colleague of Mr. Bittel’s spoke to a member of the Taliban who explained, “You must understand when humanitarian support becomes a sword and stop then.” As with the position of neutrality, the guidance is more complex than first glance reveals. One man’s food parcel, immunization, or veterinarian visit is another’s weapon if the latter believes an NGO’s

²⁷ Raoul Bittel, “Humanitarian Support,” briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 7, 2011.

²⁸ Michael Khambatta interview with Dr. Russell W. Glenn, Washington, D.C., February 26, 2008.

services lend legitimacy to a competitor. Neutrality is proving a less than effective shield in irregular warfare.

What We Have Here is a Failure to Anticipate

MG (U.S. Army, Ret) Paul Eaton addressed one of the greatest challenges confronting a nation state seeking to assist a country in developing the capacity to stand alone successfully.²⁹ Eaton was the first commanding general of the Coalition Military Assistance Training Team, Iraq (CMATT-I). His was the responsibility to form, train, and field an Iraqi security force capable of defending its country from internal and external threats after the disintegration of the military in 2003. MG Eaton described to the audience the extraordinary complex demands such an undertaking involved, an enterprise rife with political and diplomatic implications in addition to those military and economic. That he was selected to assume his responsibilities only on May 9, 2003 after initiation of hostilities in March of that year reflects the lack of anticipation regarding the requirement to establish a defensive capability for Iraq after its military defeat. His was a reactive appointment rather than what should obviously have been one anticipated in synchronization with the initial decision to go to war and incorporated in the planning supporting that decision. The lack of a post-combat plan outlining coalition operations to ensure the stability and recovery of Iraq directly impacted the resulting competition for resources. The frequently discussed ill-advised decision to comprehensively bar any member of the Ba'athist Party senior to lieutenant colonel from service in the security forces compounded the difficulty of rebuilding.

Preparation of Iraqi security forces began in earnest with formal establishment of the training program in February 2004 after months of recruiting, planning, and other preliminary activities. A half-year later the new soldiers of four Iraqi battalions were in Kirkuk. MG Eaton, who had studied military approaches to training ranging from that of Baron von Steuben with the 18th-century embryonic American colonial army to Lawrence's operations with Arab irregulars in World War I and the Allies post-WWII creation of the German *Bundeswehr*, had suggested sending Iraqi unit leaders to Jordan for training. Those men, prepared much as their Jordanian counterparts were, would then return to their units and – assisted by U.S. advisors –train the men they would lead. The result would have had much in common with what T.E. Lawrence recommended after his extensive First World War experience in support of Allenby's Middle East

²⁹ MG (U.S. Army, Ret) Paul D. Eaton, "Training Local National Security Forces: Creating a Professional Force to Win Popular Support," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 7, 2011.

operations. Among the several benefits: soldiers trained by those who spoke their language, the importance of which became clearer when competition for proficient translators resulted in the dedicated but militarily inexperienced linguists supporting the CMATT-I providing such gaffs as mis-translating “fields of fire” as “pastures of flame.”

Despite the efforts of several nations committed to the belated security force rebuilding mission, the Iraqi Army was unsurprisingly little prepared both in terms of fighting capacity and psychological preparation to confront the threat posed by Muqtada al Sadr’s Shia militia when it rose against coalition forces and Sunni communities in April 2004. The army’s 2nd Battalion, committed to combat despite the warnings of those most familiar with its capabilities, was disastrous. Recruited with the understanding they would confront only external threats to their country, as of yet insufficiently instilled with a sense of national pride, and simply too unpracticed in the application of military tactics, the battalion dissolved in the face of the foe.

The belated decision to stand up a security force training capability also meant that key decisions regarding how best to prepare the resulting force had to be made simultaneously with the conduct of that training, a situation far less desirable than having been able to make key assessments before immersion in the exceptionally high tempo operations once the CMATT-I began its operations. The situation was akin, in Eaton’s words, to building a plane while it is in flight.

Lesson

Building – or rebuilding – a security force demands planning and other preparations be an integral part of campaign planning, resourcing, and execution.

Lesson

Train-the-trainer approaches to security force preparation may be preferable for a number of reasons, to include early establishment of leaders in unit chains of command and reduced reliance on translators.

Lessons of value when training an evolving security force emerged despite the above challenges. Eaton emphasized three points of particular significance for any organization seeking to ready a military or police force:

- *Physical fitness*, to give the soldier the self-confidence that he has the agility and endurance to do his job.
- *Train on fundamental skills* such as weapons use so that the soldier is both technically proficient and confident in his ability to perform in combat.
- *Legitimacy, legitimacy, legitimacy*. Soldiers must believe they are serving a legitimate cause. The individual must believe he or she is acting as a legitimate agent of a legitimate government. Jordanian soldiers, Eaton noted, all wear a pin, a Jordanian flag with a “1” on it. The desired meaning: not that Jordan is number one as a nation, but rather that the soldier’s country comes first, first before tribe, clan, or loyalty to any individual.

Walking Around the Table: Viewing Challenges from More than One’s Own Viewpoint

Israel’s former IDF chief of staff LTG (Ret) Moshe Yaalon drew on the past to remind his audience that viewing a situation from perspectives other than your own is no less crucial in the diplomatic arena than the tactical. Yaalon argued that one can reach security agreements with approaches more effective than requiring a written agreement. He recalled that despite longstanding good relations with Jordan’s King Hussein of Jordan, an Israeli government representative was told to ask the king to sign a formal peace agreement. The king, taken aback, asked, “What do you expect of me? I don’t have a signed agreement with any Arab country in this regard. Why do I need to have one with Israel?” “I think,” Yaalon concluded, “there are relations to be had with countries around the world that we can establish without the formality of a signed agreement.”³⁰

Yaalon’s example is a strategic one that has no less application to soldier-diplomats at the tactical level. It is second nature for the intelligence analyst to “walk around the table” and view a course of action from the enemy’s perspective. Contingencies confronted by armed forces today demand similarly savvy evaluations regardless of a soldier’s task at hand. Often the perspectives he or she needs to consider are those of the civilian population rather than (or in addition to) adversaries. The NCO setting up a vehicle control point (VCP) in a congested urban area obviously must consider how a foe would attempt to breach his unit’s preparations. Additionally, he or she should consider how a less aggressive threat would attempt to bypass the checkpoint and thereby avoid

³⁰ LTG (Ret) Deputy Prime Minister Moshe Yaalon, “Has Israel’s Strategy Changed from Offense to Defense?”, briefing provided during the Institute for Land Warfare Studies War’s Changing Environment conference, Latrun, Israel, September 8, 2011.

a search. Yet equally important is “war gaming” the situation from a variety of civilian outlooks. Are posted signs clear to those speaking a different language? What if most local drivers are illiterate? Are coalition hand signals for “Slow down,” “Stop,” or other commands understood by locals. (For those believing mankind instinctively understands hand signals, ask a neighbor with no military experience to back his car as you guide him with such standard visual commands as one fist clenched to direct a turn in a particular direction.) Are VCP directions clear to noncombatants during periods of limited visibility? What steps could be taken to prevent inadvertent engagements without unduly endangering soldiers, e.g., when an intoxicated driver confronts the VCP?

Lesson

Counterinsurgencies and other irregular warfare operations require relevant courses of action and plans be analyzed from the perspectives of noncombatants much as others demand consideration of threat reactions.

LTG Yaalon’s example was reflective of Institute for Land Warfare Studies conference offerings every year. Just as events at the strategic level can inform those at the tactical when offered to a fertile mind, so too do the exchanges between countries, services, and agencies consistently provide seeds of benefit to both those speaking and others in the audience. Twenty-first-century conflicts are the realm of learning, anticipation, and adaptation to an extent at least equally as demanding as those of previous eras.³¹ The fifth in the ILWS conferences served all three demands in 2011 just as it has in years previous and will in those to come.

³¹ The essentiality of learning, anticipating, and adapting during conflict is the underpinning for Eliot A. Cohen and John Gooch’s classic *Military Misfortunes: The Anatomy of Failure in War*, NY: Free Press, 1990.

5. Conclusion

As a conflict continues, it gives us time to overcome our existing organizational weaknesses, but it can also expose new friction points and structural weaknesses.... We also need to anticipate and mitigate the friction points so that they don't become fracture points.³²

Joe Votel,

Commanding General, Joint Special Operations Command

The two components of the 2011 Institute for Land Warfare Studies conference offered lessons specific to logistical operations and others with more generic application. Many of the former were affirmations that much in the realm of support and services remains undone despite longstanding and significant shortfalls being common knowledge. Revealingly, if the conference speakers from those three countries are representative, these lessons-recognized-but-not-acted-on are common to Israeli, U.S., and British operations. There is no reason to believe that is not the case, nor is there reason to think that these same lessons are any less applicable to other nations' militaries as well.

Logistics Lessons

Among the logistics lessons reconfirmed:

- Logistics vehicles remain too slow (and, many would argue, too vulnerable) in comparison to their maneuver counterparts, a shortfall the more severely felt in conflicts where the "rear area" has lost much of its previous status as a relatively threat-free environment.
- Though inefficient, dispersal of essential stores is necessary to ensure continuity of operations should some be destroyed either by enemy action or otherwise. This is especially true in the increasingly common situation where a foe has reasonably effective surface-to-surface fires capabilities.
- Introduction of new equipment during the throes of deployment or after a unit has deployed should be undertaken only if a well-designed system for training all personnel who will deal with the end item is put in place. "Well designed" includes minimizing the negative impact the introduction will have on other preparations or in-theater activities.

³² Joseph L. Votel, "Rapid Deployment Forces in the 21st Century," briefing provided during the Institute for Land Warfare Studies War's Changing Environment conference, Latrun, Israel, September 8, 2011.

Other observations regarding support and services have become more prominent in importance only during the recent years of irregular conflict. Amongst them:

- The proliferation of threats throughout operational areas means logistics units require capabilities in quantity and quality akin to those of maneuver counterparts. In addition to now more urgent requirements for survivability and movement capabilities on par with other unit types, logistics units need enhancements in the areas of intelligence, communications, and organic firepower. Similarly, debriefings and integration of insights into wider dissemination of lessons learned should be forthcoming to ensure all elements are equally in tune to changes in the threat environment.
- Dramatic improvements in casualty treatment – linked hand-in-hand with the increased use of protective eyewear, vests, and helmets – have altered the medical status quo in combat theaters. Severely wounded who survive the initial few minutes after the event stand improved chances of survival. This can result in physical and psychological implications for the wounded individual that military medical care has yet to fully internalize. It is also unclear whether the military medical community has fully analyzed the impact of personal protective gear on in-theater medical operations.

Lessons Learned with Additional Implications

The spectrum of demands on the soldier during irregular conflict includes all those confronted by the warrior in conventional combat and many besides. Preparing the soldier warrior for combat was difficult enough; rare was the commander who would not opt for more time given the option for further training before he and his men went into the fight. How best to prepare the individual and unit for the wider scope of demands inherent in irregular conflict remains a topic of experimentation and debate. It was one to which several speakers were drawn as they discussed their experiences in readying their organizations for war. Derivative lessons include:

- Train a soldier for 100 possible scenarios and he or she is sure to confront the 101st soon after arriving in theater. Fifty recruits sitting at tables in an auditorium can learn how to field strip a rifle. The same approach will not prepare them to deal with the unexpected. Preparing the psyche for the never before seen requires a different approach to training, one more resource intensive. It is nonetheless essential if today's soldier is to be properly prepared for 21st-century operations.

- What to cover in these more resource-intensive sessions is a challenge in itself. Though trainers cannot cover every potential contingency, they can strive to impart knowledge of the most recent conditions found in the field. The demand for increased attention being paid to debriefings after logistics patrols and the inputs from same being made available to all interested parties applies more widely regardless of task, mission, or unit type.
- Leaders no less than led must prepare for the vagaries of irregular confrontations. Gone are the days when a commander centrally controlled all aspects of a battle. The man or woman who cannot decentralize, the commander who believes he or she can make decisions regarding what a local community needs without input from members of a population: these are leaders who may do more harm than good in today's operational environment.
- So also must the leader's mind ready for the unexpected no less than a subordinates'. Whether considering the actions of a foe, noncombatant, media member, or another, training must seek to prepare those leading to exercise judgment regarding when to reflect for a moment, when to instead aggressively launch ahead, or when to choose another course of action given that the path ahead is unfamiliar.
- Inherent in this preparation for the newly experienced is gaining an appreciation for "walking around the table" to view a problem from perspectives other than one's own. War-gaming a course of action from the threat perspective is second nature to the trained soldier. Challenges such as considering how best to train a country's security forces from scratch or how to employ resources other than those involving fire and movement require investigation of viewpoints less called for in the past than today. Doing so should be practiced in training and exercised during operations.

Five conferences, five validations. As different as various nations' security challenges are, they have much to learn from each other. The challenges may differ in nuance. Sometimes those confronted by one country foretell what is to come for another. Sharing knowledge to prepare all for tomorrow continues to be a mission met during the annual Institute for Land Warfare Studies conference.

Appendix 1: Conference Agenda

Tuesday September 6, 2011	Logistics Challenges in Light of Land Warfare Constraints
Morning Session	Chairman
Logistics Challenges	BG (Ret) Avraham Alfasy
Logistics Challenges in Light of Land Warfare Constraints	MG Dan Biton, Head of IDF Logistics
Logistics as an Operationally Decisive Factor in Conflict	Lt Col Lee J.N. Daley, British Army, SO1 Force Development/Organization and Deployments, HQ Directorate Royal Logistics Corps
Logistics in Support of Continuous Combat Operations	MG (Ret) Hagai Shalom, Former Head of IDF Logistics
Logistics Support during the Ground Campaign	COL Keith Sledd, U.S. Army, Commander, 16th Sustainment Brigade
Afternoon Session	Chairman
Logistics Solutions	BG (Ret) Prof. Eran Dolev
Logistics Support in a Multi- front Theater	BG Mofid Ganem, IDF Chief Logistics Officer
Medical Support during Ground Operations	BG Dr. Nachman Ash, IDF Chief Surgeon
Logistical Resilience as a Key Response to Asymmetric Threats	BG (Ret) Meir Elran, Senior Researcher, Institute for National Security Studies
Controlling the Communications Zone	MG (Ret) Chayim Erez, IACA Chairman

Wednesday September 7, 2011	War's Changing Environment
Morning Session Man in War's Changing Environment	Chairman BG (Ret) Gideon Avidor
The Impact of Digitization on Tactical Commanders	MG (Ret) Yiftach Rontal, Former Commander, Ground Forces Command
Army Acquisition in Times of Constant Change	Ms. Heidi Shyu, Acting Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
Shaping the Combat Environment	BG JB Burton, U.S. Army, Deputy Director for Operations, J3, National Military Command Center
Afternoon Session Preparing for the Human Dimension of Conflict	Chairman MG (Ret) Eyal Ben Reuven
Preparing the Human Mind for Modern Conflict	BG (Ret) Dr. MP Nachman Shai, Former IDF Spokesman
Humanitarian Support during 21 st -century Conflict	Mr. Raoul Bittel, Deputy Head of Delegation, International Committee of the Red Cross
Training Local National Security Forces: Creating a Professional Force to Win Popular Support	MG (Ret) Paul D. Eaton, U.S. Army, former Commanding General, Coalition Military Assistance Training Team, Iraq
The Media Campaign	IDF Deputy Spokesman ,COL Shai Stern

Thursday, September 8, 2011	War's Changing Environment
Morning Session	Chairman
The New Technological Environment	MG (Ret) Amnon Reshef, Former Commander, Israeli Armored Corps
Has Israel's Strategy Changed from Offense to Defense?	LTG (Ret) Deputy Prime Minister Moshe Yaalon, Former IDF COS
The Home Front is the Main Front	MG (Ret) Minister for Home Defense Matan Vilnai, Former Deputy IDF COS
Has the Balance Changed between Fire and Maneuver?	MG Gershon HaCohen, Commander, IDF Colleges
Cyber Warfare	MG (Ret) Professor Isaac Ben Israel, Chief of Staff, National Cyber Authority
Afternoon Session	Chairman
New Dimensions in Land Warfare	MG (Ret) Uzi Dayan, Former IDF Deputy COS
The Sunni Arab Awakening in Iraq and its Implications for Counterinsurgency Operations	BG (P) Sean B. MacFarland, U.S. Army, Deputy Commanding General, U.S. Army Combined Arms Center
Advanced Active Defense: From Vision to Reality	COL (Ret) Didi Ben Yoash and Mr. Yossi Druker
Rapid Deployment Forces in the 21st Century	LTG Joseph Votel, U.S. Army, Commanding General, Joint Special Operations Command

Appendix 2: Speaker Biographical Sketches

BG Doctor Nachman Ash

Brigadier General Ash served as a surgeon at the battalion and brigade levels in addition to an assignment in that capacity with Israel's special operations forces. He completed his Phase A and B specializations in internal medicine at Shiba Hospital. Other assignments include those as:

- West Bank Division Surgeon
- Head of the medical branch in the Chief Medical Officer Headquarters
- Medical Informatics Fellow, Brigham and Women Hospital, Boston, Massachusetts
- Medical Information Systems Projects Manager, Internal Ward A and computer unit, Shiba Hospital
- Deputy Chief Medical Officer, Israel Defense Forces
- Chief Medical Officer of the Israel Defense Forces (since 2007)

Ash holds a MD from Tel-Aviv University; a MS in medical informatics from the Harvard-MIT Division of Health Sciences and Technology, Boston; and a MA in political science from Haifa University.

MG (IDF, Ret) Professor Isaac Ben-Israel

General Ben-Israel joined the IDF's ground forces during his service in the Israeli Air Force. He held several posts in operations, intelligence, and weapons development organizations. He was promoted to major general in January 1998 and appointed as Director of the Defense Research and Development Directorate in the MOD.

MG Ben-Israel's awards include two Israel Defense Awards. He has been a member of the Israel Space Agency advisory board since 2002 and served as its chairman. He is also a member of the board of directors of IAI and currently serves as the chief of staff of the National Cyber Authority.

MG Dan Biton

Major General Biton joined the IDF in 1979. His assignments included commands at the company, battalion, brigade, and division echelons in the armor corps; G3 at brigade and division level; and head of the IDF Doctrine Department. He is currently head of the IDF Logistics and Technology Branch.

MG Biton graduated from command and staff college and the national defense college. He holds a BA in history from Tel-Aviv University and MA with honors in civil science from Haifa University.

Mr. Raoul Bittel

Raoul Bittel is the International Committee of the Red Cross (ICRC) Deputy Head of Delegation in Israel and the Occupied Territories. He has been based in Israel for almost 18 months and is responsible to the ICRC Head of Delegation for the organization's operations in Israel. His familiarity and interest in the Middle East comes from his time as the ICRC Deputy Head of Operations for the Middle East and North Africa while he was based in Geneva.

Prior to being posted to Israel, Raoul Bittel worked at the ICRC HQ as the advisor responsible for global and multinational forces and as the advisor on private military security companies. In this position he assisted with the ICRC approach and interaction with nation states involved in the Iraq and Afghan wars with a particular focus on U.S. forces.

Mr. Bittel is a lawyer who has worked as a legal advisor for the ICRC in addition to his operational roles, acting in that capacity with delegations that include Bosnia, Colombia, and various locations in Africa. He holds a Bachelor of Science degree in International Relations and a Masters degree in International Law from the London School of Economics. He is married with three children and currently lives in Israel.

BG (U.S. Army) J.B. Burton

Brigadier General J.B. Burton currently serves as Deputy Director for Operations, J3, on the Joint Staff within the National Military Command Center in Washington, DC. He was commissioned a second lieutenant of infantry upon graduation from Middle Tennessee State University.

Brigadier General Burton led an infantry and scout platoon in the 7th Infantry Division (Light) at Fort Ord, California. He commanded a mechanized infantry company and combined arms company/team in the 3rd Battalion, 41st Infantry Regiment of the 2nd Armored Division's Tiger Brigade at Fort Hood, Texas and in Southwest Asia during Operations Desert Shield and Desert Storm. He commanded the 2nd Battalion, 5th Cavalry Regiment at Fort Hood, Texas and continued as commanding officer of Task Force LANCER in Kuwait during Operation Intrinsic Action in 2000 and 2001. BG Burton later commanded the 2nd Brigade Combat Team (DAGGER) of the 1st Infantry Division in Schweinfurt, Germany and in Baghdad, Iraq during the period June 2005 through February 2008. During the Dagger BCT's 15-month combat deployment, it initiated the projection of coalition forces from forward operating bases to establish combat outposts throughout their area of operations in partnership with Iraqi security forces. Dagger BCT recruited, trained, and employed volunteer security formations in the principally Sunni neighborhoods of northwest Baghdad while concurrently supporting establishment of functional local governance bodies.

BG Burton's military education includes the Navy War College, U.S. Army School of Advanced Military Studies, the Army Command and General Staff College, and Infantry Officer's Basic Course. He holds Master's Degrees in Human Resource Management, Military Arts and Sciences, and Strategic Studies and International Affairs. His awards and decorations include the Silver Star Medal, Legion Of Merit, Bronze Star Medal, Defense Meritorious Service Medal, Combat Infantryman's Badge (2nd Award), Expert Infantryman's Badge, Ranger Tab, Army Parachutist Badge, Air Assault Badge, and Pathfinder Badge. He is married to the former Cathy Cavalli from Santa Maria, California. They have one son.

Lt Col (British Army) L.J.N. Daley

LT Col L.J.N. (Lee) Daley joined the British Army in 1993 as a trooper in the Household Cavalry Regiment (Royal Horse Guards/1st Dragoons), operating initially in the formation reconnaissance role and later on horseback. After completing officer training, his junior appointments included operational tours in Bosnia (Op PALATINE) and Kosovo (Op OCCULUS) in both supply and transport disciplines.

Lt Col Daley has served in Sierra Leone, Africa as a military advisor to an infantry brigade and as the SO2 Logistics (Plans) in Iraq planning the drawdown of Operation TELIC. He then served within the United Kingdom's military operational command HQ

(PJHQ) coordinating joint force support operational training. He was selected to command an air assault close support squadron in 16 Air Assault Brigade and deployed to Afghanistan in the summer of 2008 where he conducted combat logistic patrols across Helmand Province during Operation HERRICK 8. Lt Col Daley was awarded a Queen's Commendation for Valuable Service on behalf of the sub-unit in 2009.

Lt Col Daley became SO1 Force Development at HQ Directorate Royal Logistic Corps (DRLC) in May 2010 and is currently leading efforts on the Strategic Defence and Security Review. He has been selected to command 1 Logistic Support Regiment RLC supporting 20th Armoured Brigade based in Germany from April 2012 and is due to return to Afghanistan in 2014.

Mr. Yossi Druker

Yossi Druker has been with Rafael since 1977 and is currently the Director of Air-to-Air and Air Defense Systems in Rafael's Missiles and Net Centric Warfare Division. He previously served as project manager of the company's short-range air-to-air missile program and, thereafter, as program manager of Rafael's Short Range Ballistic Missile Defense System program.

Mr. Druker has extensive experience in the management of advanced weapons systems to include hardware and software development, aircraft integration, algorithm development, operations research, and systems engineering. He has a Bachelor of Science in Electrical Engineering degree from Ben-Gurion University, Beer-Sheva, Israel.

MG (U.S. Army, Ret) Paul D. Eaton

Since retirement from the U.S. Army in 2006 after 33 years service, Major General Paul D. Eaton served as a national security and military affairs advisor to candidates for national office and currently serves as senior advisor to the National Security Network. His army assignments included infantry commands from the company to brigade levels and as Chief of Infantry and commanding general of the Infantry Center at Fort Benning, Georgia. In 2003 he was charged with the mission to reestablish the Iraqi Armed Forces and Interior Ministry security forces. Other operational assignments include tours in Somalia, Bosnia, and Albania. He also served in the operations directorate of the joint staff and as the U.S. Army Training and Doctrine Command's (TRADOC) Deputy Commanding General for Transformation and Stryker Unit Development. He is a 1972

graduate of West Point, is married to PJ Eaton, and father to sons Shane and Joshua and daughter Gina, all of whom are soldiers.

BG (Ret) Meir Elran

General Elran served in a number of senior assignments. Several were in the intelligence field, to include assistant head of the assessment division and deputy head of the intelligence division. He later served as deputy commander of the National Defense College. His post-retirement positions include deputy general manager of the Tel-Aviv municipality and strategy consultant to several government ministers and the National Security Council.

Meir Elran is a senior researcher in INSS and the author of several articles. His previous research positions include those with the U.S. National Defense University and Near East South Asia Center for Security Studies.

Major General (Ret) Chayim Erez



General Chyaim immigrated to Israel in 1943 and joined the IDF in 1954, retiring 33 years later in 1987. His main appointments in the IDF include command postings from platoon leader to major general. His last tours of duty included service as Southern Command Commander and commander of the Logistics Division at IDF GHQ. He was CEO of Israel Chemicals for eight years after retirement as well as director of the Dead Sea Company, Bromide Company, Rotem, and Desalinization Company. Chyaim is the director of the Israeli Armored Corps Association, a non-profit organization. He received a BA in History, BA in Political Science, and studied public management at the London School of Economics.

BG (IDF) Mofid Ganem

BG Ganem's career included service as deputy commander and commander of an infantry battalion headquarters company and G4 of a territorial brigade, infantry brigade, armored division, Land Forces Training Center, and Central Command. He later

served as head of logistics branch in Ground Forces Command. More recently his assignments include head of Doctrine, Organization, and Manpower for Logistics branch, and, since 2009, as the IDF's chief logistics officer

BG Ganem has BA in Middle East Studies and MA in Political Studies from Haifa University.

MG (IDF) Gershon HaCohen

General HaCohen joined the Nahal Brigade in 1973 and fought in the Yom Kippur War. He served in the 7th Tank Brigade in various command assignments and was later assigned as commanding officer of the Armor Officers Course, 7th Brigade, and deputy commander and commander of the Gaash Armored Division. He has also served as head of the Doctrine Department at IDF GHQ. He was later promoted to major general and command of the IDF's defense colleges.

MG HaCohen earned a Bachelor of Arts in Philosophy and Comparative Literature from the Hebrew University in Jerusalem. He is married with three children

BG (U.S. Army) Sean MacFarland

Brigadier General Sean MacFarland is the Deputy Commanding General for Leader Development and Education of the U.S. Army Combined Arms Center at Fort Leavenworth, Kansas. He is also the Deputy Commandant of the Command and General Staff College. He was appointed to the U.S. Military Academy from New York and graduated in 1981. He served as a cavalry officer in the 3rd Armored Cavalry Regiment at Fort Bliss, Texas and in 3rd Squadron, 12th U.S. Cavalry in Buedingen, Germany where he commanded Troop A patrolling the Fulda Gap. General MacFarland later served as deputy regimental S3 of the 3rd Armored Cavalry Regiment during Operations Desert Shield and Desert Storm. As a major, he served as operations officer of 3rd Squadron, 4th U.S. Cavalry in Schweinfurt, Germany and as executive officer of 1st Squadron, 4th U.S. Cavalry in Bosnia. As a lieutenant colonel, BG MacFarland commanded 2d Battalion, 63rd Armor Regiment in Macedonia and Vilseck, Germany. He also served as Chief of Future Operations for CJTF-7 (Combined Joint Task Force-7) in Baghdad, Iraq. His assignments as a colonel included operations officer of V Corps in Heidelberg, Germany and Commander, 1st Brigade Combat Team, 1st Armored Division (1/1AD) in Friedberg, Germany and Iraq. In Iraq, 1/1 AD operated initially in Tal Afar before moving to Ramadi where it initiated the Sunni tribal engagement strategy that led to the

Awakening Movement, ultimately turning Al Anbar province from the most violent into the most peaceful in Iraq before the movement spread across the country. He subsequently served as Chief of the Iraq Division, Plans, and Policy Directorate of the Joint Chiefs of Staff during the “surge.” Prior to coming to Fort Leavenworth, BG MacFarland commanded Joint Task Force North, responsible for Department of Defense support to U.S. Border Security.

BG MacFarland is a graduate of the Command and General Staff College, the School of Advanced Military Studies, and the Industrial College of the Armed Forces. He also earned a Master of Science degree in Aerospace Engineering at Georgia Tech.

His awards include the Combat Action Badge, two Defense Superior Service Medals, Legion of Merit, three Bronze Stars, six Meritorious Service Medals, a Joint Service Commendation Medal, two Army Commendation Medals, five Army Achievement Medals, and Joint Staff Identification Badge.

He is married to the former Lynda Tummillo of El Paso, Texas. They have two children.

MG (Ret) Yiftach Rontal

General Rontal joined the IDF armored corps in 1974. His key assignments include:

- Commander of a tank company, tank battalion, tank brigade, and division
- Chief of Staff, Ground Forces Command
- Commanding Officer, National Ground Forces Command Training Center
- Commanding Officer, Ground Forces Command.

MG Rontal was chairman of the board for Israel Port Development and Assets Company (ICP) and chairman and CEO of R-Ticam Ltd. He currently serves as chairman of the board of directors of the Israel Electric Corporation.

General Rontal graduated from Hebrew University Faculty of Law and has an Executive MBA from Bar-Ilan University.

Dr. Nachman Shai, Member of Knesset

Dr. Nachman Shai was elected to the 18th Knesset in February 2009. He is a member of the Foreign Affairs and Defense Committee, Economic Affairs Committee, and Committee on the Status of Women. Prior to his entry into the world of politics, Nachman held the position

of Senior Vice President and Director General, External Affairs, of the United Jewish Communities, Israel.

His other positions include:

- Director General of the Ministry of Science, Culture, and Sport
- Israel Defense Force Spokesperson with the rank of Brigadier General
- Communications Advisor to the Minister of Defense
- Director General of the Second Television and Radio Authority
- Chairman of the Board of Directors for Channel 2 News Company and Chairman of the Israel Broadcasting Authority
- Press Secretary, Israel Mission to the United Nations in New York and Press Advisor to the Israeli Embassy in Washington, D.C.

Dr. Nachman holds a Ph.D. from Bar Ilan University and an MA degree from the Communications Institute of the Hebrew University in Jerusalem.

MG (Ret) Hagai Shalom

MG Shalom joined the IDF in 1963 after graduation from the Officers Course. He was assigned as an ordnance officer in the Sinai Division and later served as an ordnance officer in the 146th Division and Northern Command. Other assignments include deputy head of the IDF Logistics Branch and head of that branch.

After retirement, General Shalom was general manager with Arit, director of the Hapoalim Bank, chairman of the Mofet Fund, and head of the Metav startup organization. He later joined several partners in purchasing the Hargaz Group and Tiv Taam Supermarket Group.

MG Shalom holds a BA with honors from the Technion in Haifa and a MA in Business Management with a specialty in finance from New York University.

Ms. Heidi Shyu

Heidi Shyu, a member of the Senior Executive Service, was named the Acting Assistant Secretary of the Army for Acquisition, Logistics and Technology [ASA(ALT)] on June 4, 2011. She also continues to serve as the Principal Deputy, a position to which she was appointed on November 8, 2010.

As the Acting ASA (ALT), Ms. Shyu serves as the army acquisition executive, the senior procurement executive, the science advisor to the Secretary of the Army, and the U.S. army's senior research and development official. She also has principal responsibility for all Department of the Army matters related to logistics.

Ms. Shyu leads the execution of the army's acquisition function and the acquisition management system. Her responsibilities include providing oversight for the life cycle management and sustainment of army weapons systems and equipment from research and development through test and evaluation, acquisition, logistics, fielding, and disposition. Ms. Shyu also oversees the Elimination of Chemical Weapons Program. In addition, she is responsible for appointing, managing, and evaluating program executive officers and managing the Army Acquisition Corps and the army acquisition workforce.

Prior to this position, Ms. Shyu was the Vice President of Technology Strategy for Raytheon Company's Space and Airborne Systems. She also held several senior leadership positions with the company including Vice President of Technology and Research, Vice President and Technical Director of Space and Airborne Systems, Vice President of Unmanned and Reconnaissance Systems, Senior Director of Unmanned Combat Vehicles, Senior Director of Joint Strike Fighter (JSF), and Director of JSF Integrated Radar/Electronic Warfare Sensors. As Director of JSF Antenna Technologies at Raytheon, Ms. Shyu was responsible for the development of lightweight, low-cost Tile Active Electronically Scanned Antenna technologies. She in addition served as laboratory manager for electromagnetic systems.

Complementing her extensive experience at Raytheon, Ms. Shyu served as a project manager at Litton Industries and was the principal engineer for the Joint STARS Self Defense Study at Grumman. She began her career with Hughes Aircraft Company.

Ms. Shyu holds a Bachelor of Science Degree in Mathematics from the University of New Brunswick in Canada, a Master of Science Degree in Mathematics from the University of Toronto, and a Master of Science Degree in Electrical Engineering from the University of California, Los Angeles (UCLA). She is also a graduate of the UCLA Executive Management Course and the University of Chicago Business Leadership Program.

A member of the Air Force Scientific Advisory Board from 2000 to 2010, Ms. Shyu served as the vice chairman from 2003 to 2005 and as chairman from 2005 to 2008.

Colonel (U.S. Army) Keith Sledd

Colonel Keith Sledd is a native Oklahoman born in 1961. He enlisted in the army in 1980 serving four years and culminating as a sergeant in the 82nd Airborne Division before returning to college. He received his commission in the infantry in 1987 through the Reserve Officers Training Corps program at East Central University in Ada, Oklahoma.

Prior to his assignment as Commander, 16th Sustainment Brigade, COL Sledd's assignments included:

- G3/5/7, Army Sustainment Command at Rock Island Arsenal
- DCO, 172nd Infantry Brigade in Schweinfurt, Germany
- Commander, 299th Forward Support Battalion, 2nd HBCT/1st ID in Schweinfurt, Germany
- G4, 1st Infantry Division, Wurzburg, Germany
- Majors Assignment Officer, Human Resources Command, Alexandria, VA
- Support Operations Officer, 553rd Corps Support Battalion, Fort Hood, Texas
- G3 Plans Officer, 13th COSCOM/III Corps, Fort Hood, Texas
- Observer/Controller, Joint Readiness Training Center, Fort Polk, Louisiana
- Commander for HHC, 504th Parachute Infantry Regiment
- Executive Officer for HHC, 504th Parachute Infantry Regiment
- Assistant S1, 1st Brigade/82nd Airborne Division
- Rifle Platoon Leader, Bravo Company, 1st Battalion/504th Parachute Infantry Regiment.

Colonel Sledd is a graduate of the Infantry Officers Basic Course, Quartermaster Officers Advanced Course, U.S. Army Logistics Executive Development Course, U.S. Army Command and General Staff College, and the U.S. Army War College. He holds a Masters Degree in Logistics and a Masters Degree in Strategic Studies.

Colonel Sledd's decorations include the Bronze Star Medal with one Oak Leaf Cluster, the Meritorious Service Medal with five Oak Leaf Clusters, the Army Commendation Medal with four Oak Leaf Clusters, and the Army Achievement Medal. Badges earned include the Combat Infantryman Badge, the Combat Action Badge, the Expert Infantryman Badge, the Master Parachutist Badge, the Pathfinder Badge, and the Parachute Rigger Badge.

Colonel Sledd is married to the former Wendy René Droze of Crowder, Oklahoma. They have one daughter, Jennifer, and one granddaughter, Paige, who live in Fayetteville, North Carolina.

Stern

MG (IDF, Ret) Matan Vilnai

MG Vilnai joined the IDF in 1962 as a paratrooper. Key career assignments include platoon leader, company commander, commanding officer of a paratrooper reconnaissance company, commanding officer of the 890th Battalion, and G3 Central Command. He has also served as: the

- Commanding officer of Israel's Paratroopers Brigade (Reserve)
- Commanding officer of the Paratroopers Brigade (Regular)
- Commanding officer of the IDF Officers School
- Commanding officer of an armored division.

General Vilnai was also Chief Infantry and Paratroopers Officer, head of the IDF Manpower Branch, commanding officer for Southern Command, and deputy chief of staff for the IDF.

Vilnai was appointed as Israel's Minister for Science, Culture, and Sport in 1999. He assumed a position as minister in the prime minister's office in 2005 and in 2007 was appointed as Deputy Minister for Defense. He became Israel's Minister for Home Defense in 2011.

LTG (U.S. Army) Joseph L. Votel



LTG Joseph L. Votel most recently served as the Chief of Staff, United States Special Operations Command, MacDill Air Force Base, Florida. As Chief of Staff he was

responsible for coordinating the SOCOM staff in support of special operations service components and deployed special operations forces around the globe.

LTG Votel attended the United States Military Academy and was commissioned in 1980 as an infantry officer. His initial assignments were to the 3d Infantry Division in Germany where he served as a rifle platoon leader, executive officer, battalion adjutant and rifle company commander. Following this he served as a Small Group Tactics Instructor at the U.S. Army Infantry School at Fort Benning, Georgia before being assigned to the 75th Ranger Regiment as a plans/liaison officer where he participated in Operation Just Cause as the battalion liaison officer, operations officer and executive officer. Following this he was assigned to Headquarters, Allied Forces Southern Europe, Naples, Italy and the NATO Peace Implementation Force (IFOR) in Sarajevo, Bosnia-Herzegovina. He commanded the 2d Battalion, 22d Infantry (Light) at Fort Drum, New York and was subsequently selected to command the 1st Ranger Battalion at Hunter Army Airfield, Georgia. Following attendance at the U.S. Army War College, LTG Votel commanded the 75th Ranger Regiment and participated in Operation Enduring Freedom, Afghanistan and Operation Iraqi Freedom.

As a general officer, he served in the Pentagon as the Director of the Army and Joint IED Defeat Task Force and subsequently as the Deputy Director of the Joint IED Defeat Organization established under the Deputy Secretary of Defense. He served as the Deputy Commanding General (Operations), 82d Airborne Division/CJTF-82 during Operation Enduring Freedom and was subsequently assigned as the Deputy Commanding General of the Joint Special Operations Command, Fort Bragg, North Carolina.

LTG Votel is a graduate of the Infantry Officer Basic and Advanced Courses, United States Army Command and General Staff College, and the United States Army War College.

He is married to the former Michele Belair of Saint Paul, Minnesota and they have two grown sons, Scott and Nicholas.

LTG Votel is currently Commander, Joint Special Operations Command.

LTG (IDF, Ret) Moshe Yaalon

LTG Yaalon joined the IDF in 1968 and fought with the Paratroopers Brigade in the Sinai during the 1973 Yom Kippur War. Among his later assignments were:

- Commanding Officer, Paratroopers Battalion
- Commanding officer of the GHQ Special Forces Unit
- Commanding Officer, Paratroopers Brigade
- Commanding officer of the Judea and Samaria Division.

Yaalon has also served as commanding officer of the Field Units Training Center, head of IDF Intelligence Branch, and Central Command commanding officer. He served as Chief of Staff, Israel Defense Forces from 2002 to 2005. He joined the Netanyahu government in 2009 as deputy prime minister and the Minister for Strategic Issues.

General Yaalon is a graduate of the British Army's Command and Staff College

COL (IDF, Ret) Didi Ben-Yoash

Colonel Didi Ben Yoash had a long management career that included planning, staffing, budgeting, technology, and operations responsibilities for various military units and organizations. His specialties were cross-functional team building and leadership, risk management, organizational development, quality control, and performance improvement.

His military career also includes command of a tank brigade and assignment as head of Land Systems Research and Development Division in the Israeli Ministry of Defense. He is the founder and CEO of a consulting and project management company specializing in worldwide consulting to governments, defense organizations, and companies.

Ben-Yoash graduated from Technion-Israel Institute of Technology in Haifa with an electrical engineering degree and earned a Masters in Business Administration at the Anderson School of Management, UCLA.

Appendix 3: Presentation Abstracts

Logistics Challenges in Light of Land Warfare Constraints [Major General (IDF) Dan Biton]

By definition, IDF logistics are the practical art of moving troops and providing support for their activities. Logistics provide a force the ability to operate in various environments across a broad spectrum of missions throughout a conflict and beyond, ensuring soldiers the required standard of living, operable equipment, and treatment for casualties and the ill.

Logistics as an Operationally Decisive Factor in Conflict [Lt Col (British Army) L.J.N. Daley]

This briefing provides a brief study of British logistics lessons learned and adaptations resulting from the United Kingdom's recent COIN operations worldwide.

The nature of war is enduring but its character is changing. We face an operating environment in which there are no linear battlefields or safe areas in which unprotected logistic assets can operate with impunity. For the British Army, modern military logistics no longer consists of transporting supplies to a rear area and holding material in a warehouse. The 360-degree enemy threat now confronts both those who use materiel and logistic services and those who provide them. Protagonists seek to engage our forces where we seem weakest. Our logistic lines of communication and the gaps between combat forces provide an opportunity to exploit. We must counter that threat.

When the British Army entered Iraq in 2003, well equipped formations consisting of main battle tanks and armored infantry were followed by logistic forces operating in unprotected trucks designed to carry large amounts of ammunition across a mostly benign Western European battlefield. Command elements for those logisticians were using lightly protected Land Rovers with limited communications equipment and no access to effective ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) assets. Within five years, the Royal Logistic Corps was conducting combat logistic patrols (CLP) in lieu of traditional convoys. CLT are "G3 operations

delivering a G4 effect:" a deliberate, all-arms undertaking to deliver logistic supplies and services to those who need them while denying protagonists the opportunity to disrupt sustainment activities and create media events favorable to their cause. A combat logistics patrol is heavily armed, possesses organic force protection (FP), and has the capability to coordinate external FP while calling on significant ISTAR assets. CLPs provide sustainment, influence, and intelligence for the combat commander and are a vital element in what is often a violent military supply chain.

This presentation covers the mission exploitation, training, and doctrinal issues required to bring about the creation and fielding of CLPs. It looks at the effects of this important change on the logisticians themselves. The briefing summarizes key physical, conceptual, and moral implications of close support logistics within a COIN environment.

Logistics in Support of Continuous Combat Operations [Major General (IDF, Ret) Hagai Shalom]

Today's conflicts tend to be lengthy given the difficulty of achieving a clear military decision. Regardless, IDF logistics fundamentals remain unchanged. Logisticians will always have to confront the reality that the nation's army will always be challenged to support a multi-front war.

The IDF therefore needs to maintain maximum agility in its capability to concentrate or disperse its logistics assets, adapting their disposition to meet the demands of any environment: urban or rural, within or out of range of enemy indirect fire, whether in southern Lebanon, Gaza, or elsewhere.

IDF GHQ deploys national stockage centers and designs its transportation resources to both move men, materiel, and supplies within or between fronts. In short, Israel's armed forces seek to ever maintain its logistics capabilities as a force multiplier.

Logistics Support during the Ground Campaign [COL (U.S. Army) Keith Sledd]

The 299th Forward Support Battalion deployed as part of the 2nd Brigade (Daggar) Combat Team (BCT)/1st Infantry Division in Aug 2006 to support the brigade's operations in western Baghdad. Increased violence in Iraq ultimately forced coalition

forces to develop a new strategy that lead to the deployment of additional forces, a “surge” that began in January 2007. This presentation focuses on logistics lessons learned during training for this deployment and later combat operations both before and during the surge of forces into Iraq.

2nd BCT/1st Infantry Division began training for deployment in late 2005, shortly after returning from a previous tour in Iraq. The evolving Iraqi operational environment required continual adaptation of unit tactics, techniques, and procedures during both training and combat operations. Changes in coalition strategy, enemy tactics, and brigade combat team equipment created a dynamic and fluid battle space. Leaders and units continuously analyzed what was happening in theatre in order to develop new operational initiatives and methods. This ultimately resulted in changes to virtually every aspect of operations from combat logistics patrol procedures to medical treatment.

This presentation discusses lessons learned regarding leadership, training, operations, and troop leading procedures relevant to logistics operations in a combat theater. The speaker uses examples from unit operations during Operation Iraqi Freedom to illustrate these lessons, the goal being to share insights that other units might find valuable during future operations.

Logistics Support in a Multi-front Theater [Brigadier General (IDF) Mofid Ganem]

Israel’s strategic situation is such that its logistics capabilities must always be ready to support operations across multiple fronts. The continuous introduction of new systems further demands an agility, a flexibility able to meet the varying requirements of combat in southern Lebanon, routine security tasks in the West Bank, support for the home front, or a contingency that could take us into Gaza...all at the same time. Increasing urbanization further adds to our difficulties given the dispersed nature of the fighting.

Medical Support during Ground Operations [Brigadier General (IDF) Dr. Nachman Ash]

The urban environment is a challenge for those responsible for medical treatment and the evaluation of casualties. The emergence of a continuous battlefield, one in which medical personnel are exposed to enemy fire virtually throughout its depth, makes both evaluation and treatment especially challenging, just as it does the movement of medical

supplies. Urban surroundings magnify these difficulties further due to the greater likelihood of instances involving multiple numbers of wounded. Adaptation of procedures is constant; potential adaptations in the future include the possible use of unmanned vehicles.

Logistical Resilience as a Key Response to Asymmetric Threats [Brigadier General (IDF, Ret) Meir Elran]

The resilience of a system is manifested in its capacity to contain a traumatic crisis, to bounce back relatively quickly, and to flexibly establish renewed capabilities that will enable the fulfillment of its basic functions. In the theoretical world of crises management, resilience commonly relates to infrastructure, economic, and societal robustness. The three combined constitute national resilience: the national capacity to withstand critical catastrophes, recover swiftly, and sustain normal functionality. Israel is facing growing asymmetric security threats that focus on the civilian front. In this context, logistic systems – military and civilian – are critical. While the nation can prepare extensive defensive systems, these are often expensive and of limited effectiveness. There is a need to balance national resources, cost, and the potential for improvement in logistic resilience. This presentation considers examples of what is required to establish logistic resilience in Israel.

Controlling the Communications Zone [MG (Ret) Chayim Erez]

Prior to 2003, movement of supplies and provision of support did not represent a significant problem for the IDF. That changed during the Second Lebanon War in the summer of 2006; movement of materials between General Headquarters and divisions proved an unexpected challenge.

We can learn from our experiences in the past. Maneuver unit traffic control issues were overcome in the 1973 Yom Kippur War, but only after major unit delays that endangered the success of our crossing the Suez Canal. Such lessons suggest that Logistics Command should retain overall control of supply and service provision during future conflicts.

The Impact of Digitization on Tactical Commanders [Major General (Ret) Yiftach Rontal]

IDF's digital army project introduces a new dimension to information handling at all echelons. Project development began a decade ago, a time when large-formation warfare was still considered the primary threat. Today's battlefield is instead dominated by small unit operations led by lower echelon leaders. This presentation considers whether battle command systems are capable of handling current challenges at all levels of command.

Army Acquisition in Times of Constant Change [Ms. Heidi Shyu]

The U.S. Army acquisition community is charged to perform the vital mission of providing American soldiers with a decisive advantage in every operation by developing, acquiring, delivering, supporting, and sustaining the most capable, affordable systems and services to meet needs around the clock and around the world. This community strives continually to enable soldiers to dominate the battle space safely and securely by enabling them to achieve a first look, first strike advantage with unprecedented speed and accuracy.

Ongoing operations in Iraq and Afghanistan and the projections of a continued, complex operational environment increase the demand for more agile, innovative, and streamlined processes and institutions to improve our capacity to meet current and future challenges. The U.S. Army acquisition community is working to strengthen the acquisition phase of weapons development programs by matching requirements with mature technologies, maintaining a disciplined systems engineering approach, integrating comprehensive testing, and avoiding sacrificing cost and schedule for the promise of improved performance.

As history has shown us time and time again, soldiers on the ground are the strongest signal of resolve and the ultimate expression of American will. In this presentation, Ms. Shyu will discuss how the U.S. Army is reforming acquisition to develop a more agile process that directly meets the needs of U.S. soldiers. In addition, she will discuss the U.S. Department of Defense's Better Buying Power Initiatives and how the army acquisition community is ensuring that less money is spent on overhead and more on war-fighting capabilities.

Shaping the Combat Environment [Brigadier General (U.S. Army) J.B. Burton]

The Dagger Brigade Combat Team (Dagger BCT), organized around the headquarters of the 2nd Brigade Combat Team of the 1st Infantry Division, deployed to western Baghdad from Schweinfurt, Germany in the summer of 2006. There the brigade was immediately confronted with a significantly complex operational environment that involved a range of destabilizing forces including insurgents, secular extremists, honorable resisters, criminals and organized crime, and corrupt and complicit security force members and governmental representatives.

This presentation analyzes the operational environment in northwest Baghdad and failed approaches to winning in a contemporary urban conflict while offering examples of successful and innovative approaches that significantly and positively altered the course of conflict there. Discussion will include how the Dagger BCT prepared for and then successfully confronted those destabilizing forces while building indigenous capacities in security, municipal services, and local governance.

Preparing the Human Mind for Modern Conflict [Brigadier General (IDF, Ret) Dr. MP Nachman Shai]

The media penetrates our lives at all levels. Its influence over decision-making processes causes us to look at it as an additional front during our nation's conflicts.

Wartime events and situations can take on new meanings when reported by the media. Our involvement and ability to influence what is reported are limited to providing information and access to media representatives. Doing this effectively requires incorporation of media considerations into the campaign plan continuously from origination to completion of operations.

Humanitarian Support during 21st-century Conflict [Mr. Raoul Bittel]

Humanitarian assistance addresses the basic needs of individuals and communities to cope in situations of extreme stress. Assistance activities target those who are most in need. They provide a range of life-saving, life-protecting, and recovery support to immediate victims of crisis. Actors who take on such work to benefit communities living in situations of armed conflict or political tension must provide such support unconditionally. Neutral independent approaches to achieve this are being challenged more and more by actors, mainly states, who assign political goals to their assistance.

As Israel develops new doctrine on civilian aspects of conflict, the pros and cons of these approaches need to be explored.

Raoul Bittel acknowledges the ever-expanding role of integrated approaches to furthering recovery and assistance efforts by the projection of military, political, and economic power. Despite this trend, he argues that the delivery of humanitarian assistance to persons affected by armed conflict must be carried out in a strictly neutral and impartial way. He explains that this is the only way to provide help in an effective way and not place persons most in need at greater risk.

The ICRC is an impartial, neutral, and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of war and internal violence and to provide them with assistance. It directs and coordinates the international relief activities conducted by the International Red Cross and Red Crescent movement in situations of conflict. It also endeavors to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles.

Training Local National Security Forces: Creating a Professional Force to Win Popular Support [Major General (U.S. Army, Ret) Paul D. Eaton]

When one culture sets out to create another culture's security forces, the opportunities to get the mission really wrong beg a robust front-end analysis. Because this front-end analysis did not take place, the history of the American involvement in Iraqi security forces development reveals a rocky beginning, a passable intermediate phase, and a credible current stage. A case study of the Iraqi Security Forces project is particularly useful given the significant differences involved in the mission compared to more benign efforts undertaken by the United States elsewhere. In Iraq, the U.S. was faced with significant cultural differences involving ethnicity, religion, government type, educational theories, and history. The United States was an intervening (belligerent) power, then an occupying power as well as a donor power – one with no shared border and a very long line of communications. The differences between development of an army and police force were not immediately acknowledged, nor was the mission accorded main effort status given the counterinsurgency fight underway. In many ways, as the analogy goes, it was like building an airplane in flight while under attack. Developing the Iraqi soldier and policeman physically was easy. Imparting the training and skill sets needed to accomplish future missions was relatively easy. Developing

what the British Army calls the “moral component,” however, was a massively difficult, and above all else, a political problem.

The U.S. experience in Iraq may offer lessons learned applicable to current efforts to create a viable Palestinian Security Force.

The Media Campaign [COL (IDF) Shai Stern]

The media campaign is an integral part of every military campaign. Before the massive media penetration of our lives, military leaders controlled the information flow. Today the situation is very different. Every cell phone holder is a potential reporter. Personal information transfer systems such as the internet, Facebook, and TV news mean information from the battlefield is potentially available to everyone all the time. Tie this to the impact local and international public opinion has on political decision-makers and the impact of media operations is obvious.

The ability to win the information war lies in early preparation. By creating early situation awareness within both the media and public, subsequent operations are potentially better understood; both groups can then discern reality through the “noise” of adversary propaganda and the confusion inherent during any conflict. Such early preparation and the maintenance of media initiative demands integration of information operations during and throughout both campaign planning and later execution.

Has Israel's Strategy Changed from Offense to Defense? [Lieutenant General (IDF, Ret) Deputy Prime Minister Moshe Yaalon]

Israel's enemies have changed their threat concept from large-unit formation attacks to long-range missile strikes . This has dramatically changed the character of the threat and forced us to look for new ways to deal with it. Unlike in the past, Israeli towns and villages are now threatened from the first moment of a war. In the past we had time – albeit it short – to call out our reserves and try a preemptive strike by the air force. Our homes were relatively safe. Today there is no assurance the air force can eliminate missile attacks as it did in the past. Israel's defense concept calls for moving the war to the enemy's territory. The question is how? What needs to be done to preserve our homes' safety and do we have the means to prevent missile attacks?

Should we change Israel's defense strategy from attack to defense?

The Home Front is the Main Front [Major General (IDF, Ret) Minister for Home Defense Matan Vilnai]

The presence of a missile threat over the entirety of Israel changes the way we look on our defense issues. Freedom to move about safely, guaranteeing the uninterrupted operation of the economy and government operations: such are the IDF's challenges. In the meantime Israel's rear area has become our enemies' number one target. Yet our attacking the enemy's homeland in the manner of the past is no longer a viable strategy and guarding our borders cannot stop the missile threat. The situation calls for new strategy, a portion of which is recognizing that the home front is no less important than any other.

Has the Balance Changed between Fire and Maneuver? [Major General (IDF) Gershon HaCohen]

The nature of Israel's war has changed during the past two decades. State versus state wars are increasingly rare, replaced by non-state actors competing with nation states. Non-state actors fight from well-concealed hideouts, popping up to engage, then disappearing. Their weapons systems are cheap and easy to employ, meaning the threat is unencumbered by complex organizations with extensive bureaucracies. The state is challenged to protect its citizens while the army's primary challenge has evolved from killing the enemy to finding and then forcing the adversary to fight. Thus far it has failed to find a way of achieving that objective. New technologies and concepts are needed. This conference could be a part of finding the needed solutions.

Cyber Warfare [Major General (IDF, Ret) Prof. Isaac Ben Israel]

Digital systems technologies in both the military and non-military spheres introduce a new dimension in war and the management of conflict. Cyber warfare is here to stay; it touches aspect of governmental operations and will continue to do so in new ways and at every echelon of national militaries.

We have long been familiar with electronic warfare. We now confront the challenges of information operations. Cyber warfare includes both and spans much more. Our entire

C4I structure is a potential target, a component of a battlefield that includes the cyber as well as the physical realm. The weapons systems are new, seemingly something from science fiction, yet they equally are something we must prepare both our civilian and military leaders for.

The Sunni Arab Awakening in Iraq and its Implications for Counterinsurgency Operations [Brigadier General (U.S. Army) Sean B. MacFarland]

“Be sociable with them that will be sociable and be formidable with them that will not.” Over 400 years ago, Thomas Hobbes articulated this counterinsurgency doctrine as neatly and concisely as anyone ever has, before or since. The First Brigade Combat Team of the First Armored Division deployed to Iraq before the current U.S. Army/Marine Corps counterinsurgency manual was written. Lacking doctrine, the Hobbesian philosophy was the basis for what it did in Tal Afar and Ramadi, Iraq. This approach led to the now-famous Sunni Arab Awakening in September 2006 and changed the course of the war in Iraq.

External forces can fight counterinsurgency campaigns. Only local forces can win them. The Awakening generated sufficient indigenous combat power to defeat Al Qaeda in and around Ramadi. General Petraeus later adapted the model to create indigenous forces elsewhere to neutralize the Iranian-backed Sadr Militia, known as the *Jaysh al-Mahdi*, as well as to defeat Al Qaeda in Iraq.

This presentation analyzes how local sheikhs formed the Awakening movement and how coalition forces supported it. Eventually, Sunni Awakening forces and the coalition became equal partners. This enabled us to win the local counterinsurgency effort the coalition was conducting in Al Anbar province. Although all insurgencies are different and vary greatly from province to province – and even valley to valley – there are general lessons we can learn from this experience.

Advanced Active Defense: From Vision to Reality [Colonel (IDF, Ret) Didi Ben-Yoash and Mr. Yossi Druker]

At the beginning of the 21st century, we reached a point in the race between threat and protection in which passive protection reached its limit. New anti-tank developments provided penetration capabilities beyond passive armor’s ability to protect within the

scope of maintaining reasonable vehicle weights. This trend allows the threat to operate with reduced-signature systems that can be easily moved about the battlefield. Israel is investing much in efforts to develop technological solutions to this challenge. The Typhoon active defense system has proved itself in operations and may be the new protection system that once again puts tanks in a position similar to that they held on the battlefield 20 years ago.

In the realm of indirect fire attacks, the Iron Dome missile defense system is the first and only effective mobile defense solution for countering short-range rockets and 155 mm artillery shell threats. It has a range of up to 70 km and can operate in all weather conditions, including low clouds, rain, dust storms, and fog.

Rafael Advanced Defense Systems Ltd developed the Iron Dome system in record time. It uses a unique interceptor with a special warhead that destroys any target in the air within seconds. Iron Dome is a cost effective system designed to handle multiple threats simultaneously and efficiently. The system differentiates between rockets that will hit populated areas and those that will not, concentrating only on those that are dangerous. Less than two weeks after the system became operational, it successfully intercepted several rockets fired from Gaza that were aimed at the coastal cities of Ashkelon and Beer Sheba.

Rapid Deployment Forces in the 21st Century [LTG (U.S. Army) Joseph Votel]

The purpose of this briefing is to discuss the evolution and other changes in Rapid Deployment Forces (RDF) over the last 10 years, culminating in the current employment and potential future roles of RDF. LTG Votel will begin by identifying a number of different challenges confronting RDF and Special Operations Forces (SOF) planners using vignettes from the last 10 years to illustrate these challenges. The first challenge is that RDF/SOF become vital when required to respond rapidly to a crisis far from our home bases. These sorts of crises brutally expose structural weaknesses, particularly those involving coordination and cooperation between organizations and nations.

Unfortunately, rapid deployment does not guarantee rapid crisis resolution. Sustaining an inadequately planned and resourced fight far from our home bases exposes the risk inherent in RDF and SOF operations. LTG Votel's presentation will include discussion of how the integration of critical war fighting functions has become even more essential as

information operations (IO) and intelligence, surveillance, and reconnaissance (ISR) have proven to be particularly important in rapid deployment operations. In closing, he will attempt to draw some conclusions regarding where he believes RDF are headed in the future as a fully integrated component of a nation's power projection capability. In summary, LTG Votel plans to draw on recent examples of RDF and SOF employment and how those experiences have influenced those forces' roles, their integration with general purpose forces, and expectations regarding RDF in the current operating environment.

Appendix 4: Industry Sponsors



Elbit Systems Ltd.

Elbit Systems Ltd. is an international defense electronics company engaged in a wide range of defense-related programs throughout the world. The company, which includes Elbit systems and its subsidiaries, operates in the areas of aerospace, land and naval systems, command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR), unmanned air vehicles (UAV) systems, advanced electro-optics, electro-optic space systems, EW suites, airborne warning systems, data links, and military communications systems and radios. The company also focuses on upgrading of existing military platforms and developing new technologies for defense, homeland security, and commercial aviation applications.



Rafael Advanced Defense Systems Ltd.

Rafael develops and produces state-of-the-art armaments for the Israel Defense Forces (IDF) and Israel's national defense system while deriving its economic strength from international sales. The company provides innovative solutions on the technological cutting edge from underwater, naval, land and air through space systems. RAFAEL focuses on such areas as electronic warfare (EW); command, control, communications, computers, and intelligence (C4I); training and simulators; armor; and precision-guided weapon systems. The company has also formed partnerships with civilian counterparts to develop commercial applications based on its proprietary technologies.

RAFAEL is the second largest government-owned defense company in Israel. In 2009 sales amounted to \$1.6 billion with a backlog of orders worth \$1.86 billion. At the end of 2009, the company made a profit of \$112 million. RAFAEL comprises three divisions that as a whole provide our customers with integrated systems and technologies for air, land, sea, and aerospace defense solutions.



Ness Technologies

Ness Technologies (NASDAQ and TASE stock symbol: NSTC) is a global provider of IT and business services and solutions with specialized expertise in software product engineering; systems integration, application development, and consulting; and software distribution. Ness delivers its portfolio of solutions and services using a global delivery model combining offshore, near-shore, and local teams. With about 7,800 employees, Ness maintains operations in 18 countries and partners with numerous software and hardware vendors worldwide.

For more information about Ness Technologies, visit www.ness.com.

Ness TSG

Ness TSG is a leading global command-and-control, intelligence, and telecommunications systems organization with over four decades of experience. Ness TSG specializes in the development and integration of advanced comprehensive solutions for the defense, homeland security, telecom, and utilities sectors. Dedicated to delivering cutting-edge best-of-class solutions, Ness TSG serves a diverse client base of private, public, and governmental organizations worldwide. It offers a one-stop-shop for products, systems, and professional services for a range of military, paramilitary, and telecom applications. For more information about Ness TSG, visit www.ness.com/tsg.



Israel Aerospace Industries

Israel Aerospace Industries (IAI) is one of Israel's leading technological-industrial companies and Israel's largest industrial exporter. The company has gained worldwide recognition as the leader in the development of aviation and aerospace technology in the military and civilian markets.

IAI provides Israel Defense Forces (IDF) and its foreign customers with unique, high-quality technological solutions that meet a wide range of needs on the ground, in the sea, in the air, in space, and in the field of homeland security. These include conversion, repair, and maintenance of commercial aircraft; development and production of advanced radars, secure communications, AEW, EW, ELINT/ESM, SIGINT and COMINT/COMJAM; and upgrading of military aircraft and helicopters, anti-tactical ballistic missiles (ATBM) systems, optronic payloads, navigation, precision-guided munitions, missiles, launchers, communications satellites, observation satellites and ground services, electronic systems, avionics systems, and unmanned aerial vehicles.

IAI has a staff of around 17,000 employees of whom around 40% are university graduates, mainly engineers and scientists.



Israel Military Industries Ltd. (IMI)

Established in 1933, Israel Military Industries Ltd. (IMI) is a defense weapons systems organization specializing in the development and manufacture of offensive and defensive solutions for the modern battlefield, homeland security, and terror threats. IMI's state-of-the-art advanced systems for ground, air, and naval forces are based on the extensive experience of the Israel Defense Forces (IDF). Most are combat-proven and have been qualified by the IDF, U.S. military (army, air force & navy) and NATO. IMI designs, upgrades, produces, and integrates full combat solutions as well as providing professional training and services meant to fully respond specific customer needs regarding survivability and protection, fire power, and mobility of its systems under battlefield conditions.

IMI has five divisions – munitions systems, land systems, rocket systems, advanced systems, and small caliber ammunition – and employs about 3,400 highly qualified, professional, and devoted employees.



URDAN

UrdaN is widely recognized as a leading supplier of steel castings for commercial markets and military applications. Customers include the Israeli Defense Forces and other Western armies. UrdaN is firmly committed to quality, efficiency, and customer satisfaction. The company manufactures castings for industrial applications, including carbon steel, high and low alloys, manganese, abrasion-resistant steel stainless steel, nodular iron castings, and iron castings ranging from 3 kilograms to 10 tons. The high-quality steel manufactured with UrdaN's advanced technology – coupled with its strong engineering group, computerized castings design methodology, and modern machining facilities – enable UrdaN to offer castings and complete products for exclusive applications such as energy generation, marine applications, quarrying, water systems, chemical and food processing, motor vehicles, and other products and uses.

UrdaN supports Israel's Merkava main battle tank and Namer APC programs and supplies worldwide armor castings and assemblies for tanks and APCs.



RADA – Innovative Defense Electronics

RADA Electronic Industries Ltd is a defense electronics systems organization specializing in the design, development, and manufacturing of advanced electronic systems for airborne and land applications. RADA offers complete systems solutions designed primarily for the aerospace and defense market.

RADA's product lines include:

- Radars for anti-terrorism/force protection and homeland security solutions, to include pulse Doppler radars.
- Inertial Navigation Systems (INS): the FOG-based navigation grade EGI and AHRS (the R-100F family), and MEMS-based INS and AHRS compact solutions (the R-200M family) for airborne and land applications.

- Avionics solutions, data recording and management: Over 30 years of avionics expertise with a wide spectrum of integrated and stand-alone solutions. World leader in digital video and mission data recorders, airborne data servers, HUD cameras, and post-mission debriefing systems.
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Urban Aeronautics Ltd, based in Yavne, Israel, is developing a family of vertical takeoff and landing (VTOL) utility aircraft with internal ducted fan lift rotors. These aircraft, known as "Fancraft,"™ are capable of operating safely while fulfilling a vast and significant range of new missions in confined areas. Fancraft™ are designed in accordance with current Federal Aviation Administration (FAA) certification standards.

The AirMule Cargo and CasEvac UAS is the company's initial model and is currently in flight tests. The AirMule is a compact, single-engine, VTOL aircraft. Internal lift rotors enable the AirMule to fly inside obstructed (e.g. mountainous, wooded, urban) terrain where helicopters are unable to operate. AirMule has a significant payload capacity (500 kg) that allows for the evacuation of two casualties as well as fast and flexible payload reconfiguration for other missions such as cargo delivery, disaster response, and cargo supply to inaccessible populations, damage assessment, threat assessment of chemical and nuclear materials, and nuclear power plant emergency response. It is also ideally suited for advanced robotic operation via Tele-Presence.

A major milestone on the path towards commercialization entails a demonstration of AirMule's full capability in actual field conditions for the IDF at the end of 2012.



PALBAM has more than 50 years of experience designing and manufacturing complete metal projects and structural components for military industries. Of all our products and services meet our clients' highest expectations for quality. Material expertise includes work with titanium, stainless steel, and magnesium. PALBAM provides complete solutions from design to finished product. PH Quality Certifications include AS 9100.

PALBAM product lines include armored vehicles integrated solutions:

- Fuel and water tanks - PALBAM is the contractor for MERKAVA tank and NAMER and ACHZARIT APC fuel and water tanks.
- Armor protection kits - PALBAM provides armored plating based on customer requirements using a variety of alloys, including steel and titanium.

Appendix 5: International Attendees

Title	First Name	Last Name	Country
Mr.	Andrew	Bell	United Kingdom
Mr.	Raoul	Bittel	Switzerland
Mr.	Wolfgang	Bittger	Germany
LTC	Steven	Brewer	United Kingdom
Mr.	Adam	Brock	United States
BG	JB	Burton	United States
	Lee	Buttitta	United Kingdom
	Dongxun	Chen	China
Mr.	Stephen	Cohn	United States
LTC	William	Coleman	United States
LTC	Pavel	Crhonek	Czech Republic
LTC	Scott	Crino	United States
LTC	Lee	Daley	United Kingdom
COL	Guillaume	De Marisy	French
LTC	Andre	Demers	Canada
MG	Paul	Eaton	United States
COL	Izik	Elimelech	United States
Dr.	Scott	Fish	United States
LTC	Juan Carlos	Garcia-Vaquero Pradal	Spain
Dr.	Russell	Glenn	United States
COL	Rio	Hashimoto	Japan
Mr.	Thomas	Hommel	United States
Mr.	Zhao	Hongxin	China
Mr.	James	Jarrard	United States
MAJ	Jasper	Jeffers	United States
	Fu Ying	Kai	China
COL	Stefan	Kaleta	Czech Republic
Mr.	Erik	Kurilla	United States
MAJ	Pete	Larsen	United States
Mr.	Richard	LePage	United States
Mr.	Yoram	Levy	United States
LTC	R Dale	Lyles	United States
BG	Sean	MacFarland	United States
Mr.	George J.	Mordica	United States
LTC	Ralf	Nau	Germany
LTC	Rudolf (Ruud)	Niens	Netherland
Mr.	Dan	Phythyon	United States
Mr	Sergey	Pokrovskiy	Russia
Mr.	Ford	Robertson	United States
Major	Bill	Sabbagh	United States
BG	Donald	Schenk	United States
LTC	Werner	Schwulst	Germany
Mr.	Robert	Shalala	United States
Ms.	Heidi	Shyu	United States
COL	Keith	Sledd	United States
MG	Marty	Umbarger	United States

LTG	Joseph	Votel	United States
Mr.	Robert	Walters	United States
Mr.	Richard	Warnes	England
CPT	Shawn	Wilkinson	United States
COL	Shi	Xiander	China
Mr.	Brian	Zimmerman	United States