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Airlift Capabilities for Future U.S. Counterinsurgency Operations

Robert C. Owen, Karl P. Mueller

Prepared for the United States Air Force

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Preface

As its prominence as a national security challenge has grown since 2001, insurgency has become a subject of increasing interest across the armed services, in the U.S. Department of Defense (DoD), and elsewhere in the U.S. government. Although ongoing operations in Afghanistan and Iraq give particular immediacy to the problem, the challenge of combating insurgencies extends well beyond these specific conflicts. It is important, therefore, that the U.S. Air Force (USAF) consider how best to meet the growing demand for airpower in joint and multinational counterinsurgency operations and that other services' and DoD-wide reassessments of the subject take the potential roles of airpower in counterinsurgency fully into account. To address these and related policy challenges, RAND Project AIR FORCE conducted a fiscal year 2005 project entitled "The USAF's Role in Countering Insurgencies." The core study addressed four major policy questions: (1) What threat do modern insurgencies pose to U.S. interests? (2) What strategy should the United States pursue to counter insurgent threats? (3) What role does military power play in defeating insurgencies? (4) What steps should the USAF take to contribute most effectively to counterinsurgency?¹

This monograph, prepared for the same project, examines the role of airlift in counterinsurgency. It begins by analyzing the strategic, operational, and tactical roles and effects of airlift in counterinsurgency,

¹ Alan Vick, Adam Grissom, William Rosenau, Beth Grill, and Karl P. Mueller, *Air Power in the New Counterinsurgency Era: The Strategic Importance of USAF Advisory and Assistance Missions*, Santa Monica, Calif.: RAND Corporation, MG-509-AF, 2006.

drawing on counterinsurgency theory, U.S. military experience, and USAF doctrine. Based on this survey, it then addresses its central question of whether, and to what extent, the airlift requirements of counterinsurgency call for specialized airlift forces or are merely another task best handled by the general-purpose airlift fleet. Finally, it examines airlift in the foreign internal defense (FID) program, through which the United States seeks to assist partner states to deal with insurgent threats before they reach the point at which major U.S. intervention might be required.

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Summary

U.S. armed forces are engaged in ongoing counterinsurgency (COIN) operations ranging from the highly visible, large-scale, high-intensity COIN campaigns in Iraq and Afghanistan to much smaller missions that rarely make headlines, helping friendly governments around the world combat internal enemies. The likelihood that counterinsurgency will continue to be a major focus of U.S. national security policy for the foreseeable future has revitalized debate about whether or not this type of warfare demands airlift forces with unique organization, training, equipment, and doctrines of employment in light of the operational contrasts between counterinsurgencies and more conventional conflicts.

This monograph recommends that the United States rely largely on its general airlift forces—headquarters, units, core aircraft types, etc.—to perform the counterinsurgency mission. With adjustments in employment doctrines and training, these forces can accomplish the majority of COIN missions effectively. Indeed, for most missions, the tactical elements of airlift missions in conventional and unconventional conflicts are much the same.

However, some COIN airlift operations will present planners with distinctive balances of operational details, such as the need to support a higher proportion of small, dispersed units and the locations and intensities of threats. Consequently, these differences in operational detail likely will require the United States to expand some parts of its general airlift forces and to acquire some COIN-specialized airlift capabilities for its own use and for that of governments under the

FID program. These additional capabilities may come in the form of new aircraft, such as small, fixed-wing transports designed for short, rough-field operations; unmanned aerial vehicles; satellite-guided precision airdrop systems; or other new systems able to enhance the airlift arm's ability to support numerous dispersed units and patrols operating clandestinely.

Strategic Effects of Airlift in Counterinsurgency

After more than eight decades of experience, the logistical value of airlift in counterinsurgency is obvious and springs from the dependence insurgents have for sanctuary. Almost by definition, serious insurgencies tend to break out and mature in regions that are geographically or militarily remote from centers of governmental power. In the past, most insurgencies operated in geographically remote regions where their governmental enemies could not project power easily, if at all. Over the last several decades, some insurgent forces have fought within major cities, like Grozny and Baghdad, where their presence was a direct consequence of the effective remoteness of competent governmental power.

Airlift's strategic value in such circumstances is that it can accelerate the process of deploying government forces into sanctuary areas and then provide support for them. Airlift movements permit rapid concentrations of force and reduce the vulnerability of maneuvering ground units to logistical isolation and piecemeal destruction. This added security is particularly important to small, widely dispersed units that can rely on aerial resupply to sustain them in the field, to bring reinforcements, to evacuate their sick and wounded, and to withdraw them when they complete their missions. Thus, strong airlift forces permit COIN commanders to conduct operations flexibly and in depth without having to secure and defend extended ground lines of communication. (See pp. 17–19.)

The positive influence of airlift on counterinsurgent morale and confidence is also well documented and strategically important. Wherever they have benefited from it, counterinsurgent military personnel

have commented that airlift support reduced their sense of isolation, even when they were widely deployed during security-phase operations, and increased their confidence that they would be reinforced, supplied, and evacuated when needed. Airlift also reduces troop fatigue and wastage by improving diet and reducing the time and casualties incurred in moving into and out of battle areas. Rested and confident soldiers are not only more effective militarily, they are also likely to be more astute and restrained in their use of force and thus less likely to commit the mistakes in their use of the force that can undo counterinsurgencies as effectively as military defeats. (See pp. 19–21.)

Counterinsurgency Airlift Operations and Tactics

Counterinsurgency airlift planners and operators should expect their priorities to match those of most other counterinsurgent commanders: (1) to suppress and defeat the insurgents' conventional capabilities, if these exist; (2) to suppress guerilla activity enough to permit effective security-phase government and economic activities; and (3) to mop up residual guerilla forces. Once insurgent conventional capabilities have been contained, many individual military operations, such as patrols and large-unit sweeps, will contribute simultaneously to all three objectives.

Counterinsurgency warfare imposes few tactical requirements on airlift forces that are unique to that mode of conflict. In the core areas of tactical decisionmaking—the selection of aerial delivery methods, formation versus single-ship operational choices, route selections, and so on—the political nature of a conflict largely is irrelevant. However, the level and ubiquity of the threats airlift faces may be greater in COIN warfare than in many other types of conflict, so COIN airlift operations must be planned and executed on the presumption that they could encounter serious or severe threat situations on almost any mission. COIN airlift planners and crews will have to practice such combat procedures as random scheduling, route selection, and approach procedures routinely. Transports operating in guerilla-infested areas ideally will have high-quality self-defense systems, and their crews must be

ready to use them at any moment. Once on the ground, these personnel must be as ready as their airlift support brethren to defend themselves and their aircraft. The need for airlift crews to be alert to threats and to employ appropriate countertactics is not unique to COIN operations. The differences from conventional operations in this case are that the locations of the threats may be harder to predict and that their frequency may be greater. (See p. 26.)

The tendency of guerilla and counterguerilla forces to operate in dispersed units during the security phase also shapes the tactical character of airlift operations. To a greater extent than in conventional operations, COIN airlift missions include small-scale lifts by one or a few aircraft to insert, support, and withdraw small units in remote areas. Very quickly, a conventional theater airlift fleet can run out of “tails” to support such dispersed operations. Mitigating this problem usually calls for some combination of incorporating smaller aircraft into the airlift fleet, having supported ground units carry more organic supplies, and/or using airdrops and multistop air-landing missions to make small deliveries to more than one unit in a single sortie. (See pp. 27–31.)

Urban Warfare

Conducting military operations in urban terrain (MOUT) is an increasingly important and conceptually dynamic tactical arena. As experience and the increasing urbanization of the world’s population attest, cities have become and will continue to be frequent and decisive battlefields. Historically, helicopters have made the routine provision of MOUT airlift practical. Even in the most built-up areas, such open spaces as streets, rooftops, parks, and vacant lots provide endless opportunities for helicopters to land near or even amidst engaged troops.

However, helicopters are slower and more vulnerable than fixed-wing aircraft, problems of increasing concern. At their 110- to 160-knot cruise speeds, helicopters may take several minutes to traverse the threat “bubbles” of shoulder-fired missiles and up to a minute to fly into and then out of the range of heavy machine guns. Moreover,

the rotors, engines, transmissions, tail booms, and crew stations of the typical transport helicopter give enemy gunners far more opportunities to achieve single-hit catastrophic “kills” than they would have against fixed-wing aircraft of similar size and weight. In the face of advanced and future generations of light antiaircraft systems, the uncertain ability of rotary-wing aircraft to penetrate, egress, and survive over the urban “canyons” of modern war presents food for tactical thought. There are numerous options for improving MOUT airlift or reducing the need for it. Units conducting MOUT could move their supplies and evacuate their wounded on the surface, perhaps in armored transport vehicles. The Army could continue to improve its helicopters incrementally in performance and damage tolerance and/or introduce tilt-rotor aircraft into the mix. As in other areas of counterinsurgency airlift, precision airdrop systems, unmanned aerial vehicles, and small and agile fixed-wing transports also might take over portions of the MOUT airlift mission. (See pp. 31–32.)

Airlift Force Structure for Counterinsurgency

At the strategic level, airlift gives counterinsurgent commanders greater freedom and confidence to choose the time and place of combat than they would have without it. At the tactical and operational levels, airlift remains an important enabler both for aggressive combat operations and for early support to civilian agencies operating during the security phase. Yet for all of airlift’s influence on the conduct of COIN warfare, counterinsurgency generally does not involve airlift mission types, operational concepts, or aircraft types unique from those of conventional warfare.

Given the continuities between the airlift requirements of counterinsurgencies and those of other types of conflicts, the existing “human” elements of airlift force structure—training and doctrine—require little specialization to combat insurgencies. The specialized materiel demands of COIN airlift are somewhat more complex. While the array of COIN airlift missions is much the same as for other conflicts, the balance among them is distinct. In contrast to conventional

conflicts between states, a counterinsurgent airlift effort likely will include a greater proportion of small-scale, quick-response military missions overshadowed by the possibility of encountering serious air defense threats. COIN airlift efforts also tend to feature a much higher proportion of nonmilitary or “nation-building” missions than more conventional operations. The distinctive mission balance of COIN airlift may require some alteration or expansion of the general airlift fleet to improve its ability to support such missions effectively.

The U.S. armed forces’ experience with the C-7 Caribou during and after the Vietnam War provides an instructive precedent. With a 500-mile operational range and 3-ton payload, the C-7 was inefficient compared to larger contemporary aircraft, except for moving very small loads, and every dollar spent on it was a dollar that could not be spent on larger “strategic” transports needed to reinforce Europe and South Korea in the event of communist attack. But the C-7 possessed a unique combination of moderate speed, economy of operation, and the ability to take off and land on rough fields that gave it offsetting value in COIN operations in Vietnam, where it filled the niche between heavy helicopters and medium-capacity theater airlifters. Heavy-lift helicopters could carry significantly heavier loads than the Caribou and had the advantage of their vertical takeoff and landing capabilities. But, within its capacity, the Caribou carried its loads much further and did so more efficiently. Larger fixed-wing aircraft carried yet larger loads much farther but required substantially wider, longer, and stronger airfields than the Caribou.

So, for providing small-capacity lift into remote sites or expeditionary airfields, the C-7 proved to be enormously valuable in Vietnam. It was particularly useful for resupplying outlying Special Forces camps because it provided quick-response lift to move dispatches, command personnel, medical supplies, and similar loads into tiny contingency airstrips during major ground sweeps and carrying casualties directly from remote battlefields to major evacuation hospitals. But equally important in light of the airlift needs of U.S. forces in other theaters, the relatively limited numbers of C-7s represented only a small diversion of resources from the overall airlift program and gave the airlift

fleet a niche capability of potential use in other types of conflict or, later, counterinsurgencies.

Renewed Need for an “Assault Airlifter”?

From the late 1940s into the early 1960s, the Air Force and Army referred to the operational niche the C-7 filled in Vietnam as *assault airlift*. As a mission, assault airlift focused on providing direct airlift support using fixed-wing aircraft as far forward in the battle area as possible. Recent experience in Afghanistan and Iraq suggests that there may be a need to refill the C-7’s operational niche. However, this need should be understood as a shortfall in capability, not merely the absence of a particular class or type of aircraft from the airlift fleet. What airlift planners need is the ability to service scattered COIN forces and, perhaps, conventional units maneuvering beyond the reach of secure ground lines of communication. This does not necessarily require modern counterparts of the assault airlifters of earlier generations, particularly given the potential use of such new technologies as satellite-navigation-enabled precision airdrops, unmanned aerial vehicles, or guided parachute systems. The judicious acquisition and use of a combination of these and other systems could reduce, or even eliminate altogether, the need to acquire specialized COIN transport aircraft. (See pp. 41–42.)

If analysis does indicate the need to acquire specialized assault airlifters to meet COIN requirements, experience suggests two general program goals that DoD should emphasize. First, the aircraft designs chosen should emphasize capability for short takeoffs and landings from rough fields or vertical takeoffs and landings and high survivability over other design goals, such as cargo capacity and economy of operation. Short-field capabilities are the very reason for an assault airlifter to exist. Survivability is also essential, since assault airlifters operate very near the front or over unfriendly territory as a matter of course. Second, the purchase of specialized systems should be minimized. Ideally, an existing aircraft design, suitably modified, would be able to provide these capabilities, since funding an entirely new aircraft

would be an extremely difficult proposition in the current budget environment. (See pp. 47–50.)

Foreign Internal Defense

The FID program, through which the United States helps foreign allies defend themselves against insurgencies and other internal threats, is central to U.S. counterinsurgency policy. FID programs range from assistance with economic and governmental infrastructure development to active support in combat operations and can help contribute to containing or defeating insurgencies against which U.S. forces might otherwise have to fight directly. Airlift has been a ubiquitous element of U.S. FID efforts since the 1940s, but recent experience indicates that hand-me-down transport aircraft are no longer an adequate element of the U.S. FID program. Maximizing the value of a long-term FID airlift program would include at least the following steps (see pp. 56–58):

- assessing the likely airlift requirements of the FID program in general and of specific partner states, over the next decade and beyond
- identifying and investing in a standardized combination of rotary- and fixed-wing aircraft and support systems able to fulfill the COIN operational requirements of states likely to receive U.S. FID support, which would minimize the costs of transferring the aircraft to supported countries and of supporting them afterward
- integrating U.S. and supported state airlift logistics, perhaps to include acquisition of some “FID-friendly” aircraft for the U.S. airlift fleet to facilitate the cost-effective provision and support of such aircraft for FID partner states
- preparing supported states to conduct effective airlift operations through a comprehensive program of education and training for the airlift and command personnel of supported states

- preparing U.S. airlift forces to conduct integrated operations with the ground and air forces of supported states.

Conclusions

This monograph offers a general answer to the question of whether the United States should create airlift forces specialized for COIN operations or should instead rely on general airlift forces to perform COIN missions. In the end, it offers some good news and some bad news for air mobility planners and leaders in the future.

The good news is that the current U.S. airlift fleet, organizations, and doctrines are suitable for the great majority of missions incumbent in COIN operations. The majority of airlift missions in support of counterinsurgencies are simple logistics missions for moving people and things between established bases and/or moving personnel, combat units, and materiel over relatively short distances into landing zones and/or short and rough runways. Some or all of these missions will be performed in the presence of threats or under direct fire from air defense systems varying widely in sophistication and capabilities. But, and this is the critical point, none of these missions, operating environments, and threats are unique in basic character to COIN warfare. Thus, the nation's large and complex airlift system has the capability of delivering the goods in a counterinsurgent environment.

The bad news is that the United States cannot go on handling the COIN airlift mission much longer in the way it is without substantial reinvestment and perhaps some realignment of its airlift program. Given the current stresses on the aging theater and battlefield airlift fleets, the day is not far off when they will require total recapitalization. Given the current straits of the defense budget, the prospect of adding recapitalizations of the theater and battlefield airlift fleets to the mix of competing programs is daunting indeed.

Urban warfare will intensify the challenge of recapitalizing and perhaps restructuring the airlift fleet. For the moment, rotary-wing aircraft remain viable for the close-in delivery of people and materiel

to small units fighting in cities. But helicopters may not have the lift capacity and survivability to remain viable in future urban-based conflicts of any type.

Likewise, the airlift requirements of the U.S. FID program should influence the modernization of the national airlift fleet. Core U.S. airlifters, such as the C-17 and even the C-130, usually are beyond the operational needs and logistics capabilities of small nations. If the FID program is to provide viable airlift advice and support to such countries, the U.S. airlift program may need to include one or more “FID-friendly” aircraft types and specialist units designed to provide a foundation of appropriate support to countries fighting insurgencies directly or indirectly on the behalf of the United States.

This monograph concludes, therefore, by going somewhat beyond its original charter to recommend that DoD and the military services infuse fresh energy, rigor, and vision into their ongoing effort to assess future airlift requirements. A broad vision of the totality of the airlift mission will be a critical element of this effort. This vision must incorporate such planning elements as global logistics missions, responsive combat support, operations into “terminals” ranging from international airports to 200-meter-long jungle strips, allied requirements, FID, and new technologies and command relations. These considerations and new opportunities will dictate that the next model of the national airlift system, particularly its theater and battlefield components, will not simply be a refined version of the existing system, the basic elements of which were laid down in the late 1950s and early 1960s.

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Abbreviations

AFDD	Air Force Doctrine Document
AFB	Air Force base
AFM	Air Force Manual
COIN	counterinsurgency
DoD	Department of Defense
FID	foreign internal defense
JCA	Joint Cargo Aircraft
JFC	joint force commander
JP	Joint Publication
MAC	Military Airlift Command
MOUT	military operations in urban terrain
PAF	Project AIR FORCE
STOL	short takeoff and landing
STOL-RF	short takeoff and landing from rough fields
USAF	United States Air Force
VTOL	vertical takeoff and landing

Introduction

U.S. armed forces are engaged in ongoing counterinsurgency operations ranging from highly visible, large-scale, high-intensity counterinsurgencies in Iraq and Afghanistan to much smaller missions that rarely make headlines, helping friendly governments combat internal enemies in such places as Georgia and the Philippines. The likelihood that counterinsurgency will continue to be a major focus of U.S. national security policy for the foreseeable future has revitalized a long-standing debate about whether or not this type of warfare demands airlift forces with specialized organization, training, equipment, and doctrines of employment. This debate springs mainly from the operational contrasts between counterinsurgencies, usually (though not always) characterized in the post–World War II era by dispersed military forces operating under restrained rules of engagement aimed at influencing popular politics with limited force, and conventional conflicts, which tend to be characterized by concentrated forces operating under less day-to-day political restraint. These operational contrasts raise a legitimate question about whether airlift forces that are appropriate for one type of conflict can be suitable for the other.

In the past, the United States and other nations engaged in counterinsurgencies have equipped some airlift units with aircraft specialized for the operational and tactical requirements of such conflicts. Many historians and theorists have therefore argued that counterinsurgencies demand unique airlift fleets equipped with especially simple and rugged aircraft and that these fleets be linked organically to the forces they support. Acquiring and operating such specialized fleet ele-

ments is expensive, however, and it is this that makes the question of their continued relevance so pressing for the U.S. armed forces today. To the extent that counterinsurgency airlift forces are specialized, spending material and human resources on them reduces the resources available to support operations in conventional wars—wars that may be more important to U.S. national security in the long run. But the United States also faces a serious and immediate security challenge from the multiregional resistance of Islamic fundamentalists against the advance of secular global culture, in the form both of transnational terrorism and of regional insurgencies in places like Afghanistan and Iraq.¹ Thus, those making plans and policy choices regarding the structure of the U.S. airlift program must take into consideration the potential conflicts between counterinsurgency and general military requirements.

This analysis offers a qualitative answer to the question of whether the United States should create airlift forces specialized for counterinsurgency operations or should instead rely on general airlift forces to perform the mission.² It begins with a discussion of the historical and theoretical characteristics of counterinsurgencies as they pertain to

¹ Given their importance to this analysis, it is worth a pause here to consider the meaning of the terms *insurgency*, *guerilla war*, and *terrorism*. There are no universally accepted definitions of these terms; they are used differently in different contexts. In this analysis, therefore, *insurgencies* are conflicts conducted by the inhabitants of a state or organized society against that state or society; *guerilla war* refers to operations by irregular or small regular units emphasizing stealthy, hit-and-run strikes against stronger forces; and *terrorism* refers to attacks by irregular and regular forces with the intent of fomenting confusion and terror among noncombatant populations, rather than of destroying an enemy's military capabilities and forces directly. Thus, the first term refers to a strategic objective, the second to tactics, and the third to targeting. Under these definitions, al Qaeda terrorists may be understood as irregulars conducting guerilla operations aimed at terrorizing the citizens and governments of the ascending world order. In a sense, then, transnational Islamic terrorism amounts to insurgency on a regional or global scale. See Alan Vick, Adam Grissom, William Rosenau, Beth Grill, and Karl P. Mueller, *Air Power in the New Counterinsurgency Era: The Strategic Importance of USAF Advisory and Assistance Missions*, Santa Monica, Calif.: RAND Corporation, MG-509-AF, 2006, Chapter Two.

² For a broader discussion of the organization and structure of the U.S. airlift fleet, see Robert C. Owen, "A Structural and Operational Future for Global Airlift," *Comparative Strategy*, October–December 1993, pp. 459–470, and Robert C. Owen, "The Airlift System: A Primer," *Airpower Journal*, Fall 1995, pp. 16–29.

airlift, focusing on the operational requirements of their conventional and unconventional phases of operations. With this understanding in hand, this analysis then examines the airlift planning and operational requirements imposed by the strategic, operational, and tactical levels of counterinsurgency warfare. From this discussion follow assessments of guidelines and principles of counterinsurgency airlift force structure and of the implications of these insights for the foreign internal defense (FID) program.

The ultimate recommendation of this monograph is that the United States should largely rely on its general airlift forces—including headquarters, units, and aircraft—to perform airlift missions in counterinsurgency. With adjustments in employment doctrines and training, these forces can accomplish most counterinsurgency missions effectively. For although there are many important differences between conventional and unconventional conflicts, the specific activities that airlift forces must carry out in the two types of conflict are largely the same, even though the weight of effort among them, and the environments in which they are conducted may vary widely.³

³ During the review process, no aspect of this monograph generated more controversy than this assertion that the airlift missions involved in conventional and unconventional conflicts are essentially the same. While this proposition may appear to be at odds with the idea (expressed prominently in this document, as well as countless others) that counterinsurgency is profoundly different from traditional conventional warfare, the authors believe it is nevertheless correct for airlift. Importantly, we are not suggesting that unconventional and conventional conflicts are alike, or even very similar, at the tactical level. In fact, they tend to be quite different, particularly but not only for engaged surface and combat air forces. For example, insurgencies usually lack well-defined friendly and enemy lines, and partly as a result of this, the nature and location of surface-to-air threats may be very hard to predict. Rather, we contend that airlift crews face essentially the same array of tactical *tasks* and *procedures* in both conflict types. The crews move bulk cargoes, transport combat units, and deliver tailored supply increments to units scattered around and beyond friendly-controlled areas. In both regular and irregular war, airlifters insert special operations forces into enemy-controlled areas and support them as clandestinely as possible. Whether supporting heavy units or counterinsurgent patrols, airlifters adjust their tactics to avoid threats, achieve on-time and precise deliveries of their loads in many environments, and so on.

However, as later sections of this monograph demonstrate, the *balance* of airlift tactical events and considerations will vary between conflict types and even within the different phases and places of a single conflict. For example, the need to support small units and the demand for clandestine flight operations may be proportionally greater for counterinsur-

However, counterinsurgency will typically present airlift planners with distinctive operational challenges, due to factors such as the predominant type and deployment patterns of combat units being supported and the locations and intensities of threats. These differences in operational detail likely will require the United States to expand some elements of its general airlift forces, and possibly to acquire some counterinsurgency-specialized airlift capabilities, though probably on a modest scale. These additional capabilities may come in the form of new aircraft, such as small, fixed-wing transports designed for short, rough-field operations, unmanned aerial systems, precision airdrop systems, or other new systems to enhance the airlift arm's ability to support small, dispersed units and patrols operating clandestinely. Fortunately, as this study will suggest, such specialized systems will provide capabilities that also will be useful in conventional operations. Achieving the right balance of general and specialized airlift forces, nevertheless, will be challenging and should be guided by a combination of historical experience, theory, and vision such as that described here.

gency airlift than for airlift in conventional environments. At the same time, conducting highly visible airlift missions is more likely to play an important deterrent or reassuring role in counterinsurgency than in conventional warfare (although as the Berlin Airlift demonstrates, it is not limited to such contingencies). Yet aircraft, crews, and tactical doctrines suitable for performing a given mission in one conflict type and immediate threat environment will generally be suitable for performing the same mission in a different type of conflict but a similar threat environment.

Airlift and Counterinsurgency

Insurgency and Counterinsurgency Strategies

The distinct political and military characteristics of insurgencies and counterinsurgencies impart great importance to airlift support for counterinsurgent operations. Therefore, discussing the value, composition, and employment of counterinsurgency airlift must begin from an understanding of these characteristics, at least in broad terms.¹

The political roots of insurgencies are frustration and hope. Insurgencies break out when dissatisfied members of a society form or join organized militant groups in the belief, or at least the hope, that sustained armed combat will force their governments either to fall, to change in character, or at least to alter fundamental domestic policies.² Insurgents seek to achieve these goals through some combination of political mobilization, social action, military operations, and international diplomacy. Winning the “hearts and minds” of internal, and

¹ For a more-general discussion of the role of military power in counterinsurgency, see Chapters Two and Four of Alan Vick, Adam Grissom, William Rosenau, Beth Grill, and Karl P. Mueller, *Air Power in the New Counterinsurgency Era: The Strategic Importance of USAF Advisory and Assistance Missions*, Santa Monica, Calif.: RAND Corporation, MG-509-AF, 2006.

² Joint Chiefs of Staff, *The Department of Defense Dictionary of Military and Associated Terms*, Washington, D.C., Joint Publication (JP) 1-02, 2001, as amended through August 8, 2006, p. 262, defines *insurgency* as “an organized movement aimed at the overthrow of a constituted government through use of subversion and armed conflict.” The government under attack may be that of an occupying power or may at least be perceived as such by the insurgents.

often external, populations and political groups is an essential objective of insurgent strategy, although insurgents may choose to do so through coercive, as well as more positive political, means. Insurgent groups may consist of recognized citizens or may represent disenfranchised ethnic, religious, ideological, or other segments of the general population. Insurgents must have some degree of effective organization to challenge even a weakly established government. Without it, they can be no more than rioters or brigands. The ordinary citizens and peasants who normally make up the rank and file of insurgencies must also have leaders—historically drawn from the privileged youth of the middle and upper classes—to provide vision, inspiration, mobilization, and discipline. The combination of these distinct elements—cause, popular discontent, and elite leadership—give insurgencies their power, even as the connections among them represent points of weakness and potential schism.

Insurgent military strategy reflects insurgent political realities. In “classic” or “Maoist” theories of insurgencies or “people’s war,” the fundamental strategic challenge for insurgent leaders is to expand the political and military power of their movements in relation to their incumbent governments while avoiding disadvantageous political and military confrontations that could result in major defeats or could expose the interfaces between their causes, popular support, and leadership cadres to attack or dislocation. In the simplest terms, insurgents use guerilla tactics to defeat government forces and to inspire or, by coercing populations, create local political and geographic sanctuaries. From these sanctuaries, insurgent forces strike out to create larger sanctuary areas capable of supporting ever-larger field forces ultimately able to strike and defeat government forces in open battle. When their strength in relation to government forces reaches a point at which they can take the risk, insurgent forces will attempt to destroy government forces, take ever larger areas of territory, and ultimately bring down—or at least pose a threat sufficient to force concessions from—the government. Successful insurgents, therefore, blend guerilla and conventional tactics and operations to wear down government power to the point that they can deliver a final killing blow without significant risk of defeat. They typically conduct guerilla and conventional operations

simultaneously in different areas, and these may in fact be located very close to one another.³

If they are too politically or militarily weak to move into the conventional phase, insurgent movements may be forced to rely on prolonged guerilla operations against military and civil targets and personnel to break down the government's popular support, will, and ability to carry on the fight. An insurgency may also confine itself to guerrilla warfare in the belief that embarking on the conventional phase as prescribed by Mao would play into the government's hands by enabling it to bring its military power to bear against concentrations of insurgent forces. For general insurgency-counterinsurgency theory, the possibility of purely guerilla insurgencies is important, since such conflicts have resulted in insurgent victories in the past.⁴ In such cases as the prolonged guerilla-terrorist campaigns of the African National Congress and the Palestinian Intifada, such insurgencies have forced incumbent governments to make major political or territorial concessions. Other guerilla insurgencies, such as those of the Tamil Tigers in Sri Lanka and the Irish Republican Army, have failed to force decisive concessions from their governments regarding their demands for territorial sovereignty. Such conflicts are of particular significance for outside powers intervening in insurgent conflicts, such as the United States in Afghanistan and Iraq. External powers are often less vested in the final outcome of these conflicts than their incumbent government allies and the insurgents. Therefore, the will to carry on in the face of prolonged guerilla operations may wane for the interventionists before that of their local allies, who have no place to run.⁵

³ Mao Tse Tung, *On Guerrilla Warfare*, Samuel B. Griffith, trans., New York: Praeger, [1940] 1961, remains one of the most brilliant and succinct of all the treatises available on insurgencies and the interconnections of sanctuaries, guerilla and conventional operations, and politics in their successful conduct. See particularly Chapter 7, "The Strategy of Guerilla Resistance Against Japan." Several editions of this volume are available, including on the Web.

⁴ See Vick et al., 2006, pp. 12–20.

⁵ Despite its distinctive and repugnant ferocity, terrorism in and of itself is not a significant issue for airlift force structure planning. As participants in a particular type of guerilla warfare, terrorists operate from sanctuaries to make stealthy and/or hit-and-run strikes, usually

In response to serious insurgencies, counterinsurgent leaders seek two broad political goals: first, to reestablish military control of their internal territories and, second, to regain the loyalty or at least the quiescence of disaffected groups. Both objectives require combinations of political and military activities that are at least as complex and nuanced as those demanded of insurgents. If an insurgency fields substantial guerilla and conventional forces, achieving military control will require conventional battles to destroy insurgent forces and to eliminate their geographic sanctuaries. If the insurgency is operating primarily through urban terrorism, the counterinsurgent will have to go into the cities to find them, root them out of their sanctuaries, and destroy them through direct attack or render them ineffective through isolation, continuous pursuit, psychological operations, and so on. But regardless of the nature and location of the insurgency, the counterinsurgent's freedom to use force will be restrained by the objective of regaining loyalties. The destruction of a town to root out a few guerillas, for example, may achieve an immediate military objective, but only at the cost of making long-term political success disproportionately more difficult.

Once they have established general military control, counterinsurgent governments must control their military operations even more carefully to promote the development of mutually acceptable relations with their citizens. Developing such relations usually involves lengthy orchestrations of military operations to degrade and ultimately defeat

against noncombatant targets and individuals. Their intent is to unhinge and weaken their opponents through fear, mental dislocation, and economic damage. Their sanctuaries usually come in the form of urban or rural safe houses, covert encampments, anonymous lifestyles, friendly communities, and so on. As nearly the weakest of the weak militarily, terrorists usually cannot defend their physical sanctuaries from direct attacks by competent military or law enforcement forces. Still, if terrorist movements like al Qaeda and related organizations can draw on a steady stream of replacements and maintain at least general sanctuary, they can persist for a long time and do terrible damage to their enemies. Unless terrorists can become strong enough to challenge their enemies for the control of their sanctuaries, however, they will not provide opportunities for the sort of large-scale military counteroperations that would demand a lot of airlift. Of course, insurgent movements that employ terrorism routinely do provide opportunities for large-scale counteroperations, but because they are insurgents, not because they are terrorists.

residual guerilla forces while exploiting the improving security situation to effect political and economic reforms. In the end, counterinsurgent governments hope to gain or regain legitimacy in the eyes of formerly restive population groups. Legitimacy is critical because it robs insurgents of their final sanctuary—the active and/or passive support of the population—and marks the end of an unsuccessful counterinsurgency.⁶

Thus, there are potentially two broad phases of counterinsurgent military operations, paralleling the phases of insurgency. If the insurgents mass their forces according to the traditional prescription, the conventional phase of counterinsurgency aims to defeat the fielded insurgent forces and large guerilla bands to destroy their ability to challenge the government for control of territory and political legitimacy in open battle. The security phase primarily involves sustained counterguerilla operations to create an increasingly secure environment for political and economic reform.⁷ If an incumbent government catches an insurgency early and effectively, the security phase will precede the conventional phase and probably prevent it from happening at all.

Operationally, the conventional phase of counterinsurgency features sustained maneuver and combat by concentrated military forces, which may be quite large. Dispersed counterguerilla operations will occur in this phase as well, mainly as adjuncts to conventional operations. During the security phase, military operations predominantly involve sustained maneuver and infrequent combat by dispersed forces conducting counterguerilla and general security operations, such as patrolling, manning checkpoints, guarding populated areas from infiltration by insurgents, and participating in civil affairs activities. Conventional operations will remain part of the operational mix, primarily as a measure to ensure that the insurgents do not reconsolidate

⁶ For a classic discussion of counterinsurgency warfare, among many others, see David Galula, *Counterinsurgency Warfare Theory and Practice*, New York: Praeger, 1964, pp. 107–133.

⁷ As described here, the security phase follows—and overlaps with—the conventional phase in the effort to defeat a serious insurgency. However, if the same sorts of measures are conducted successfully *before* the insurgency evolves to a point at which it can contend with the government for control of territory, the conventional phase may never begin.

their forces and freely pick off dispersed security units and government supporters.

At the height of an insurgency, the counterinsurgents likely will find themselves conducting both types of operations simultaneously against mature enemies fielding substantial military forces. But the counterinsurgents must restrain their conventional operations and their use of force in security operations, especially in the face of nascent or weak insurgencies and in the latter phases of reducing once-strong insurgencies. Failure to use conventional operations sparingly carries the risk of offsetting military gains by losing political legitimacy among citizens suffering the consequences of those operations and may generate outside sympathy and support for the insurgents as well.

The Use of Airlift in Counterinsurgency

The base of historical counterinsurgency airlift experience is substantial. Following World War I, the British, French, and other colonial powers quickly discovered that airlift, along with aerial bombardment, allowed them to govern their possessions with increased efficiency. The British development of specialized military air transports and their employment in the expanses of Iraq and Afghanistan are legendary in the history of airlift. Soon thereafter, the U.S. Marine Corps applied airlift to its counterinsurgency operations in Haiti, Nicaragua, Honduras, and elsewhere. Indeed, Marine doctrinalists encapsulated this airlift experience in several sophisticated pages in the Corps' 1940 *Small Wars Manual*.⁸ After World War II, the British and the French again found airlift to be an indispensable element of their counterinsurgencies in Kenya, Malaya, Oman, and Aden and in Indochina and Algeria, respectively.⁹ In the 1980s, the South African armed forces relied on

⁸ U.S. Marine Corps, *Small Wars Manual*, reprint, Washington, D.C.: U.S. Government Printing Office, [1940] 1987, pp. 21–24.

⁹ For a broad treatment of primarily the British and French experiences in using airpower in counterinsurgencies, see Philip Anthony Towle, *Pilots and Rebels: The Use of Aircraft in Unconventional Warfare 1918–1988*, London: Brassey's, 1989.

airlift to support operations deep into Angola as part of their campaign to attack and deny sanctuary to insurgents attempting to overthrow South Africa's rule in Namibia.¹⁰

The United States provided the canonical example of counterinsurgency airlift during the Vietnam War. Challenged by a numerous and skilled enemy operating in rugged and heavily vegetated terrain, and being blessed by a relative abundance of resources, U.S. military forces in Southeast Asia relied on airlift to an unprecedented degree. The Army and Marines fielded thousands of battlefield airlift aircraft,¹¹ mainly helicopters but also some fixed-wing transports, while the Air Force committed a peak strength of 28 squadrons of theater transports, mostly C-130s, totaling about 450 aircraft. These intratheater aircraft, in turn, received support from an intertheater, or global, airlift fleet of hundreds of large military and commercial jets linking the battle zone to the homeland. Virtually every American who traveled to or from Southeast Asia did so by air. At the peak of the airlift effort, in 1968, U.S. Air Force theater transports lifted an average of nearly 3,000 tons of cargo and almost 10,000 passengers per day within Vietnam alone. Simultaneously, Army and Marine battlefield airlift forces were lifting another 3,000 tons or so a day, though seldom over distances longer than 50 nautical miles for individual missions.¹² Justifiably, the U.S. counterinsurgency in Vietnam has been called the first “airlift war.”

Since 1991, the United States has again employed airlift on a very large scale in support of counterinsurgency operations. It “opened up”

¹⁰ Helmoed-Roemer Heitman, *War in Angola: The Final South African Phase*, Gibraltar: Ashanti Pub, 1990, pp. 321–325.

¹¹ This study uses the term *battlefield airlift forces* to indicate air transport or mobility force elements that the U.S. military normally refers to as *aviation*, as in Army Aviation and Marine Aviation. Doctrinally, the term *aviation* emphasizes that these force elements are integral or organic parts of the major units and operational schemes of the services to which they are assigned. But in this study, *battlefield airlift* indicates what it is that these forces do in the realm of mobility—provide short-range airlift usually under the direct control of surface combat commanders—and their conceptual linkage to the overall topic at hand—counterinsurgency airlift.

¹² Ray Bowers, *The United States Air Force in Southeast Asia: Tactical Airlift*, Washington, D.C.: Office of Air Force History, 1983, pp. 569, 579–585.

its entire intervention into landlocked Afghanistan with airlifted forces and supplies. Part of that intervention involved providing airlift support to the Mujahedin insurgency against the Taliban government. Subsequently, having established a long-term military presence in the country in support of the new regime in Kabul, the United States now employs airlift extensively to give maneuver and logistics support to forces operating against residual Taliban and al Qaeda insurgents. Similarly, following the U.S.-led conquest of Iraq, airlift has played a pivotal role in sustaining the burden of maintaining security in the country and suppressing a complex insurrection by several domestic and international factions. As have most counterinsurgents in the past, U.S. forces have discovered that insurgent attacks on surface transportation render airlift the most desirable and cost-effective means of moving people and many types of cargo around the theater. Consequently, by early 2005, Air Force C-17 and C-130 transports were lifting nearly 500 tons of cargo a day to remove some 400 trucks and over 1,000 drivers from the more dangerous logistics routes in the country.¹³

In a piecemeal manner, the U.S. military has captured some of the body of counterinsurgency airlift experience in a scattering of studies, field tests, and doctrinal promulgations. In the years just prior to intervening in Vietnam with large combat forces, the Air Force and Army conducted the Gold Fire I and the Air Assault I and II exercises, respectively, to determine the best mixes of airlift forces for supporting nonlinear operations, whether on nuclear or insurgent battlefields.¹⁴ The Air Force followed these experiments and discussions with a broad revision of its major airlift doctrinal publications.¹⁵ After the Vietnam

¹³ Eric Schmitt, "Threats Force More Airlifts in Iraq," *The New York Times*, December 14, 2004.

¹⁴ John J. Tolson, *Air Mobility 1961–1971*, Washington, D.C.: Army Vietnam Studies, 1973, pp. 51–58; U.S. House of Representatives, Committee on Armed Services, *Military Airlift*, 89th Cong., 1st and 2nd Sess., October 1965–January 1966, pp. 6863, 6834–6839, 6833–6834, and Robert G. Sparkman, "Exercise Gold Fire I," *The Air University Review*, March–April 1965, pp. 32–44.

¹⁵ See Department of the Air Force, *Tactical Air Force Operations*, Washington, D.C., Air Force Manual (AFM) 2-4, August 1966; Department of the Air Force, *Strategic Airlift*, Washington, D.C. AFM 2-21, September 26, 1966; and Department of the Air Force, *U.S.*

War, the Air Force's Corona Harvest report series captured many airlift lessons from the conflict.¹⁶ The Air Force History Office capped the postwar airlift analysis by publishing Ray Bowers's *Tactical Airlift* volume of *The United States Air Force in Southeast Asia*. Bowers's imposing volume remains the single most important study of airlift in counterinsurgency warfare yet published.¹⁷ Official Air Force interest in low-intensity conflict and its airlift aspects waned thereafter through the 1990s, although individual scholars did publish useful studies.¹⁸

With this extensive body of experience and literature in hand, current air planners do not need to formulate their concepts and policies of counterinsurgency airlift doctrine, equipage, and employment from scratch. The historical record is scattered and requires study to derive salient implications for the future. But as the following discussions of strategy, operations, tactics, and force structure indicate, experience and theory provide firm grounds for formulating and advocating contemporary doctrine and policies. Happily, at least for those who have to find the funds to pay for U.S. airlift programs, the overall message of these discussions is that, while airlift capabilities are integral to successful counterinsurgencies, the actual requirements for specialized airlift forces are limited. Most of what airlift forces do in counterinsurgencies resembles what they do also in other types of war, albeit typically in different proportions.

Army/U.S. Air Force Doctrine for Tactical Airlift Operations, Washington, D.C. AFM 2-50/FM 100-27, January 1, 1967a.

¹⁶ See, in particular, Department of the Air Force, *USAF Airlift Activities in Support of Operations in Southeast Asia 1 January 1965–31 March 1968*, Maxwell Air Force Base (AFB), Ala.: Project Corona Harvest, 1973. There also are volumes on issues such as "Command and Control" and "Strategic Airlift."

¹⁷ Bowers, 1983.

¹⁸ See in particular, David J. Dean, ed., *Low Intensity Conflict and Modern Technology*, Maxwell AFB, Ala.: Air University Press, 1986b, which managed to leave airlift out of an otherwise broad discussion of modern weaponry in counterinsurgencies and other types of conflict.

Strategic Effects of Airlift in Counterinsurgency

Airlift's logistical and operational value in counterinsurgency largely springs from the dependence insurgents have on sanctuary.¹⁹ Almost by definition, serious insurgencies tend to break out in places that are beyond the reach of governmental power. In the past, most insurgencies operated in geographically remote regions where their governmental enemies could not project power easily, if at all. However, over the last several decades, some insurgent forces have fought within major cities, like Grozny and Baghdad, when government power was unable to penetrate into the urban jungles of their own capitals. Once even modestly effective counterinsurgent forces reestablished themselves, the insurgents abandoned open resistance and either fled or devolved operationally into small guerilla bands attacking weakly defended targets and people for terrorist effect. These small bands could survive only because they could find sanctuary in the friendly neighborhoods, hideouts, and anonymity that remained available to them in the stronger security environment. Simply put, to succeed, insurgents must have sanctuaries proportional to their numbers and the scale of their operations. For this reason, they focus much of their military and clandestine operations on establishing, defending, and exploiting their sanctuaries, which may range from whole regions of the hinterlands to a single safe house on a quiet street in the capital.

Airlift can accelerate the process of deploying and supporting government forces moving against insurgent forces and their sanctuaries wherever they are located. In the face of insurgent guerilla operations,

¹⁹ Since this is a study of planning and effects, the use of the classic taxonomy of *strategic*, *operational*, and *tactical* is useful and legitimate. Airlift operations shape the objectives, methodologies, operational capabilities and flexibility, and the ability to execute actions on the battlefield of both insurgents and counterinsurgents. But, as Air Vice Marshal Tony Mason usefully pointed out in his review of this study, the boundaries between these analytical levels of war become murky when planning and assessing the effects of specific counterinsurgency tactical events and campaign. Given the tight linkage of politics and military operations in such conflicts, individual "tactical" events, such as a successful raid or a murder of civilians by government troops, can unhinge or redirect a campaign and shake a government or insurgent movement to its foundations. Therefore, given the overlaps between these levels of war, we use these terms merely as a framework to organize the discussions of effects.

airlifting personnel and materiel usually makes them much less vulnerable to attack and destruction than surface transport. Airlift movements permit maneuvering ground forces to concentrate rapidly and with surprise, to maintain reliable communications with their secure areas, and to avoid entrapment and piecemeal destruction by insurgent forces. This added security is particularly important to small units widely dispersed for counterguerilla and security-phase operations or in hot pursuit of guerilla bands. They depend on aerial resupply to sustain them in the field, to bring reinforcements, to evacuate their sick and wounded, and to withdraw them when they complete their missions. In sum, airlift allows counterinsurgent commanders to exploit the military principles of mass, surprise, economy of force, and security. With airlift, they can get more out of their forces with greater effectiveness and safety. Consequently, most post-World War I accounts of counterinsurgency warfare confirm the importance of airlift, either directly or indirectly through discussions of the maneuvers and successes of airlift-supported ground forces.

Typically less prominent in counterinsurgency histories and doctrinal manuals, but no less important than logistics, are other strategic effects of airlift. Indeed, the integration of airlift with other elements of airpower and modern land forces has altered the character and conduct of counterinsurgency warfare fundamentally. By combining these military elements, democratic states in particular have been able to pursue counterinsurgency operations more aggressively, yet with greater restraint in their overall use of force, than in the past. Airlift also has given them greater control over the timing of their interventions on behalf of weaker states engaged in counterinsurgencies and has enabled them to initiate security-phase operations well before insurgent military forces are fully contained. While airlift's capacity for flexible operations in depth has not guaranteed counterinsurgent victories, it has made the military, psychological, and political demands of such conflicts more bearable. It has, in other words, fundamentally altered the strategic balance of power between insurgents and counterinsurgents.

Balancing Airlift, Combat Airpower, and Quality Ground Forces

Before looking more closely at the strategic effects of airlift in counterinsurgencies, it is important to understand that airlift has not exerted its influence independently. Successful applications of airlift in past counterinsurgencies have involved close coordination with combat airpower and with well-equipped and well-trained ground forces. In the first large-scale use of airlift in counterinsurgency, the British learned in Iraq that the effectiveness of small air-landed infantry forces depended on the sure presence of Royal Air Force reconnaissance and attack aircraft.²⁰ Later, the French learned in Vietnam that inserting airborne forces beyond the range of continual air and artillery support put them in great jeopardy of ambush and destruction. Since U.S. air forces, through most of the later phase of the Vietnam War, also lacked the ability to provide robust, round-the-clock, all-weather support to engaged ground units, the Army and Marines rarely conducted infantry operations beyond the range of their artillery. South Africa repeated these tactics through most of the war in southern Angola. The lesson they all learned was that the combination of air mobility, high-quality ground forces, and persistent and accurate air and artillery support produces a powerful capability to find, run down, and destroy guerilla units. However, weakness or imbalance in any one of these elements greatly increases the vulnerability and reduces the effectiveness of counterinsurgent military operations. Thus, whenever this monograph says something like “airlift does this” or “airlift does that,” it is important to understand that airlift does these things well only as part of a triad that also includes combat airpower and effective ground forces.

Recent U.S. operations in Iraq illustrate the importance of keeping the three “legs” of the airlift–ground force–combat airpower triad in balance. In the case of Iraq, the imbalance has been the consequence of the profound and disproportionate increase in the lethality and all-weather persistence of U.S. combat aviation, rather than the atrophy of either of the other two legs. Confident in the ability of their air

²⁰ Bruce Hoffman, *British Air Power in Peripheral Conflict, 1919–1976*, Santa Monica, Calif.: RAND Corporation, R-3749-AF, 1989; Towle, 1989, pp. 9–53.

forces to attrit and immobilize Iraqi conventional forces and to give “24/7” protection to field units engaged in nonlinear maneuver, U.S. commanders launched the war with ground forces that would have been absurdly small only a few years before. Unfortunately, although these forces defeated the Iraqi military in short order, they proved to be numerically inadequate and generally ill prepared to impose a tight occupation on the country that might have slowed the subsequent development of a guerilla national resistance movement. As the Iraqi insurgency grew, the widely dispersed U.S. and allied military forces began to suffer daily casualties trying to keep their surface lines of communication open. To reduce casualties, the U.S. Air Force borrowed a lesson from the Vietnam War and began to use C-130 transport aircraft to reduce the amount of cargo being moved by vulnerable road convoys. The additional strains these operations have placed on an already stressed U.S. airlift system have created some of the need for the present study.

Physical Effects

An appreciation of the great leverage airlift provides counterinsurgent commanders, by permitting them to operate in depth, begins with an understanding of how commanders are obliged to conduct their operations without airlift. So long as counterinsurgent commanders are dependent on surface means of transportation, their freedom of action is restricted by the need to keep open their lines of communication. Whenever they move, they know that they are exposing their lines of communication to attacks from insurgent guerillas, who usually have the advantage of surprise and security. Prudent counterinsurgent commanders under such circumstances must enter enemy-held territories with caution and along specific and (they hope) defensible lines of communication. Counterinsurgent forces enter on the periphery, secure some part of it, then move on to the next area only when they are sure that residual guerilla forces in the first will not be strong enough to cut the lines of communication running through it. Thus, they erode insurgent sanctuaries and military power one piece at a time—a prolonged process, but one that minimizes the risk of suffering a major defeat. Indeed, the vulnerability of military units that

outrun their supply lines is such that Mao and other guerilla theoreticians identified them as primary targets of opportunity.²¹

In contrast, commanders enjoying robust airlift support can strike at insurgent bases and military units wherever they are, rather than only when they present themselves to the steady advances of land-bound forces. Airlift also permits rapid responses to insurgent surprise assaults and campaigns. Insurgents may well achieve surprise (usually this is their most important advantage) but only at the risk of facing a rapid concentration of government forces delivered by air to almost any location on the map: in front of them, amidst them, along their escape routes, or even back at their base camps. When combined with effective combat airpower, this kind of mobility makes open operations by large insurgent units highly risky and costly. Airlift remains important in the security phase as well, both as mobility support for small-unit operations against residual guerillas and as logistics support as discussed already. Taken together, then, airlift and high-quality air and ground combat forces provide counterinsurgent commanders the capability and the confidence to use their forces aggressively and in a manner that greatly complicates the strategic and operational problems of insurgent leaders.

When insurgents seek to exploit guerilla warfare to create the conditions for coming out in the open and defeating the government's military in pitched battle, the first aim of counterinsurgent commanders facing mature insurgencies is to destroy or isolate insurgent field units and force those surviving back into guerilla operations. By giving commanders the ability to attack insurgencies in depth, airlift underpins their ability to achieve this objective relatively quickly. Forcing the insurgents back into the bush or the sewers is a prerequisite for beginning security-phase political and economic activities. These are the activities that portend the failure of an insurgency, provided the counterinsurgent can pursue them effectively and at an acceptable level of safety for the people doing them. The reestablishment of normal government activities and economic reforms will go a long way to gain-

²¹ Mao, [1940] 1961, p. 67.

ing the respect and quiescence, if not always the love and loyalty, of disaffected populations.

However, airlift is also critical during the security phase, including against insurgents who never move beyond guerilla warfare. Its contribution to government logistics and counterguerilla military operations is essential to restoring government control, of course. But providing civil passenger and cargo service may be equally important. So long as guerilla activity remains strong, routine surface travel by government personnel, businessmen, private volunteers, and other providers of essential services will be dangerous. Thus, in the absence of civil air carriers able and willing to fly in conflict areas, the military will often be obliged to provide such services itself. During the early days of the U.S. intervention in Vietnam, for example, U.S. airlift crews were surprised at the high percentage of government and civilian traffic they carried. Their loads included passengers on scheduled runs, refugees, relief supplies, and basic commodities and livestock going to remote areas. Unusual as the loads may have seemed to some, carrying them was essential to the government's military and economic programs.²² Indeed, passing internal civil air services over to commercial or contract carriers before reasonable security has been established can be detrimental to the government's program. Civilian aircraft and crews usually are not able to deal with even low-end military threats. So, they are more likely to be shot down by simple weapons, even by individual insurgent snipers. The effects of such shoot-downs on the government's prestige and on the willingness of government and private individuals to go out and do their jobs are always negative.

Morale Effects

The positive influence of airlift on counterinsurgent morale and confidence is also well documented and strategically important. Wherever they have benefited from it, counterinsurgent military personnel have commented that airlift support reduced their sense of isolation, even when widely deployed during security-phase operations, and gave them the confidence that they would be reinforced, supplied, and evacuated

²² Bowers, 1983, pp. 74, 78, 146.

when needed. Airlift also reduces troop fatigue and wastage by improving diet and reducing the time and casualties incurred in moving into and out of battle areas. In Vietnam, for example, ground units often deployed in minutes from established base areas—clean, reasonably rested, and fully equipped—into combat. Following some period of patrolling and/or combat, helicopters would whisk them just as quickly back to the cots, mess hall meals, and relative security of their base areas. It was not luxury, but it was much better than the experiences of counterinsurgent armies in the past.

Rested and confident soldiers are desirable for a number of reasons. First, they are more effective militarily—an observation that hardly needs expansion in the history of all wars. Second, such soldiers are usually more astute and restrained in their use of force. This is valuable in any war, but in the military-political brew of counterinsurgency, energetic, imaginative, and well-controlled soldiers are of premium worth. The nature of their tasks, particularly during the security phase, requires constant interaction with the civilians whose support the government hopes to win and retain. If the soldiers are well led, mentally connected to their chain of command and the higher purposes of the war, and well supported, they are less likely to commit the mistakes in their use of force that can undo counterinsurgencies as effectively as military defeats. Finally, well-led and well-supported soldiers are more likely to remember and adhere to the government's rules of engagement. Again, the immediate benefit of their discipline will be restraint in their use of force, bringing greater credibility and legitimacy to the government.

Of course, good soldiers are the product of many things, including leadership, training, cultural values, and a sense that they are achieving success. But regardless of the quality of their discipline and initial training, soldiers who are left to feel isolated, undersupported, and at excessive risk over a prolonged period will eventually take their frustrations out on themselves, captured enemies, or even civilians they perceive as unfriendly or recalcitrant. Commanders of forces dispersed for security-phase operations can counter these trends with leadership, threats, and promises. But often it will be airlift that gives their words substance, by providing the connectivity, supplies, sense of support,

and relief needed to sustain troops at high levels of discipline and effectiveness under difficult conditions.

In summary of their overall strategic effects, airlift forces contribute greatly to the ability of civil and military leaders to control the pace, direction, and ultimate effectiveness of counterinsurgencies. Effective airlift, in concert with combat air and land forces, will allow them to pursue insurgent field forces where they are most vulnerable. It facilitates the early start-up or resumption of security-phase operations and may help prevent or deter the insurgents from switching to conventional operations altogether, with likely reductions in human suffering and economic dislocation as a result. Airlift helps good troops be better at prosecuting their military and political duties. Certainly, there never will be easy counterinsurgencies. But there can be successful counterinsurgencies, and these are most likely when supported by powerful airlift forces operating in unison with high-quality combat air and land power and by sound political leadership.

Counterinsurgency Airlift Operations

Compared to its treatment of strategy and tactics, the body of U.S. service and joint doctrine regarding airlift at the operational level of war is sophisticated and extensive.²³ JP 3-17 is at the center of this body of doctrine, in both its 1995 and 2002 versions.²⁴ Two Air Force Doctrine Documents (AFDDs), 2-6 and 2-6.1, complement the two joint manuals.²⁵ Taken together, these manuals deal with a broad range

²³ Joint Chiefs of Staff, 2006, p. 390, defines *operational level of war* as “[t]he level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within theaters or other operational areas.”

²⁴ Joint Chiefs of Staff, *Joint Tactics, Techniques, and Procedures for Theater Airlift Operations*, Washington, D.C., JP 3-17, July 18, 1995, and Joint Chiefs of Staff, *Joint Doctrine and Joint Tactics, Techniques, and Procedures for Air Mobility Operations*, Washington, D.C., JP 3-17, August 14, 2002.

²⁵ Department of the Air Force, *Air Mobility Operations*, Washington, D.C., AFDD 2-6, June 25, 1999, and Department of the Air Force, *Airlift Operations*, Washington, D.C., AFDD 2-6.1, November 13, 1999.

of issues, including the integration and management of various air-mobility forces, sizing and structuring these forces to specific contingencies, command and control, and planning joint airlift and airborne operations. Significantly, none of these manuals discusses counterinsurgency warfare directly. The 1995 version of JP 3-17 does include a brief section on “Military Operations Other Than War,” which included counterinsurgency warfare conceptually. But that section is too general and brief to provide much illumination of the subject. Given this body of existing doctrine, the present study aims only to articulate some airlift considerations specific to counterinsurgent warfare.

Priorities

The object of counterinsurgency airlift planning and operations is to provide the maximum amount of support to as many users as possible in accordance with priorities set by the appropriate joint force commander (JFC). As JP 3-17 puts it,

maximum use of air-mobility assets to support as many user requests as possible . . . is important . . . [because they] are tasked against missions supporting the entire spectrum of national, strategic, and theater objectives.²⁶

The allocation and employment of airlift forces is a zero-sum game. Because the routine and contingency demands for airlift always exceed the supply, commanders and missions cannot benefit from increased airlift support except by “robbing” other commanders and missions of support. The global capabilities and linkages between national air-mobility forces make that a real-time, day-to-day reality. Senior joint commanders must always bear in mind that any conflict, including a counterinsurgency, is only an element in the larger tapestry of U.S. strategic commitments. Thus, the relative priority of an insurgency and its justification for airlift support may rise or fall with shifts in other priorities, even in areas where active fighting may not be under way. Thus, senior joint commanders and national leaders must demand that

²⁶ Joint Chiefs of Staff, 2002, p. VII-1.

JFCs employ their allotted airlift forces expertly and efficiently, both for the sake of effectiveness and to minimize the impact on other global commitments.

Counterinsurgency airlift planners and operators should expect their priorities to match those of most other counterinsurgent commanders: (1) to defeat and suppress insurgent conventional capabilities, if these exist; (2) to suppress guerilla activity enough to permit effective security-phase government and economic activities; and (3) to mop up residual insurgent forces. Once insurgent conventional capabilities have been contained, many individual military operations, such as patrols and large-unit sweeps, will contribute simultaneously to all three areas of priority. Nevertheless, as a community of experts, airlift planners and leaders must be prepared to advise their seniors when anticipated operations threaten to undermine their ability to support these priorities. For example, if a major sweep against scattered guerilla bands in the hinterlands will divert airlift away from important ongoing efforts to replace road convoys and, thereby, reduce casualties, airlift leaders should advise their commanders of the potential consequences of the diversion. The final calculation of risks and benefits belongs to the JFC, of course. But that calculation should be made with a clear understanding of what allocated airlift forces can and cannot do and with what consequences.

To minimize both the need for such hard choices and pressure on scarce global airlift assets, counterinsurgency airlift commanders should operate their allocated forces at the maximum sustainable tempo of operations. Again, this is a general recommendation for any conflict. Efforts to “bank” airlift forces, by operating them below their maximum sustainable tempo, will usually be unproductive because they will entail the certain loss of irrecoverable airlift sorties in exchange for an uncertain increase in their availability later on.²⁷ But the principle merits particular reaffirmation in counterinsurgencies, given the direct competition for sorties between the many operations and activities of their conventional and security phases. Any waste of airlift resources during a counterinsurgency is likely to contribute to the loss of civil-

²⁷ Joint Chiefs of Staff, 1995, p. I-5.

ian and/or military lives, at least indirectly. Sorties used inefficiently in counterinsurgency operations, for example, may force government relief organizations to move their people and supplies overland, with incumbent increases in risk to them directly and to the government's strategy indirectly. In counterinsurgencies, airlift sorties should be parceled out as if they represent human lives, which in a very real sense they do.

Civil-Military Integration

As discussed above, the presence of civilians and civilian activities as legitimate and proportionately large-scale users of military airlift is a frequent feature of counterinsurgent operations. This feature obliges counterinsurgent airlift commanders to integrate civilian agencies into their planning and operational staffs and processes. At a minimum, all military and civilian airlift operators and users should meet regularly to ensure that air and ground support operations are coordinated and made less redundant. These conferences will be vital; experience suggests that a number of airlift efforts will be under way during an insurgency, which will be conducted by the United States (usually by more than one service), other intervening allies, the host government, private volunteer organizations, news organizations, independent contractors, and private individuals and commercial enterprises. At certain times and places, the level of activity can be frenzied, providing ample opportunities for mutual support, competition for support resources and airspace, collisions, fratricide, and enemy counteractions. Consequently, in addition to integrating civilian operations and requirements into the airlift planning process, U.S. commanders also should integrate them into their day-to-day operations management processes, as appropriate.

Security concerns will likely preclude integrating civil agencies physically into the Joint Force Air Operations Center. However, appropriate civilian organizations should have some sort of "portal" into that process. This portal might be another "trailer" in the center compound or a remote conference room, perhaps in the capital city. In any case, the Joint Force Air Component Commander's Director of Mobility Forces will likely be the best-placed manager of civilian integration. The practice of integrating military and civil operators is already well

established in such arrangements as the Civil-Military Operations Centers prescribed in U.S. humanitarian relief doctrine, and it should be applicable in the realm of counterinsurgency airlift, although humanitarian aid agencies may be reluctant to appear too closely integrated with the counterinsurgency war effort.²⁸

Basing

As it is for all forms of air warfare, basing is a vital issue for counterinsurgency airlift planners. The objective is to base airlift forces in a manner that maximizes their effectiveness. “Effectiveness” is difficult to quantify, since it is a product of several, often countervailing, considerations, such as maximizing the productivity of the overall effort, ensuring that airlift support is responsive and tailored to meeting unexpected requirements and tactical emergencies, minimizing basing requirements, and maximizing the security of airlift personnel and resources. Basing forward, for example, often reduces the security of the airlift force, even as it tends to enhance its productivity—presuming there are secure ground lines of communication into the forward airfield(s)—and responsiveness to pop-up requirements.

Balancing these competing considerations is a particular challenge in the complex geography of counterinsurgency. When the guerrilla threat affects large parts of a country or region, the distinction between forward and rear areas is weaker and may be less predictable, and even bases remote from the heaviest fighting may not be secure from enemy attack. Long-range aircraft can mitigate the challenge because they permit more distant basing yet still retain substantial productivity in the battle zone. Aircraft able to operate from short or otherwise less-developed airfields are also attractive because they increase the possibility of finding or constructing airfields in favorable locations. In the short run, then, counterinsurgent planners should select airlift bases that are as close to the battle zone as possible, but where the combination of air and ground threats does not rise to serious levels, while also being suitable for operations by aircraft coming in from the

²⁸ Joint Chiefs of Staff, *Joint Tactics, Techniques, and Procedures for Foreign Humanitarian Assistance*, Washington, D.C., JP 3-07.6, August 15, 2001, pp. III-2 to III-4.

intertheater system. In the long run, airlift planners should consider equipping some portion of the national airlift fleet with aircraft, or a combination of aircraft and support systems, designed to mitigate the trade-off between security and productivity.

General Operational Considerations

Two general principles emerge from this wide-ranging discussion of counterinsurgency airlift operations. First, there will be a bottomless need for airlift. Every user will want it, and then want more. The *Small Wars Manual* advised pre–World War II expeditionary commanders that air transport would be “indispensable” in such conflicts and that they should take more than the normal allotment with them. Even then, it advised that centralized control would be required to prevent unnecessary and unauthorized uses of this scarce resource.²⁹ Given the unpredictable nature of counterinsurgency warfare, the manual’s advice to bring “lots” still rings true.

The second principle is that the operational differences between counterinsurgency airlift and airlift in conventional conflicts are less notable than they are at the strategic level. Strategically, airlift has altered the core characteristics of counterinsurgency warfare. It changes the options available to counterinsurgencies in everything from basic strategy to operational timing to rules of engagement; in turn, the use of airlift is shaped by the strategic nature of the conflict. Operationally, counterinsurgency airlift differs in its major features from conventional airlift mainly in that it calls for closer civil-military coordination and somewhat greater finesse in base selection. Otherwise, the planning and operational issues raised for airlift planners by counterinsurgencies differ from those of other conflicts only in degree and focus, when they differ at all. This lack of distinctiveness in the requirements and capabilities of operational airlift in counterinsurgency as compared to other forms of warfare carries over into the arena of tactics.

²⁹ U.S. Marine Corps, [1940] 1987, Chapter IX, pp. 3, 21–23.

Airlift Tactics in Counterinsurgency

Counterinsurgency warfare imposes few tactical requirements on airlift forces *that are unique to that mode of conflict*. Airlift tactics are the products of such factors as mission, cargo characteristics, threat environments, available terminals, aircraft and delivery systems employed, and time available.³⁰ Unlike missions involving weapon delivery, the political nature and ultimate objectives of a particular conflict are seldom critical to tactical-level airlift planners and operators as they determine and execute the “wheres, whens, and hows” of specific actions and missions. For that reason, keystone U.S. airlift doctrine publications do not dwell on the characteristics of counterinsurgency warfare. A C-17 crew delivering a load into an austere airfield in a serious threat environment will employ essentially the same tactics whether they are transporting a tank in a conventional interstate conflict or armored patrol vehicles in a counterinsurgency. Likewise, the tactical issues and solutions involved in airdropping supplies to a covert team observing an Iranian nuclear site or watching a road junction in Afghanistan will be similar, at least for airlifters, if not for their “customers.”

This is not to say that counterinsurgencies have no distinctive tactical characteristics for airlift forces. But counterinsurgency tactical requirements tend to differ from those of other conflict types in subtle rather than dramatic ways. For example, airlift crews may employ their aircraft defensive systems in any conflict, but perhaps with greater restraint in a counterinsurgency. They might put their countermissile flare dispensers on “manual” rather than “automatic” to avoid the risk of starting fires in friendly neighborhoods through false-alarm launches during final descents into lower-threat airports. Going into higher-threat airports or conducting operations over guerilla-occupied areas, they likely would switch to “automatic” and accept the higher risk of collateral damage to ensure the systems dealt immediately with actual threats. Likewise, the rules of engagement for troops guarding airlift aircraft on the ground probably would be more restrictive in the security phase of a counterinsurgency than for soldiers in conventional

³⁰ Joint Chiefs of Staff, 2002, Chapter VII; Department of the Air Force, 1999, Chapter 4.

operations. However, these examples tend to emphasize the peripheral influence of the counterinsurgency environment on airlift tactics. In the core areas of tactical decisionmaking—the selection of aerial delivery methods, formation versus single-ship operational choices, route selections, self-defense tactics, and so on—the underlying nature of the conflict is largely irrelevant, given a similar level of enemy threat.³¹

Threats

In striking contrast to combat airpower, the level and ubiquity of the threats airlift faces may be greater in counterinsurgency warfare than in many other types of conflict. In past conventional conflicts, U.S. airlift forces faced significant air or ground threats only sporadically, if at all. U.S. air superiority generally kept enemy airpower at bay. Enemy ground threats only became important when U.S. transport aircraft either flew over enemy-controlled territory during airborne or special operations or conducted air landing operations near enough to the enemy forces to draw artillery fire. For example, during the aerial invasion of Holland in 1944, Operation MARKET-GARDEN, the Allies lost at least 153 transport aircraft destroyed and 1,256 damaged, overwhelmingly as a consequence of enemy ground fire encountered beyond the Allied forward lines.³² But apart from these intense, short operations, the main killers of U.S. transport aircraft both in peacetime and in conventional wars have been operational and training accidents. In comparison, counterinsurgency air transport crews face a threat environment that is pervasive and can be fatally intense in localized areas. Dispersed guerilla forces cannot establish integrated air defense systems of radars, missiles, control centers, and the like. But they can occasionally deploy individual gun or missile systems in

³¹ Consistent with this assessment, the most important published studies on airlift planning and tactics do not distinguish counterinsurgencies as distinct operational realms at the level of planning and executing missions. See in particular, Keith Chapman, *Military Air Transport Operations*, London: Brassey's, 1989, pp. 98–100, and John A. Skorupa, *Self Protective Measures to Enhance Airlift in Hostile Environments*, Maxwell AFB, Ala.: Air University Press, 1989.

³² Roger Bilstein, *The United States Army Air Forces in World War II, Airlift and Airborne Operations in World War II*, Washington, D.C.: Office of Air Force History, 1998, p. 35.

battle zones or near terminal areas that can bring down airlift aircraft or threaten their ground support structure. During the Vietnam War, for example, the U.S. Air Force lost 165 transport aircraft, of which 90 were destroyed by enemy antiaircraft fire or ground attacks.³³ Therefore, if threat intensity is defined based on the probability of effective attack, counterinsurgency warfare can and will be high-intensity warfare at unpredictable times and places.³⁴

Given the ubiquitous threat level, counterinsurgency airlift operations must be planned and executed on the presumption that they could encounter serious or even severe threats at some point on almost any mission. Guerilla soldiers will be resourceful and determined in their efforts to bring down enemy transport aircraft. Their attacks may range from AK-47 potshots, to sniper attacks with rocket-propelled grenades, to sophisticated attacks with mortars and man-portable or even heavier surface-to-air missiles. In the past two years, ground fire in Iraq has destroyed several helicopters and damaged many other aircraft, including a large civil transport, C-130s, and a C-17.

³³ Bowers, 1983, p. 689.

³⁴ Instead of using standard Air Force definitions of low-, medium-, and high-threat environments, which are based on static descriptions of the types of air defense systems the enemy possesses (for example, the presence of optically aimed antiaircraft artillery constitutes a “low” threat level, while the addition of radar-aimed antiaircraft artillery or obsolescent fighter aircraft raises the threat level to “medium”), this study characterizes air defense threats based on their effects on the survivability and operational freedom of the aircraft they threaten. Such an effects-based framework is a function not only of the type and quality of the enemy air defenses but also of the types of target aircraft under consideration, the effectiveness of their defensive systems and tactics, and the locations and altitudes at which they wish to operate. Thus, the latter approach has far greater utility and relevance for actual military operations. For example, modern man-portable surface-to-air missiles (a common feature of a low-threat environment) might pose no significant threat to fighter aircraft at medium or high altitudes yet could make most low-altitude flight by transport aircraft or helicopters prohibitively dangerous. Therefore, we use the term *limited* to describe threats that pose only a minor chance of inflicting losses against aircraft operating in their envelopes using routine self-protective measures, *serious* to describe threats that substantially constrain the freedom of aircraft to carry out their desired missions but in which it is nevertheless possible to conduct operations without suffering more than occasional losses, and *severe* to describe threats that can be expected to inflict significant losses on aircraft operating in their envelopes even when all feasible defensive measures are employed.

So, in contrast to conventional conflict situations, counterinsurgency airlift planners and crews will typically have no obvious safe areas where they can conduct “routine” operations emphasizing safety and productivity above all else. Instead, they routinely will have to practice combat procedures, such as random scheduling, route selection, and approach procedures. Transports operating in guerilla-infested areas will ideally have high-quality self-defense systems, and their crews must be ready to use them at any moment. Once on the ground, these personnel must be as ready as their airlift support brethren to defend themselves and their aircraft. Such actions have always been part of the professional lives of airlift personnel. The need for airlift crews to be alert to threats and employ appropriate countertactics is in no way unique to counterinsurgency operations. The difference from conventional operations in this case is that the locations of the threats may be harder to predict and that the frequency of encountering them may be far greater.

The tendency of guerilla and counterguerilla forces to operate in dispersed units during the security phase also will also shape the tactical character of airlift operations. To a greater extent than in conventional operations, many counterinsurgent airlift missions will be small-scale lifts by one or a few aircraft to insert, support, and withdraw small units in remote areas. Historically, such missions present commanders with contradictory tactical requirements. On the one hand, small units do not require large amounts of supplies to stay in the field, and they do not want to hamper their mobility and stealth by carrying large supply stocks with them. From their perspective, the ideal logistical concept would involve frequent supply runs by small and stealthy aircraft using tactics that would not give away the units’ positions with each delivery. On the other hand, such a logistical concept consumes airlift sorties profligately and inefficiently, particularly if the airlift fleet is equipped with the larger types of aircraft typically called for in conventional war plans. Very quickly, a theater airlift fleet can run out of “tails” to support dispersed operations. Mitigating the problem usually calls for some mixture of incorporating smaller aircraft into the airlift fleet, getting supported ground units to carry more organic supplies,

and/or using airdrops to make small deliveries to more than one unit in a single sortie.³⁵

Urban Warfare

Airlift support of military operations in urban terrain (MOUT) merits some attention at the tactical level, regardless of whether it is part of a counterinsurgency or some other form of warfare. MOUT is an increasingly important and conceptually dynamic tactical arena. As experience and the increasing urbanization of the world's population attest, cities have become and will continue to be frequent and decisive battlefields.³⁶ Helicopters made the routine provision of MOUT airlift practical. The United States was the first to use helicopters in urban battles, during the Vietnam War. But Israel, South Africa, Great Britain, and many other countries soon followed. Even in the most built-up areas, such open areas as streets, rooftops, parks, and vacant lots provided endless opportunities for helicopters to land near or even amidst engaged troops. Their relatively small payloads were not usually a problem, given the modest requirements of MOUT forces for assault airlift, resupply, medical evacuation, and reinforcement.

However, helicopters are slower and more vulnerable than fixed-wing aircraft, problems of increasing concern. At cruise speeds of 110 to 160 knots, helicopters may take several minutes to traverse the threat "bubbles" of shoulder-fired missiles and up to a minute to fly into and then out of the range of heavy machine guns. Moreover, the rotors, engines, transmissions, tail booms, and crew stations of the typical transport helicopter give enemy gunners far more opportunities to achieve single-hit catastrophic "kills" than they would have against fixed-wing aircraft of similar size and weight. So far, creative tactics, modernized defensive systems, and damage-tolerant construction have kept the helicopter viable in urban combat. Even so, helicopter shoot-downs have been unexpectedly frequent in Iraq, which has forced the

³⁵ Joint Chiefs of Staff, 1995, p. I-9.

³⁶ Jennifer Morrison Taw and Bruce Hoffman, *The Urbanization of Insurgency: The Potential Challenge to U.S. Army Operations*, Santa Monica, Calif.: RAND Corporation, MR-398-A, 1994.

Army into a major overhaul of its recapitalization plans, doctrines, and the organization of its aviation branch.³⁷

In the face of advanced and future generations of light anti-aircraft systems, the uncertain ability of rotary-wing aircraft to penetrate, egress, and survive over the urban “canyons” of modern war presents food for tactical thought that should be undertaken and acted upon expeditiously. There are numerous options for improving MOUT airlift or reducing the need for it. Units conducting MOUT could move their supplies and evacuate their wounded on the surface, perhaps in armored transport vehicles. The Army could continue to improve the performance and damage tolerance of its helicopters incrementally. The Army also could introduce tilt-rotor aircraft into the mix, although it remains to be seen whether their higher cruise speed will offset the high vulnerability to ground fire that they share with helicopters. As in other areas of counterinsurgency airlift, precision airdrop systems, unmanned aerial vehicles, and small and agile fixed-wing transports also might take over portions of the MOUT airlift mission. The key is to begin exploring these options now.

³⁷ John A. Tirpak, “Washington Watch,” *Air Force Magazine*, April 2004.

Airlift Force Structure for Counterinsurgency

Perhaps the central insight to be gleaned from the preceding discussion of the relationship between airlift and the strategic, operational, and tactical levels of counterinsurgency warfare is that airlift has shaped the nature of conflicts against insurgents more than the conflicts have shaped the nature of airlift. At the strategic level, airlift gives counterinsurgent commanders greater freedom and confidence to choose the time and place of combat than they would have without it. At the tactical and operational levels, airlift remains an important enabler for aggressive combat operations and early support to civilian agencies operating during the security phase. Yet for all airlift's influence on the conduct of counterinsurgency warfare, such warfare does not add unique mission types, operational concepts, or aircraft types to the airlift requirements for warfare in general. Indeed, the closer counterinsurgency airlift gets to battlefield tactics, the less it manifests specialized operational and doctrinal requirements. These insights naturally lead to an examination of counterinsurgency's force structure implications for the current and foreseeable future military airlift fleet.

The issue of force structure returns us to our original question: whether the United States should create airlift forces specialized for counterinsurgency operations or rely instead on general airlift forces to execute the mission. Based on the strategic, operational, and tactical characteristics of counterinsurgency warfare, the answer to this question is a mixture of "yes" and "no." Given the continuities between the airlift requirements for counterinsurgencies and those for other types of conflicts, the existing "human" elements of airlift force structure—

training and doctrine—require little specialization to combat insurgencies. Apart from an understanding of the distinct rules of engagement for counterinsurgencies—mainly regarding the use of force—and of the heightened general threat environment, there is little that airlift planners and crews need to know in addition to their normal preparations for operations in other conflict environments.

The specialized materiel demands of counterinsurgency airlift are somewhat more complex. While the array of counterinsurgency airlift missions is much the same as for other conflicts, the balance among them is distinct. In contrast to conventional conflicts between states, a counterinsurgent airlift effort likely will include a greater proportion of small-scale, quick-response military missions overshadowed by the possibility of encountering serious air defense threats. Counterinsurgency airlift efforts also tend to feature a much higher proportion of nonmilitary or “nation-building” missions than do more conventional operations. The distinctive mission balance of counterinsurgency airlift may require some alteration or expansion of the general airlift fleet to improve its ability to support such missions effectively. The degree of alteration required will be a product of the expected operational requirements and technological opportunities.

Unpredictable Requirements

The challenge, of course, is that airlift requirements are impossible to forecast with precision. No matter how carefully airlift planners map out the likely requirements for future conflicts, they know that they will guess incorrectly in the end and that the mix of aircraft in the fleet resulting from their plans will not perfectly match the conflicts that the United States actually fights. The C-17 Globemaster III program, for example, began in the face of concerns over general shortfalls in the U.S. ability to reinforce Western Europe and, more immediately, a possible need to lift whole armored divisions to block a Soviet advance into Iran. U.S. airlift planners accordingly sought an aircraft that could deliver tanks and other armored vehicles into undeveloped

desert airfields.¹ Ultimately, the aircraft was used in the deserts of the Middle East, but to deliver U.S. expeditionary forces into Kuwait and Iraq rather than to stop Soviet tank divisions in the Iranian mountains. Moreover, the vast majority of C-17 missions flown today are transoceanic logistics missions, missions for which the aircraft is not particularly efficient.²

This inability to predict precisely the types, numbers, and mix of airlift aircraft needed in the wars the country actually will fight, as opposed to the ones visualized and precisely defined in the planning documents the Joint Staff or the Air Force generate to set budgeting guidelines, is unavoidable. The lag between initially identifying requirements for new aircraft and bringing them into the operational fleet is so long—typically on the order of decades rather than years—that the structure of the airlift fleet is likely always to differ significantly from the force that would be ideal to support actual operations. Therefore, it is important for architects of future forces to make plans and set requirements that will remain as relevant as possible if the conditions that drive them change or fail to materialize.

The Rules of Airlift Planning

The unpredictability of long-term airlift requirements dictates at least three basic “rules” for airlift planning. The first is that the airlift fleet should be structured first, foremost, and always for the wars that would pose the most serious threats to vital national interests. Historically, these wars have been potential state-on-state conventional conflicts; however, whether this remains true today is a matter of ongoing debate. U.S. airlift force structure planning during the Cold War was predicated on supporting strategic nuclear forces and, after the mid-1960s,

¹ Military Airlift Command (MAC), “Mission Element Need Analysis (MENA),” Scott AFB, Ill., MAC 04-79, August 10, 1979; MAC, *History: Calendar Year 1981*, Vol. 1, *Narrative and Appendices*, Scott AFB, Ill., 1981, p. 66.

² The C-5 Galaxy, in comparison, uses engines of similar power to those of the C-17 but lifts substantially greater loads over longer distances.

also on moving large conventional forces over the Atlantic or Pacific to resist Soviet or North Korean attacks on Europe or South Korea, respectively. The fall of the Soviet Union left airlift planners with only a North Korean attack or other so-called major regional contingencies for justifying an airlift force structure. Thus, all major U.S. Department of Defense (DoD) strategic studies and their airlift corollaries during the 1990s posited some set of conventional, regional wars as the baselines for planning, with no specific mention of counterinsurgency requirements.³ Only since 2001 has the United States integrated counterterrorism and unconventional threats into its basic strategic calculations and an assumption that “the war on terrorism points to the need to reorient our military capabilities to contend with such irregular challenges more effectively.”⁴ Earlier documents presumed that conventional threats took precedence over unconventional ones and that the forces acquired to support conventional war plans would have to suffice if the country had to fight other kinds of wars. Today, the order of precedence among traditional regional conflicts, counterinsurgency, and other military operations is less clear,⁵ making this prescription for setting priorities among missions more complicated and, perhaps, more unreliable for strategists and force planners than it was for their counterparts in previous decades.

The second unwritten rule of effective airlift planning is that the airlift fleet should consist of several types of aircraft manifesting a significant variety of operational characteristics. This diversity of aircraft types makes the overall fleet flexible. Since World War II, the overlapping service periods of different aircraft—such as the C-47, C-46, C-97, C-54/118, C-82/119, C-123, C-74/124, C-130, C-133, C-135, C-5, KC-10, C-17, and other, less numerous types—always gave airlift operational planners and commanders a range of options in responding to specific contingencies. Watershed exercises, such as SWARMER in

³ DoD, “A Framework for Strategic Thinking: Building Top-Level Capabilities,” briefing to Senior Level Review Group, Washington, D.C., August 19, 2004, slide 4.

⁴ DoD, *The National Defense Strategy of the United States of America*, Washington, D.C., March 2005, p. 3.

⁵ See Vick et al., 2006, pp. 54–59.

1950 and the GOLD FIRE and AIR ASSAULT exercises in 1964 specifically examined and validated the need to integrate aircraft of different types to establish continuous air lines of communication between the United States and military units deployed overseas. Seldom was any particular aircraft ideally suited for all the missions, or even the core missions, involved in a major military, humanitarian, or other contingency. But the ability to integrate long- with short-range types and heavy aircraft with medium and light aircraft gave airlift commanders the ability to get their jobs done satisfactorily, if not elegantly. Taking the results of these exercises and day-to-day operations to heart, the Army and Air Force declared in the 1960s that “Air Force fixed wing aircraft and Army helicopters will be employed in a mutually complementary role to accomplish tactical airlift requirements . . . [thus ensuring] optimum effectiveness.”⁶ The ability to use the airlift arms of all the services as a flexible team follows in direct proportion from the degree of difference among the operational characteristics of the individual aircraft.⁷

The operational differences between rotary- and fixed-wing transport aircraft both complicate and enrich airlift planning and operational options for all conflict types, including insurgencies and counterinsurgencies. The revolutionary advantages of helicopters over fixed-wing systems are that they can deliver loads vertically and gently into landing zones scarcely larger than their rotor discs and then depart vertically. The relative disadvantages of helicopters are that they are aerodynamically inefficient compared to fixed-wing systems; are sometimes more susceptible to destabilization and/or destruction from battle damage; and tend to be vulnerable, particularly during hovering takeoffs and landings. For the same power and fuel consumption, fixed-wing aircraft will carry more cargo farther than helicopters. But the obvious drawback of fixed-wing aircraft is that they need landing

⁶ Department of the Air Force, 1967a, p. 2-1.

⁷ Many airlift planning documents explicitly or implicitly recognize the need to have several divergent types of aircraft in the airlift fleet. One example is found in MAC, “Required Operational Capability (ROC), Advanced Medium STOL Transport,” Scott AFB, Ill., MAC-75, 1975, p. 2, which called for a transport aircraft capable of bridging the gap between Air Force strategic transports and Army organic lift, i.e. helicopters.

zones that are far longer, probably wider, and smoother than those that helicopters require. Tilt-rotor aircraft, the most important current example of which is the V-22 Osprey, sit in the middle. For their power and weight, they are slower and carry less over a shorter distance than do fixed-wing transports. In cruise, they are faster than helicopters and can carry more over distances exceeding around 100 nautical miles or so, but they also share the helicopter's vulnerability in vertical flight. By expanding the potential selection of range-speed-payload envelopes available, the combination of rotary- and fixed-wing aircraft in an airlift fleet gives counterinsurgent commanders proportionately greater flexibility in conducting operations.⁸

The movement of a light infantry company and supporting vehicles over a distance of 200 kilometers during a counterinsurgency can illustrate how the teaming of airlift aircraft works. If the movement were to be made between two reasonably well-developed airfields, it could be conducted by a handful of C-17s, although the distance involved might not justify their diversion from intertheater missions. So airlift planners might substitute C-130 Hercules intratheater transports for the C-17s, at a ratio of about four sorties to one. If the time to get the troops into battle was critical, they could be moved by helicopter. But such a movement by, say, CH-47 Chinooks would be at their round-trip range limits and would require at least three helicopter sorties for every C-130 sortie replaced. As an alternative, airlift planners could use C-130s or C-17s to position either the company or fuel for the helicopters at a field nearer to the battle zone, so the final movement could be made by helicopter. Or C-130s, C-17s, or even C-5s could airdrop the vehicles and supplies, just before the light infantry arrived in utility helicopters. There are other possibilities, but these suffice to illustrate

⁸ The other major difference between fixed- and rotary-wing transport aircraft in the U.S. armed forces is that the former are currently the almost exclusive domain of the U.S. Air Force and the latter are mostly organic to Army and Marine units. Insofar as counterinsurgency operations involve a greater proportion of missions supporting small units deployed in dispersed "penny packets," organic aviation assets may appear to offer advantages over those operated in a more centralized airlift tasking system. Providing such support is not incompatible with current practices for allocating and scheduling airlift, but it does heighten the need for flexibility and responsiveness in the system.

how variation within the airlift fleet allows commanders to accomplish missions they might not be able to do with access only to a more monolithic force structure.

The third rule is never to abandon rule 1 to follow rule 2: diversity in the airlift fleet should not be pursued to the point that it jeopardizes the ability of the overall force to perform its most critical missions. Preparing for secondary contingencies is important, but being successful in vital contingencies is, well, vital.⁹ This may seem to be something of a truism. However, it is important to keep in mind when assessing the need to acquire airlift aircraft or other force-structure elements optimized for specific missions, such as medium-range, small-capacity supply lifts, or for particular types of conflicts, such as counterinsurgencies, whether these will have limited value in other contexts. This is especially true if the other missions or contingencies are more important, but it applies even if they are not. In the zero-sum reality of defense budgeting, every dollar spent on a specialized aircraft is a dollar that cannot be spent on aircraft of greater general utility. This is not to say that there never will be a need to buy specialized aircraft. But they should be acquired only in absolute minimum quantities—the amount of which will depend on the importance of the mission—and they should manifest operational characteristics that enhance the flexibility of the airlift fleet overall.

The C-7 Experience

The U.S. armed forces' experience with the C-7 Caribou is a case in point. Based on its 500-mile operational range and 3-ton payload, the aircraft appeared to be a waste of money. It was less efficient than larger contemporary aircraft, except for moving very small loads, and every dollar spent on it rather than on larger "strategic" transports robbed

⁹ As discussed above, in the post-Cold War, post-September 11 world, the relative importance to U.S. national security of various ongoing or potential military contingencies is a matter of much debate. In particular, counterinsurgency operations, including those in Iraq and Afghanistan, are at least arguably more "vital" than the possible conventional regional conflicts in which the United States might need to intervene in the foreseeable future.

the country of vital lift needed to reinforce Europe and South Korea in the event of communist attack. But the C-7 possessed a unique combination of modest speed, economy of operation, and short takeoff and landing (STOL) rough field (STOL-RF) abilities that gave it offsetting value in the counterinsurgency operations of the Vietnam War. It filled the niche between the heavy helicopters and medium-capacity theater airlifters available at the time. Most importantly, the Caribou could take off in as little as 600 feet with its 3-ton payload and could clear a 50-foot obstacle only 1,000 feet from its starting point.¹⁰ The heavy-lift helicopters available, mainly CH-47s and CH-53s, could carry significantly heavier loads than the Caribou and had the advantage of vertical takeoff and landing capabilities. But within its capacity, the Caribou carried its loads much farther, about 700 nautical miles with 3 tons, as opposed to about 200 miles with the same load for the CH-47.¹¹ The Caribou also burned far less fuel and required significantly less maintenance support than the CH-47.¹² Larger fixed-wing aircraft, mainly the C-123 Provider and the C-130, carried much more much farther, but they required wider, longer, smoother, and stronger airfields than the C-7. In Vietnam, many airfields were suitable for C-7 operations but not for the larger aircraft, and new ones could be constructed much more quickly and cheaply for the C-7 than for the other planes.

So, for providing small-capacity lift into remote sites or expeditionary airfields, the C-7 was enormously valuable in Vietnam. It was particularly useful for resupplying outlying Special Forces camps; providing quick-response lift to move dispatches, command personnel, medical supplies, and similar loads into tiny contingency airstrips during major ground sweeps; and carrying casualties directly from dis-

¹⁰ The C-7 could fly from 1,000-foot airfields carrying 3 tons of cargo and sufficient fuel for a 500-nautical mile flight. With the same payload and full internal fuel, it required 700 feet to take off and 1,200 feet to clear a 50-foot obstacle. See Department of the Air Force, *Standard Aircraft Characteristics: C-7A Caribou*, Washington, D.C., February 1967b, p. 5.

¹¹ Department of the Air Force, 1967b, p. 5.

¹² Christopher C. S. Cheng, *Air Mobility: The Development of a Doctrine*, Westport, Conn.: Praeger, 1993, p. 123.

tant battlefields to major evacuation hospitals.¹³ Accordingly, the Army and then the Air Force operated approximately 100 C-7s in Vietnam, and the Air Force's Corona Harvest assessment of the war called for a replacement aircraft "similar to the C-7/C-23 to handle smaller individualized or 'feeder' airlift requirements."¹⁴ It is doubtful that anyone worried much about how the C-7s or their replacements would affect MAC's ability to reinforce Europe or Korea. In their limited numbers, they represented only a small diversion of resources from the overall airlift program; they filled an immediate need and, in fact, gave the airlift fleet an important niche capability of potential use in other types of conflict or later counterinsurgencies.

Renewed Need for an Assault Airlifter?

From the late 1940s into the early 1960s, the Air Force and Army referred to the operational niche the C-7 filled in Vietnam as *assault airlift*. As a mission, assault airlift focused on fixed-wing aircraft providing direct airlift support as far forward in the battle area as possible. The model for the assault airlift mission was the airborne assaults of World War II, during which powered aircraft (mainly C-47s) and combat gliders (mainly the CG-4) delivered troops and their supplies by parachute and into landing zones amidst the enemy, often under fire. After the war, the Army and Air Force began developing a class of aircraft that could replace existing powered and glider aircraft both to support airborne assaults and to provide general logistics support into short and rough fields in the battle zone. As a realm of technology, then, assault airlift focused on developing exceptionally rugged aircraft that could land at and take off from very short fields, usually less than 1,000 feet long. The ability of assault airlifters to provide flexible and reliable support was directly proportional to the shortness and ruggedness of the fields they could handle. Thus, assault airlift designs

¹³ Bowers, 1983, pp. 353–372.

¹⁴ Department of the Air Force, 1973, p. 36.

tended to be smaller, more maneuverable, more robustly constructed, and slower than typical theater and intertheater airlift aircraft.

Recent experience in Afghanistan and Iraq suggests that there may be a need to refill the assault airlift niche the C-7 once filled. A direct indication is the Army's use of a small number of C-23 Sherpa and C-12 Huron light transport aircraft to carry small loads to scattered locations in the two countries. Although neither aircraft was designed as an assault airlifter, they both have short-field capabilities and passenger and cargo capacities that have made them useful and heavily used in these counterinsurgencies.¹⁵ Indirect indications that something is missing in the airlift fleet come from the strained utilization of heavy-lift and utility helicopters and of C-130s in both the Afghan and Iraqi theaters of operation. The pressure on the helicopters comes disproportionately from their sustained use to provide routine administrative airlift over long distances. Such operations impose excessive wear and tear on the limited number of helicopters available, which reduces their availability and increases their costs of operation. Indeed, the primary role of the Sherpas and Hurons in the theater is to reduce the burden on the overstressed helicopter fleet.¹⁶ C-130s are available to perform such missions, of course. But their numbers are limited, and they normally require firm, graded airfields some 3,000 feet long to operate.¹⁷ Given the availability of flat terrain in both countries, even in their mountainous regions, such airfields can be found or built, but only at cost in money and lost tactical flexibil-

¹⁵ Bob Haskell, "Sherpa Book," National Guard Bureau, September 9, 2003.

¹⁶ Haskell, 2003.

¹⁷ In reality, this runway requirement for the C-130 is no more than a general planning assumption. When taking off at high gross weights and in adherence to peacetime procedures, a fully loaded C-130 will require substantially more than a 3,000-foot takeoff run. But when making maximum-effort takeoffs at lighter gross weights, the aircraft can lift off in 2,000 feet or less. Because aircraft takeoff performance is sensitive to a number of variables, such as weight, field altitude, temperature, wind, runway surface, and aircraft loading, those wishing more-detailed information for specific takeoff situations should refer either to the appropriate performance manuals for the Lockheed-100 and/or C-130 or to other official documents, such as the Air Force's Standard Aircraft Characteristics pamphlets for each specific model of aircraft.

ity. Even when such airfields are present where needed, the small size of many of the routine loads of passengers and materiel needing to be moved underutilizes the approximately 17-ton, 96-passenger capacities of the aircraft. Using a C-130 to move a dozen passengers or a ton or two of cargo is inefficient and likely to undermine the effectiveness of the airlift effort overall. So airlift planners frequently use helicopters to move administrative traffic, even though the ranges involved and the routine movements normally would not justify the use of such costly and scarce aircraft. This Hobson's choice between stressing the rotary-wing fleet or of using the fixed-wing fleet inefficiently suggests a need for an aircraft or combination of aircraft and support systems to fill the vacant assault airlift operational niche and enhance the overall capabilities of the airlift fleet.

U.S. Experience with Assault Airlift Aircraft

Since World War II, the U.S. military has conceptualized or evaluated a series of fixed-wing aircraft optimized for STOL operations into less-developed or rough fields (STOL-RF) with modest loads. Many of these aircraft were never more than paper concepts or mockups.¹⁸ But others actually flew. In the late 1940s, the Army and Air Force evaluated a trio of assault transports (the first to be called such), the Chase C-122 and C-123, both essentially powered versions of combat gliders, and the Northrop C-125. The C-122 and C-125 were exceptionally rugged designs able to carry about 5 tons into airfields less than 1,500 feet long. The C-123 was larger, less rugged, and required around 1,800 feet of runway but could lift about 10 tons. Ultimately, in the late 1950s, the Army bought the CV-2/C-7 Caribou from de Havilland Canada (which called it the DHC-4).

During the 1960s, the United States evaluated several promising foreign designs. De Havilland Canada built the DHC-5 Buffalo, which had the payload capacity of the C-123 but the STOL-RF per-

¹⁸ Susan Mercer Williams, *An Airlift Odyssey: A History of Tactical Airlift Modernization, 1955–1983*, Marietta, Ga.: Lockheed Corporation, July 1983, p. 7.

formance of the Caribou. France, meanwhile, developed the Breguet 941 and it in the United States with the McDonnell Aircraft Company as the Model 188E. This aircraft was unique in that its four turboprop engines were interlinked mechanically, which greatly improved safety if an engine failed on takeoff, and thereby allowed the aircraft to lift about 8 tons out of runways as short as 600 feet. Several U.S. companies also rolled out STOL and vertical takeoff and landing (VTOL) transports or experimental aircraft. The most promising was the LTV-Hiller-Ryan XC-142. This four-turboprop aircraft flew successfully, could lift up to 3 tons VTOL and 5 tons STOL, and cruised at up to 350 knots. In the STOL configuration at full weight, it could lift off in 150 feet and clear a 50-foot obstacle about 350 feet later.¹⁹ The C-142 received serious consideration for production, while the other STOL/VTOL designs rolled out during the period, such as the Lockheed XV-4A Hummingbird and the Curtis-Wright X-19A, were too small to be candidates for service.

However impressive the operational attributes of these aircraft, neither the U.S. Air Force nor the Army have pursued an assault airlift aircraft to the point of production since they acquired the C-123 and C-7 in the 1950s. The details of this choice are beyond the scope of this monograph, but its general background is relevant to any future decision to recapitalize the theater airlift fleet. As recounted in the only extensive history of assault airlift as a policy issue, the main barriers to acquisition of these aircraft have been the absence of a strong community of advocates within the Air Force and DoD and the differences between the Army's and Air Force's visions of what such aircraft should be and should do in light of shifting national defense strategies.²⁰

The differences between the service visions became apparent at the very beginning. In the C-122-123-125 competition of the late 1940s, the Army preferred the C-122 and C-125 because they were small, very rugged (particularly the C-125), and therefore able to land near more areas of the battlefield than the C-123. The Army also antici-

¹⁹ Department of the Air Force, *Standard Aircraft Characteristics: XC-142A*, Washington, D.C., July 1963, p. 5.

²⁰ Williams, 1983, pp. 1–6 and throughout.

pated that more of the smaller aircraft would be bought than of bigger aircraft and, therefore, that it would offer greater flexibility as a source of on-call airlift during rapidly evolving operations.²¹ The Air Force preferred the C-123, mainly because it would take fewer of them to meet the Army's gross tonnage requirements and, consequently, would divert fewer personnel, dollars, and units from the ongoing buildup of nuclear deterrent forces.²² Intent on having an aircraft similar to the C-122, the Army purchased the Caribou a few years later.²³ This division between the Army's desire for a flexible fleet of smaller transports and the Air Force's desire to minimize the diversion of resources away from other core missions ultimately blocked subsequent assault airlifter production decisions. One Army–Air Force study did call for a new assault

²¹ The Army's relationship with assault airlift has been complex and variable over the years. On the one hand, its desire to develop and control its own organic airlift forces led the Army to acquire its small C-7 fleet in the 1950s and to consider purchasing significant fleets of medium aircraft in the years that followed. On the other hand, a former Chief of Army Aviation, General John J. Tolson reported that "the helicopter . . . was the absolute sine qua non of the Army's concept of air mobility." Accordingly, when ownership of the C-7 became a major bone of contention between the Air Force and the Army, the Army Chief of Staff willingly ceded the aircraft to the Air Force in 1967 to solidify his control of the rotary-wing aircraft that were truly central to the Army's organic airlift requirements (Tolson, 1973, pp. 105–107). Since that agreement with the Air Force, the Army has reexamined and even proposed acquisition of a new generation of fixed-wing assault transports, but has never moved on to actually buy such an aircraft.

To some degree, current U.S. joint command-relations doctrine obviates the issue of whether the Army or the Air Force should acquire fixed-wing transports. Regardless of the service "ownership" of such aircraft, combatant commanders in overseas theaters and areas of operation would have the option of assigning control to the land, air, or maritime component commanders best able to use their capabilities in support of the overall campaign. Modern concepts of operational control, tactical control, and support render the notion of "organic" or "exclusive" employment of such long-range and broadly useful assets by a particular component largely obsolete and counterproductive.

For more insight into the Army's early experiences and policies regarding assault and battle-field airlift, see Richard P. Weinert, Jr., *A History of Army Aviation*, Ft. Monroe, Va.: U.S. Army Training and Doctrine Command, 1991, and Cheng, 1993.

²² See three *Aviation Week* articles by Ben S. Lee: "XC-123 Seen in Lead in Evaluation" and "Assault Transport Order Goes to Chase," September 11, 1950, and "The Army's Role in Air Power," February 26, 1951, p. 17.

²³ Chapman, 1989, p. 90, and Cheng, 1993, p. 123.

airlifter in the mid-1980s, but nothing came of that study or others drawing similar conclusions.²⁴ Even had the two services been of the same mind about this mission area, national strategic priorities after the Vietnam War offered little support for the acquisition of large numbers of assault transports. Given the relatively short tactical distances and the intensity of combat expected on European or Korean battlefields, it was hard to argue that they would present many missions that could not be fulfilled by helicopters or C-130s nearly as efficiently, and perhaps more survivably, than they could be by assault airlifters.

For these reasons, the U.S. Air Force abandoned the assault airlift mission after the 1980s. It retired the last C-7 from the reserves in 1985 and did not replace it. The Air Force did purchase 18 C-23 Sherpas and 10 C-27 Spartans in the 1980s, but merely to improve air logistics in Europe and Latin America, respectively. Neither aircraft was suitable for the assault airlift mission in any case. The small C-23 carries up to 3 tons but for barely 200 nautical miles. Moreover, as a military application of the Shorts 330 airliner, it is too lightly constructed and underpowered for true STOL-RF operations.²⁵ After a typical takeoff run of about 1,600 feet, it still requires another 2,200 feet to climb over a 50-foot obstacle; once airborne, the aircraft cruises at a stingy 190 knots.²⁶ The C-27A is bigger, faster, and more robust than the C-23. It carries up to 9 tons of cargo and cruises at roughly 250 knots.

Under the current Joint Cargo Aircraft (JCA) program, the Army and the Air Force are considering two light transport aircraft that may improve the flexibility of the logistics fleet at the margin but are not intended to fill the assault airlift role. The first aircraft, the C-27J, is an improved and up-powered version of the C-27A. The second contender for the JCA role is the CASA 295. Each of these aircraft is capable

²⁴ Airlift Concepts and Requirements Agency, MAC and Training and Doctrine Command, "A Qualitative Intratheater Airlift Requirements Study," 1985, p. xviii. This agency operated in the 1980s as a research arm of the Air Force's MAC and the Army's Training and Doctrine Command.

²⁵ Haskell, 2003.

²⁶ Department of the Air Force, *Standard Aircraft Characteristics: C-23A Transport Shorts*, Washington, D.C., June 1989, pp. 5–6.

of operating from runways that are somewhat shorter, narrower, and rougher than those normally employed by the much larger C-130.²⁷ However, neither aircraft was designed to provide STOL-RF capabilities like those emphasized in the assault airlifters of the 1950s and 1960s. Thus, building several squadrons of JCAs could improve DoD's ability to support dispersed counterinsurgency operations by increasing the number of "tails" available to the presently overstressed theater airlift fleet at a relatively modest cost. However, acquiring such aircraft will leave the issue of developing assault airlift capabilities unresolved.²⁸

Considering Regaining Assault Airlift Capabilities

If the demands of current and likely future counterinsurgency efforts prompt DoD to attempt to fill the assault airlift niche, this should be undertaken with a full understanding of the historical operational and programmatic significance. Operationally, it will be important to recognize that the assault airlift mission is justified as much, or perhaps more, by nonlinear conventional conflicts as it is by counterinsurgency requirements. The 1954 Project Vista study of the Army's requirements for airlift in a nuclear war in Europe established the first large-scale requirement for assault airlifters—400 C-123s to resupply Army regiments maneuvering on nuclear battlefields.²⁹ Following

²⁷ The same is also true of the C-130 itself, however; standard airlift doctrine and procedures often call for or lead to the use of larger airfields than those strictly required by the aircraft's capabilities.

²⁸ At the time of writing, in any case, it remains to be seen whether or not the Air Force and the Army will be able to overcome their historical preference for different types of aircraft, or whether the program itself will survive in the face of harsh criticisms of diverting funds from other important programs. See C. Todd Lopez, "Air Force, Army agree on plans for joint cargo aircraft, Air Force Link, June 27, 2006; Loren B. Thompson, "Joint Cargo Aircraft: Is This Program Necessary?" Issue Brief, Lexington Institute, May 3, 2006.

²⁹ Robert F. Futrell, *Ideas, Concepts and Doctrine: Basic Thinking in the United States Air Force 1907–1960*, Vol. 1, Maxwell AFB, Ala.: Air University Press, 1989, p. 328, and Robert A. Doughty, *The Evolution of U.S. Army Tactical Doctrine, 1946–76*, Leavenworth Papers, No. 1, Ft. Leavenworth, Kan.: Combat Studies Institute, 1979, pp. 12–16.

the Vietnam War, most Air Force studies of the issue emphasized its continued importance to enhancing the mobility of ground and air forces in major state-on-state conflicts. Since Vietnam, conflict plans and operations as varied as North Atlantic Treaty Organization war plans and special operations in Iran have called for or would have benefited from the availability of small, fixed-wing aircraft with profound STOL-RF capabilities.

This emphasis on conventional conflict has historically been both the boon and the bane of assault airlift policy. It has been a boon in that conventional warfare requirements tend to be larger and of higher priority in the defense budget process than are counterinsurgency requirements. It has been a bane, however, in that conventional warfare requirements have been the crux of the Army–Air Force disagreements over the proper size and characteristics of assault airlift aircraft. Overall, conventional operations require massive amounts of supplies, so the Air Force typically prefers big aircraft and is never able to buy all it needs. Consequently, the small percentage of missions that required specialized STOL-RF have fallen below budget red lines since the late 1950s.

It also will be important to understand that an assault airlift shortfall exists only if there is a significant lack of operational capability, rather than merely the absence of a particular class of aircraft from the airlift fleet. What airlift planners need is the ability to service scattered counterinsurgency forces and, perhaps, conventional units maneuvering beyond the reach of secure ground lines of communication. This does not necessarily require modern counterparts of the assault airlifters of earlier generations, however. Given the profound changes in U.S. military warfighting doctrines and the global military environment over the past 20 years, both the scale and the configuration of the assault airlift requirement will have many new features. Supported units may well be farther apart, be operating in different threat environments, and have different supply needs than would units undertaking similar operations in previous conflicts.

A number of aircraft and support technologies may reduce the programmatic pressure of funding an assault airlift program. Suitably modified light civilian transports, such as the Cessna Caravan, the Pila-

tus PC-6, or the PZL M-28, for example, could fill much of the assault airlift mission cost-effectively and survivably. The British, French, and many other militaries have used comparable aircraft very effectively in “small wars” around the world. Similarly, the Global Positioning System can reduce the need for specialized assault airlift aircraft by substituting precision airdrops by aircraft, unmanned aerial vehicles, or guided parachute systems for STOL-RF air landing operations, which could enable delivery of supplies to forces in the field without risking manned aircraft flying into the envelopes of low-altitude air defenses.³⁰ Unmanned aerial vehicles and paraglider systems also offer the advantage of reducing the auditory and visual signatures of airdrop operations, an effect of great value to small patrols and special operations teams trying to operate covertly. Modernized airdrop systems based on delivery from fighter-type aircraft would also permit survivable, small-scale resupply in serious- and even severe-threat situations. Current-generation rotary-wing aircraft, particularly the tilt-rotor CV-22 Osprey, offer improvements in range and reliability over older helicopters. The judicious acquisition or upgrade of a combination of these and other systems could reduce, or even eliminate altogether, the need to acquire specialized counterinsurgency transport aircraft.³¹ Perhaps the main point of all of this is that there are many options and combinations of options for covering the assault airlift mission. Careful analysis and creative employment of existing capabilities may reduce the requirement for assault airlift aircraft to performing a few indispensable missions, such as delivering personnel and delicate equipment and picking up casualties at distant air strips.

³⁰ Satellite-guided precision airdrop systems are growing progressively more capable and less expensive. Using them is likely always to cost more than air-landing cargo directly (assuming this is possible) or making a low-altitude airdrop from the same transport aircraft, but the added expense grows less significant the more intense the threats aircraft face at low altitude or on the ground in the delivery area becomes

³¹ Another possibility for filling the assault airlift niche would be for U.S. allies to acquire and operate such aircraft (the Polish Air Force already flies the M-28, for example) and contribute them to combined operations in support of U.S. and other allied forces with assault airlift needs.

If analysis does indicate the need to acquire specialized assault airlifters to meet counterinsurgency requirements, experience suggests at least two general program goals that DoD should emphasize. First, the aircraft designs chosen should emphasize STOL-RF or VTOL capability and high survivability over other design goals, such as cargo capacity and economy of operation. Short-field capabilities are the very reason for an assault airlifter to exist. Survivability is also essential, since assault airlifters operate very near the front or over unfriendly territory as a matter of course. Given recent and likely increases in the resulting threat environment, a successful assault airlift aircraft of the future will need some combination of speed, stealth, terminal environment maneuverability, defensive systems, damage-tolerant structure, and tactics that will provide a degree of protection to which the designers of earlier assault aircraft could not and did not have to aspire. Second, the purchase of specialized systems should be minimized, in keeping with the force structure rules discussed above. With luck, an existing aircraft design, suitably modified, will be able to provide these capabilities, since funding an entirely new design would be an extremely difficult proposition in the current budget environment.

Airlift in Foreign Internal Defense

The integral connection between counterinsurgency and the U.S. FID program raises issues of relevance to the question of whether or not the Air Force will require specialized forces and aircraft to deal with insurgencies. FID is the policy and program under which the United States assists foreign allies in their defense against internal threats, which usually develop in the form of organized lawlessness, subversive terrorism, or insurgencies. FID programs range from assistance with economic and governmental infrastructure development to active support in combat operations. The importance of FID is that, first, it allows the United States to support states with advice, assistance, and technologies that they probably could not acquire on their own and that, second, it reduces or at least delays the need for direct U.S. involvement against insurgencies where it is effective. Airlift has been a ubiquitous element of U.S. FID efforts since the 1940s. But for all the obvious importance of airlift in these efforts, the Air Force has taken a minimal approach to providing airlift support to governments conducting counterinsurgencies, both in doctrine and practice.

After six decades of FID experience, the most directly relevant DoD and Air Force FID doctrine manuals actually say very little about airlift. The primary DoD manual on the subject, JP 3-07.1, *Joint Tactics, Techniques, and Procedures for Foreign Internal Defense*, barely discusses airlift, except to suggest that it could be useful to support *U.S. forces* deployed in supported countries.¹ The definitive Air Force FID

¹ Joint Chiefs of Staff, *Joint Tactics, Techniques, and Procedures for Foreign Internal Defense (FID)*, Washington, D.C., JP 3-07.1, April 30, 2004, p. V-32.

doctrine manual (AFDD 2-3.1) offers a short list of potential airlift missions in FID but otherwise gives the topic little attention, discussing advisory and training activities, political considerations, relations with host militaries, command-and-control arrangements, and so on in much greater detail.² Most unofficial discussions of airpower support in FID consistently focus on “combat” issues, such as close air support, surveillance systems, and the development and employment of surveillance-strike aircraft.³ Only occasionally has an article placed more-or-less equal emphasis on preparing U.S. FID units to train and support counterinsurgent governments in airlift in addition to nonairlift uses of airpower.⁴

This lack of emphasis does not reflect a lack of expertise in the FID “community” of the Air Force. The Air Force has a fairly robust body of FID expertise, concentrated in the 6th Special Operations Squadron at Hurlburt AFB, Florida, and scattered about in overseas units and various Air Force and joint headquarters staffs. Perhaps the best explanation of the paucity of doctrinal interest in FID is that airlift has been so ubiquitous that it has been taken somewhat for granted. Fierce competition for the few resources that filter into the FID program also tends to push airlift toward the edge of the budget plate.

In practice, this secondary emphasis on airlift has been reflected in the advanced age and relatively low quality of air transports the United States has provided to its counterinsurgency partners. During the Vietnam War, for example, the United States ultimately provided South Vietnam with hundreds of fixed-wing transport aircraft. This support initially comprised two squadrons of surplus C-47s and slowly expanded to include several squadrons of battle-worn C-123s and a handful of C-130s in the final stages of the war. Simultaneously, the

² Department of the Air Force, *Foreign Internal Defense*, Washington, D.C., AFDD 2-3.1, May 10, 2004, pp. 17–18.

³ See Jerome W. Klingaman, “Light Aircraft Technology for Small Wars,” in Dean, 1986b, pp. 125–126; Vance B. Bateman, “The Role of Tactical Air Power in Low Intensity Conflict,” *Airpower Journal*, Spring 1991; William B. Downs, “Unconventional Airpower,” *Air and Space Power Journal*, Spring 2005, pp. 20–25.

⁴ Richard D. Newton, “A U.S. Air Force Role in Counterinsurgency Support,” *Aerospace Power Journal*, Fall 1989.

United States transferred smaller numbers of transport aircraft, mainly light planes and additional tired C-123s, to Laos and Cambodia.⁵ The United States usually refurbished these aircraft before delivery, but they still were older types, often difficult to maintain, and significantly more limited in their capabilities than more-modern types available at the time. In the past three decades, U.S. transfers of aircraft to countries engaged in counterinsurgencies have emphasized helicopters, usually well-worn versions of the Bell UH-1 “Huey” and OH-58 Kiowa. Fixed-wing transfers have included hand-off C-130s, CASA 212s, surplus Russian types—whatever was available cheaply on the used aircraft or military surplus market. These aircraft generally infused valuable capabilities into the military efforts of the recipient countries, but they also carried the same liabilities of limited capacity and high support demands relative to newer systems.

New Versus Older Aircraft in FID

Several considerations can and have been used to justify the transfer of last-generation and before-last-generation transport aircraft to allies engaged in counterinsurgencies. Most important, they are available and affordable. Modernizations of U.S. airlift forces or shifts in national military force structure release fleets of still-operational aircraft that can be transferred to allies simply for the cost of refurbishment and transportation. When compared to the approximately \$50 million cost of a new C-130J or \$6 million for a UH-60 Blackhawk helicopter, the fiscal attractiveness of these older aircraft is obvious. It is also often assumed that such aircraft will be simpler for receiving countries to maintain and operate. This rationale had merit when the logistical comparison was, say, between C-123s and C-130s during the Vietnam War. But it is far less true today, when comparing old C-130s to newly built C-130Js, C-27s, or CASA CN-235s. In virtually all areas

⁵ Bowers, 1983, pp. 439–464, 507–508, 616–617, and 629; Klingaman, 1986, pp. 125–126; and Jerome W. Klingaman, “Tactical Air Improvement Plan, Cambodia, 1974, A Surge Operation,” in Air Force Doctrine Center, *Foreign Internal Defense*, Maxwell AFB, Ala., AFDD 2-3.1, May 10, 2004, p. 39.

of maintenance—including engines, airframes, and electronics—the older aircraft demand significantly more effort to keep in the air than the newer ones. Many analysts also have argued that simpler and slower aircraft are more suitable for counterinsurgency warfare than modern aircraft of higher performance, particularly in operational environments of close terrain.⁶ However, most such analyses focus on combat aircraft and applications, and their logic does not naturally extend to the realm of airlift operations.

Experience over the last 20 years or so indicates that hand-me-down transport aircraft are no longer an adequate element of the U.S. FID program. Critically, the increasingly dangerous threat environments already discussed seriously limit the operational effectiveness of such aircraft. They are no more likely to survive the ubiquitous counterinsurgency threat environment in the hands of an allied pilot than they are in the hands of a U.S. pilot—and probably less. Older aircraft may also lack the range and capacity needed to conduct airborne operations and logistics support operations over the distances and on the scale required in many counterinsurgency theaters of operation. The South Africans, for example, fought the Namibian War in the 1980s with a fleet of World War II–vintage C-47s and C-54s and 1960s–vintage turboprop-powered C-160 Transalls and C-130s. But they relied on the more-modern aircraft for parachute assaults and to support deep operations against insurgent sanctuaries in southern Angola.⁷ Similarly, Morocco relied on a squadron of brand new C-130s to sustain its operations against the Polisario insurgency in the Western Sahara in the 1970s and early 1980s. Older aircraft designs simply could not have covered the distances with the requisite loads.⁸ Other conflicts, including the Soviet war in Afghanistan and the ongoing U.S. operations in that country and in Iraq, have borne out the lesson that a transport

⁶ Towle, 1989, pp. 209–210; Klingaman, 1986; and Bateman, 1991.

⁷ Heitman, 1990, pp. 321–322; and Government of South Africa, “Operation Reindeer (4 May 1978): The SADF’s Most Successful Operation Against SWAPO to Date,” fact sheet, undated.

⁸ Dean, 1986b, p. 59.

aircraft cannot be too modern or too capable for counterinsurgency warfare.

Supporting Modern Transport Aircraft in FID

Providing modern aircraft to countries supported under FID programs presents many challenges. The cost and budget issues discussed already are perhaps the most obvious and daunting ones. Logistics remain an issue, even with the most modern aircraft. These require fewer maintenance man-hours of support than older types, but their composite structures and automated engine and flight-control systems are complex to the point that they typically exceed the capabilities of all but the most modern air forces to support fully. Aircrew and support personnel training also present challenges. In the forced-draft regimen of U.S. training programs, it takes about 18 months to transform an inexperienced trainee into a qualified transport copilot. In the less-aggressive and less-well-supported training programs usually found in small air forces, the training time can be much longer, as well as less productive in terms of the percentage of flight students actually completing the program. Thus, the United States has often found that supported air forces lack sufficient pilots to absorb the quantities of aircraft available and needed to deal with their insurgencies.

When supporting embattled allies, it also is important to package the airlift assistance program in a sustainable way that simultaneously addresses their immediate counterinsurgency requirements and their long-term, postconflict security needs. For example, if a country's counterinsurgency airlift requirement equals a dozen C-130-type aircraft but if its peacetime requirement equals only three or four, the FID program should aim at providing, say, a half-dozen aircraft directly to the supported air force and then seeking other means to augment them during the insurgency. Similarly, if a country's peacetime requirement was for either two C-130s or six of a smaller type of transport, the United States might want to provide the smaller aircraft, since a fleet of six likely would be more flexible, less threatened by the loss of one

aircraft, and more cost-effective to maintain than a fleet of two larger and more complex aircraft.

These four challenges to providing modern airlift support under FID—cost, maintenance, training, and sustainability—imply the need for a deeper analysis of the issue than this qualitative assessment can provide. Still, on the basis of this discussion, it seems reasonable that the roadmap for developing a long-term FID airlift program would include several distinct steps:

1. **Assess the likely airlift requirements of the FID program in general and of specific partner states, over the next decade or longer.** This assessment should pay particular attention to the human, logistical, and long-term postconflict requirements of the supported states.
2. **Identify a specific combination of rotary- and fixed-wing aircraft and support systems best able to fulfill the counterinsurgency operational requirements of states likely to receive U.S. FID support.** Ideally, this fleet would contain as few types of aircraft as possible to minimize its production and long-term support costs. The aircraft types included should collectively provide capabilities that cover the array of tactical and theater-level missions inherent in counterinsurgencies and other forms of internal self-defense. This combination could include refurbished types, such as UH-1s and C-130s, or new aircraft, such as UH-60s and C-27s. The guiding objectives of identifying such a standardized team of “FID transports” would be to minimize the costs of transferring them to supported countries (whether through grants or foreign military sales) and to provide aircraft that fit local operational, materiel, and human circumstances.
3. **Integrate U.S. and supported state airlift logistics.** Many supported states will be unable to organize and man the full range of supply stocks and maintenance facilities needed to support either a modern or modernized transport aircraft fleet. Therefore, if the United States does find itself transferring airlift forces to embattled partner states, it likely will also need to

provide for the long-term support of the aircraft. In the case of refurbished aircraft types no longer in the front-line strength of the United States, this support might come in the form of contractors providing centralized supply stocks and heavy maintenance support. In the case of new aircraft active in the U.S. inventory, the proper approach might be to integrate supported-state aircraft into the existing logistics system, much as Royal Air Force C-17s are currently integrated into the U.S. Air Force fleet. Regardless of the support model used, the intent of this program would be to back up partner-state airlift efforts with a dedicated maintenance support structure that is responsive, cost-effective, and simple for them to use.

4. **Prepare supported states to conduct effective airlift operations.** This step requires a comprehensive program of education and training for the airlift and command personnel of supported states. Such a program would go well beyond simply training pilots and mechanics and participating in an occasional joint exercise. It also would include such things as senior staff exchanges to pass on the elements of successful airlift programs and training international officers as directors of mobility forces and tanker-airlift control-element commanders. Staff exchanges with Headquarters Air Mobility Command also would give international officers hands-on experience with the full range of air-mobility planning and control. A critical element of this program would be to ensure that the 6th Special Operations Squadron, which is tasked with the development of FID doctrines and with conducting FID training, is fully resourced with the people and aircraft needed to do its job.
5. **Prepare U.S. forces to conduct integrated airlift operations with supported states.** While the Air Force recently has renewed its emphasis on preparing selected personnel for international interactions, we are not aware of any efforts to prepare air-mobility personnel to integrate with foreign military processes and organizations, as opposed to merely deploying to foreign airfields to conduct U.S. operations. As one example of how to achieve such integration, the Air Mobility Command could

associate small cadres of officers with specific states supported or likely to be supported through FID. In addition to their normal duties, these cadres would be required to be professionally, linguistically, and culturally prepared to move quickly into liaison and training roles in their designated states or regions, should circumstances require.

6. **Integrate U.S. and supported-state air-mobility operations.** If the preceding elements of the FID program are in place, this last one will occur more or less naturally. Given the likelihood that counterinsurgency airlift requirements will periodically exceed the limited capacities of supported states, the United States must be postured to provide surge or even long-term augmentation quickly and effectively. Beyond the fleet management, logistical, and human issues already discussed, the requirements of operational integration may constrain some budgetary and force-structure policies regarding the air-mobility program of the United States itself. For example, supporting FID programs may provide an additional justification for the United States to integrate an aircraft like the JCA into its fleet. While the JCA may fill only a small niche in the U.S. airlift mission, it may be an ideal core airlift aircraft for supply to small countries facing internal threats. If so, a significant purchase of the aircraft by the United States would kick-start production, reduce its unit costs, generate the need for a robust support infrastructure, and give the United States better expertise in advising and augmenting the airlift efforts of small states using the aircraft.

Conclusions

This monograph proposed to offer a general answer to the question of whether the United States should create airlift forces specialized for counterinsurgency operations or should instead rely on general airlift forces to perform counterinsurgency missions. The resulting exploration of this issue has involved qualitative discussions of the features of insurgencies and counterinsurgencies of relevance to airlift and the consequent implications of these features for airlift operations and force structure at the tactical, operational, and strategic levels of such conflicts. This exploration also included a discussion of counterinsurgency airlift as an element of the FID program. In the end, this study offers some good news and some bad news for air-mobility planners and leaders in the future.

The good news is that the current U.S. airlift fleet, organizations, and doctrines are suitable for performing the great majority of missions incumbent in counterinsurgency operations. Most airlift missions in support of counterinsurgencies are simple logistics missions moving people and things between established bases, often with appropriately developed airfields nearby. The other important class of missions is what this study calls battlefield airlift, the movement of personnel, combat units, and materiel over relatively short distances, often into landing zones and/or short and rough runways. Some or all of these missions will be performed in the presence of threats or under direct fire from air defense systems varying widely in sophistication and capabilities. Airlift crews also may face threats on the ground, in the form of sapper attacks, guerilla killer-teams, and so on. However, none of

these missions, operating environments, or threats is unique in basic character to counterinsurgency warfare. Airlifters facing insurgents may land more often at primitive fields and may face a more widely dispersed and unpredictable threat array than they would in a conflict against a conventional enemy. These are not new challenges but rather a different constellation of challenges that are more or less familiar from other types of operations. Thus, the large and complex U.S. airlift system has the capability of delivering the goods in a counterinsurgent environment.

The bad news is that the United States cannot go on handling the counterinsurgency airlift mission much longer as it is currently without substantial reinvestment and realignment of its airlift program. In a world destabilized by globalization, Islamic radicalism and other forms of atavism, and worsening social and economic inequities in many countries, insurgency is likely to intensify and expand as a military challenge to the United States. This expansion will put the existing national airlift system under great pressure. The C-130 fleet will be stressed in particular, given the unending demands for its services in the theaters, the assignment of most C-130s to the reserve components, and the generally advanced structural age of most aircraft in the fleet. The Army's medium helicopter fleet of CH-47Ds will experience similar pressures. While portions of both fleets are presently undergoing service-life extension programs, the day is not far off when they will require total recapitalization. Given the current straits of the defense budget, the prospect of adding replacement of the theater and battle-field airlift fleets to the mix of competing programs is daunting indeed. But that prospect also should spark creative studies and thinking about the issue of airlift in general, including quantitative analyses of future counterinsurgency airlift requirements in particular.

Urban warfare will intensify the challenge of recapitalizing and perhaps restructuring the airlift fleet. For the moment, rotary-wing aircraft remain viable for the close-in delivery of people and materiel to small units fighting in cities. But improvements in air defense weapons and the example of the widespread urban-village battlefield of the recent conflict in southern Lebanon suggest the need for a new and early look at MOUT airlift. Helicopters, for example, may not have

the lift capacity and survivability to resupply heavy armor, infantry, and artillery forces moving among guerillas in a maze of concrete villages in depth. But such heavy forces may be required more frequently because of determined insurgents who are armed with sophisticated weapons, willing to use civilians as cover, and expert at conducting hedgehog operations in urban terrain.

Likewise, the airlift requirements of the U.S. FID program should influence the modernization of the national airlift fleet. Core U.S. airlifters, like the C-17 and even the C-130, are usually beyond the operational needs and logistics capabilities of small nations. If the FID program is to provide viable airlift advice and support to such countries, the U.S. airlift program may need to include one or more “FID-friendly” aircraft types and specialist units designed to provide a foundation of appropriate support to countries fighting insurgencies directly or indirectly on behalf of the United States. Although not discussed here, these specialized aircraft may need to include some small twin- or even single-engine types capable of bringing useful loads into strips just a few hundred feet long. Such aircraft exist today and would be much more cost-effective and supportable for many small countries to operate than rotary-wing aircraft. This study concludes, therefore, by going somewhat beyond its original charter to recommend that DoD and the military services infuse fresh energy, rigor, and vision into their ongoing effort to assess future airlift requirements. A broad vision of the totality of the airlift mission will be critical to this effort. This vision must incorporate such planning elements as global logistics missions, responsive combat support, operations into “terminals” ranging from international airports to 200-meter jungle strips, allied requirements, FID, new technologies and command relations, and so on. These considerations and new opportunities will dictate that the next model of the national airlift system, particularly its theater and battlefield components, will not simply be a refined version of the existing system, the basic elements of which were laid down in the late 1950s and early 1960s. At several critical junctures in U.S. national defense policies, the airlift system has undergone truly revolutionary doctrinal and material revision. The time for another foundational reappraisal of the national airlift program seems to be on the horizon.

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