Frontier Missions:
Peacespace Dominance

A Research Paper
Presented To

Air Force ***2025***

by

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Disclaimer

2025 is a study designed to comply with a directive from the chief of staff of the Air Force to examine the concepts, capabilities, and technologies the United States will require to remain the dominant air and space force in the future. Presented on 17 June 1996, this report was produced in the Department of Defense school environment of academic freedom and in the interest of advancing concepts related to national defense. The views expressed in this report are those of the authors and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the United States government.

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Preface

This paper advocates the creation of a small, rugged composite force uniquely organized, trained, and equipped to preempt conflict. Obviously, advocating the creation of anything at a time of drawdowns and fiscal reductions draws fire. Therefore, we were not surprised to receive comments like the following: "Not one bullet, not one body would I give to this mission!"[1] However, we were surprised when a four-star general officer made this comment:

> This is an easy paper to reject, but [it] has potential far beyond what it appears. DOD "fights" to avoid being committed to irresolute or humanitarian crises or violent situations—Rwanda/Somalia types—and this paper presents the seed corn of a way *out* of this traditional problem. In fact, it offers a "fix" for a festering US military/DOD problem.[2]

If Carl Builder, Samuel Huntington, Robert Kaplan, Alvin and Heidi Toffler, and Martin van Creveld are correct, the world will be a very unstable place in 30 years, filled with challenges for US leadership and to US preeminence.[3] Each author presents thoughtful constructs to examine the environment we may encounter in 2025. Creating a force to preempt conflict depends on a variety of factors. These include enabling technologies, new or revitalized doctrine, and cold analysis of national interest. Most importantly, this concept requires a reorientation in the way we think about the military and its application of power. This paper explores an uncertain era and offers solutions that will stretch the imagination of the warrior and, we hope, preserve his or her life.[4]

Notes

[1] Anonymous general officer comment on ***2025*** Team I, "Frontier Missions" white paper draft (Maxwell AFB, Ala.: Air War College/***2025***, 1996).

[2] Anonymous four-star general comment to ***2025*** Team I, "Frontier Missions," white paper draft (Maxwell AFB, Ala.: Air War College/***2025***, 1996). Certain caveats accompanied this statement. We present these in their entirety below:

> We should work this paper from the perspective that:
>
> - This is a likely continuing demand.
> - UN peacekeeping ops fare poorly because they are ill-conceived (using warriors to enforce peace) a mismatch of concepts, training, weapons, tools, etc.
> - Certain UN members are well-suited to this "policing and control" type of operation—Japan, Costa Rica, Sweden, etc.
> - Japan has recently said they are looking around for ways to participate that don't violate their constitution.
>
> This is a *match*:
>
> - Work up as a US/State/DOD proposal for UN sponsorship. Concept is *trained* peacekeepers (consistent with culture from which they are drawn).
> - Supervision is civilian (UN secretary).
> - Exercise *police* powers, not military force (but "uniformed" police).
> - Use rule of law as basis for order and discipline.
> - This is a career force with permanent hierarchy that organizes, trains, and equips in nonviolent peace operations.
>
> If/when conflict (organized, militant, military) starts, they exit; shooters enter; command and control shifts from civilian to military; rules of engagement change to combat, not peacekeeping.
>
> Bottom line: paper is a sleeper, easily rejected out of hand. When the paper is ready, it should start up the tape to CSAF and the Tank . . . potentially *bright* future.

[3] In addition to the authors cited, *Strategic Assessment 1996, Instruments of US Power* also discusses the uncertain future. Institute for National Strategic Studies, (Washington, D.C.: National Defense University Press, 1996).

> Unpredictable change is what our nation's future national security dilemma is all about. Appreciation for this uncertainty is the beginning of wisdom in the post-cold-war era. Not only is international politics in flux, but, furthermore, technological breakthroughs relevant to national security are occurring with greater frequency and with more substantial impact than ever in history.

INSS authors lead off their warfighting instruments chapter with *unconventional military instruments* and *limited military intervention*—perhaps an indicator of priorities to come.

[4] We would like to thank some of the people who assisted us in this venture: The Honorable Verne Orr, former secretary of the Air Force; Gen Michael P. C. Carns, former vice chief of staff of the Air Force; Lt Gen Anthony C. Zinni, I Marine Expeditionary Force commanding general; Lt Gen C. C. Rogers, Jr., USAF Retired; Maj Gen Donald W. Shepperd, Air National Guard director; Brig Gen Howard J. (Foot) Ingersoll, Air Force Special Operations Command vice commander; Col Richard Szafranski, ***2025*** study director and Air War College National Military Strategy Chair; Col Joseph A. Engelbrecht, Jr., ***2025*** research director and AWC professor of conflict and change; Dr. Grant Hammond, AWC National Security Strategy Chair; Dr. James Winkates, AWC senior curriculum advisor; COL John Alexander, USA, Retired; Lt Col (Dr) Federico J. Rodriguez; USAR, professor of graduate education at California State University, Dominguez Hills; Dr.

Larry Cable, associate professor of history at University of North Carolina, Wilmington; Janet and Chris Morris, authors; Majors Mike Foster and Ralph Millsap, Air Command and Staff College faculty; and fellow students—LCDR Alton Ross, USN; Maj Guy Razor, USAF; and Maj Mike Irwin, USAF. Their invaluable inputs allowed us to integrate warfighter needs with visionary concepts for the future.

Executive Summary

Two challenges lie before us: first, to guide, harness, and balance force and diplomacy as we enter the 21st century, and second, to learn how to deal with "operations other than war."

—Gen John M. Shalikashvili

The word *frontier* evokes an image of such distant borders as the American frontier of the nineteenth century or the beckoning unknown of space. It also suggests austerity, hardship, and lawlessness. The frontier of 2025 will be the streets and fields of the developing world. The battle will be for cooperation of people ravaged by poverty, disease, hunger, and crime. These problems will be epidemic, in some regions driving the US to choose wisely where, when, and how to act. The dilemma of 2025 will mirror today: whether to meet force with force or prevent violence by preempting it.[1] Within a domestic environment of increasing fiscal discipline and regard for life, the most efficient way to defend our national interest is to act before a situation flares into violence.

One possibility is to dampen these violent flare-ups with a force dedicated to preventing or resolving conflict. However, this option requires a profound shift in focus and an unprecedented appreciation of degrees of conflict and hostility. Within each situation, there are instances where the application of lethal military force is appropriate. There are also instances where force is counterproductive. A murky void separates the two.

We need to bridge that void. This paper advocates creating a small, rugged, and specialized composite force dedicated to creating and operating in the physical and psychological state we will call the *peacespace*.[2] The size and composition of the force will be crucial to success or failure. In 30 years, we envision that a composite force will consist of military, civil service, contractor, and international personnel. Aided by technological possibilities and new conceptual thinking, a security assurance force (SAF—pronounced Safe) will foster institutions required for long-term stability in a region.

This stability rests on three core capabilities of SAF: constabulary power (military role), education (civilian role), and infrastructure building (military/civilian). The synergy of these capabilities, harmoniously employed, can dampen or remove violence and attendant fear, allowing a choreographed peace to emerge. SAF will possess sufficient capability to impose order when violence is at a relatively low order of magnitude. If violence is high or escalates, SAF directs standoff lethal force by either special or conventional forces until the legitimate authority restores order. Consonant with a strategic timetable, SAF and local civilian leaders engineer an education plan targeting progress in key political, social, and economic areas. SAF also coordinates with local leaders eager to accept private or international investment to build their infrastructure.

SAF intervention should lead to a desired end-state of stability where political, economic, social, and information institutions take root and begin to flourish. SAF will require warriors trained like no others to operate in a complex environment. In the year 2025, warriors will battle for terrain of the mind, performing missions that defy McNamarian precision while protecting American treasure—human life. We propose a blueprint for change to improve existing capabilities. This will require both commitment and time. We do not envision SAF as a quick fix to long-standing problems. Ultimately, making this change requires belief in the possibility of conflict prevention and the dedication to stay the course.

Notes

[1] *Strategic Assessment 1996, Instruments of US Power*. Institute for National Strategic Studies, (Washington, D.C.: National Defense University Press, 1996), 221. The section entitled "New Ways of Applying US Power" stresses "Enhancing the capability of the US Government to exercise influence abroad does not need to mean buying more of the same old product."

[2] For the purpose of this paper, we will define *peacespace* as a dimension in which a rough equilibrium exists between a people's expectations and their fulfillment. By dominance, we are not asserting we can control all the variables that occur in peace or during transition to battle. We are saying that given conducive conditions and a catalyst for change, someone can make a difference. Thus, the military constabulary will impose as much control over changing conditions as possible when called upon by national or international leaders to intervene.

Chapter 1

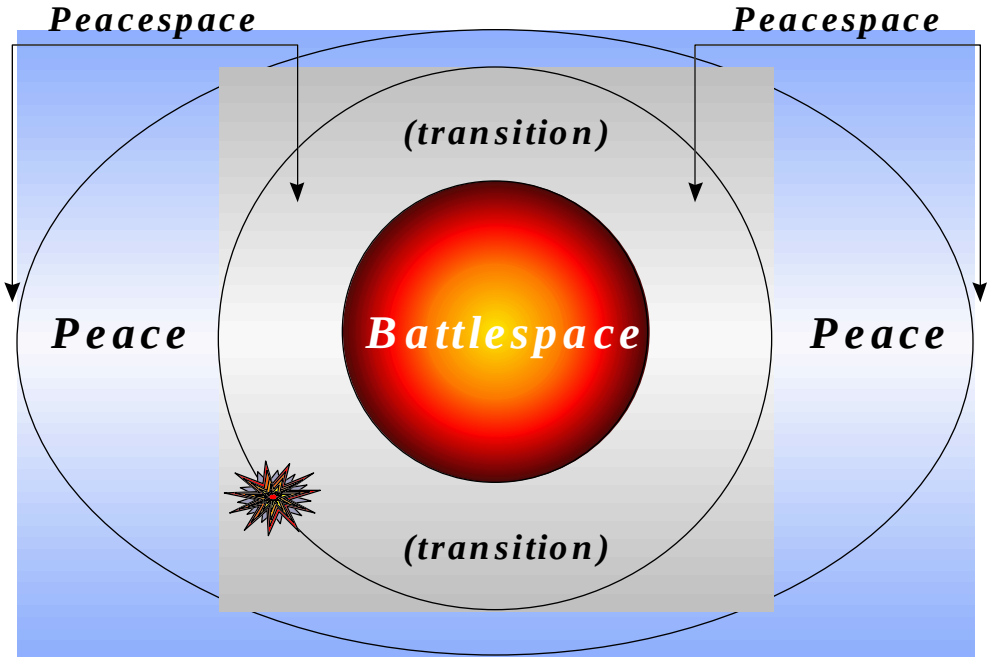
Introduction

Secretary of Defense William J. Perry outlined his views in a speech entitled "Using Military Force When Deterrence Fails." Specifically, he discussed the new world order emerging as a result of the cold war's cessation and Fukuyama's "end of history."

> Preventing conflict involves creating conditions that make conflict less likely. Like a doctor practicing preventive medicine, we want, if possible, to prevent conditions that provoke conflict from occurring, or at least heal them before they are serious. Some have argued that these efforts are not the business of the Defense Department. I disagree; I call them "defense by other means," and we have launched major programs in the Defense Department to carry them out.[1]

In contrast, Samuel P. Huntington eloquently notes, "the purpose of armed forces is combat."[2] Can US armed forces careen between "traditional" military missions and ill-defined *peacespace* roles without diminishing combat capability?[3]

If peacespace dominance is the "frontier mission of 2025," then it is an orphan no warrior will claim.[4] This mission will be prosecuted in the streets and fields of the developing world, among people ravaged by disease, poverty, hunger, and crime. Battlespace is a condition of warfare requiring at its zenith the application of lethal, combatant military forces—force on force. Warriors organize, train, and equip to fight in the battlespace, not the peacespace—and certainly not in the transition where no true peace exists. Here, only a coercive force holds disgruntled elements in check. The flashpoint (fig. 1-1) denotes a hypothetical disturbance somewhere between these conditions we know today as peace and war.



Source: Adapted from Field Manual 41-10, *Civil Affairs Operations;* January 1993

Figure 1-1. Operational Environments

All three circumstances are marked by fluctuating and ambiguous states of conflict, prehostilities, or disputes. In 1996, the military conducts missions in the peacespace without a defined end-state, entry or exit strategies, and doctrine or appropriate technologies. The US military is not organized, trained, or equipped to transition from hunter-killer to nurturer-builder. Rapid or unwieldy transition potentially corrodes US combat capability because it creates confusion in the warrior's mind. Dispelling this confusion is crucial.

Using US national interest as a guide, we can choose if we should act—and if so, where, when, and how. We can consider levels of lethality and appropriateness of response.[5] This paper argues that it is in our national interest to pioneer the peace before it lurches unpredictably into violence. Particular military competencies like order and discipline, organizational skills, and limited liability will likely continue to draw us into the storm.[6]

Pioneering the peace is an appropriate military mission, and it is one we are qualified to undertake. Secretary Perry states, "Some have said that 'war is too important to be left solely to the generals.' Preventive defense says 'Peace is too important to be left solely to the politicians'."[7] In some cases, peacespace dominance need not be a US mission. Other nations or international bodies who have forsworn

the use of force might be better suited to these tasks. We advocate organizing, training, and equipping a SAF to provide this capability (table 1). This force would be a composite of both military and civilian personnel, with constabulary (military), education (civilian), and infrastructure (military/civilian) roles (constabulary, education, and infrastructure [CEI]).

Table 1

Concept Overview

Who?	SAF (CEI)	SAF/SOF/Conventional	Conventional/SOF/SAF
What?	Conflict Prevention[8]	Conflict Resolution	Conflict Termination
Where?	Peacespace	Transition	Battlespace

Using rules (doctrine) and tools (technology), our challenge is to build a force capable of effecting the desired end-state without sacrificing combat capability. This force will be a catalyst for change. Both the United States and the United Nations have tackled peace missions with mixed results.[9] To secure the success that eluded us in the past requires a different approach. In subsequent chapters, we will analyze the environment, assess the shortfalls in current capability, and propose a solution.

Notes

[1] The Honorable Perry, secretary of defense, "Using Military Force When Deterrence Fails," *Defense Issues* 10, no. 8 (6 August 1995): n.p. on-line, Internet, 14 May 1996, available from http://www.dtic.mil/defenselink/pubs/di95/di1080.html. Presented during an address to the Aspen Institute Conference.

[2] Samuel P. Huntington, "New Contingencies, Old Roles," *Joint Force Quarterly*, no. 8 (Autumn 1993): 39.

[3] Part of the dilemma arises from co-mingling combatant and noncombatant forces in roles that defy traditional definitions. For example, many reservists filling US Army civil affairs billets conduct duties similar to their civilian jobs, i.e., one officer is a high ranking Chase Manhattan Bank official, providing invaluable financial skills during both Haiti and Bosnia operations. Also, medical personnel are typically deemed noncombatants who wear a uniform. This deserves better differentiation in both the law and policy.

[4] Despite this assertion, Lieutenant General Zinni, commanding general, I Marine Expeditionary Force, Camp Pendleton, Calif., presented a ***2025*** lecture to Air War College titled "Commanding in 'Frontier Missions'," (Maxwell AFB, Ala.: 29 November 1995). General Zinni supported the Department of Defense (DOD) efforts to preempt conflict by tackling some root causes. However, in 1996, peacespace missions are awkwardly named including peacekeeping, peacemaking, peacetime contingency operations, low-intensity conflict, military operations other than war, *operations* other than war, or other military operations. The latest RAND© study by Carl H. Builder and Theodore W. Karasik, "Organizing, Training, and Equipping the Air Force for Crises and Lesser Conflicts (CALCs)," Project Air Force: 1995, arrives at yet another name for peacespace engagements.

[5] USAF Scientific Advisory Board, *New World Vistas: Air and Space Power for the 21st Century*, summary volume (Washington, D.C.: USAF Scientific Advisory Board, 15 December 1995), 33. SAB coins a new word in power projection, *sublethal* which is at variance with DOD which employs the term *nonlethal*. Whatever the outcome of the semantic discussion, this paper will employ both definitions (i.e., nonlethal and sublethal versus lethal) to describe incremental increases in power. Effectively, nonlethals should be exactly that—not lethal. Sublethal is that force or power just below lethal deadly force.

[6] The Feres Doctrine espoused by the Supreme Court in 1950 limits the liability of the US government in the event of a service-related death. (340 USC 135—1950) This limitation applies to military personnel only. With the shift of certain critical tasks to civilians, either civil service or contract, the liability issue must be addressed for civilians in hazardous zones.

[7] Perry, remarks delivered to the John F. Kennedy School of Government, Harvard University, on-line, Internet, 13 May 1996, available from: http://www.dtic.mil/defenselink.

[8] Dr. Larry Cable, "The End-State: Why Nations Stop Fighting," lecture, Air Command and Staff College, Maxwell AFB, Ala., 16 January 1996. Dr. Cable is an associate professor of history at the University of North Carolina, Wilmington. Additionally, he is a frequent guest lecturer at the USAF Special Operations School (USAFSOS), Hurlburt Field, Florida. Additionally, Dr. Cable was in the US Marine Corps during the Vietnam War. He is the 1995 Gen. James H. Doolittle Award recipient at the USAFSOS, awarded to the School Educator of the Year. In numerous meetings, Dr. Cable differentiated between current policy, doctrine, and missions, which essentially deal with conflict termination, and conflict prevention or resolution.

[9] Steven L. Canby, "Roles, Missions, and JTFs: Unintended Consequences," *Joint Force Quarterly*, no. 6 (Autumn/Winter 1994-5): 68-75.

Chapter 2

World Trend

They make a wilderness and call it peace.

—Tacitus

The US military is heavily taxed, in 1996, performing peace operations throughout the world. Such commitments will likely increase. Thinkers like Robert Kaplan, Thomas Homer-Dixon, and Martin van Creveld strongly believe the world will suffer a number of pandemic problems in 2025: overpopulation, ecological disasters, severe water shortages, rampant disease, and refugees on the march.[1] Strands of these alarmist visions exist today in Africa, South Asia, and China. Robert Kaplan argues the United States may ignore these regional crises at its own risk. Will governments, unable to cope with epidemic problems, simply disappear?[2]

Compounding the specter of "national dissolution" is a population growth from 5 billion in 1996 to nearly 8 billion in 2025—over 7 billion will reside in less-developed regions that in 1996 cannot produce enough food to feed their people.[3] Worse, previously eradicated communicable diseases, such as tuberculosis and influenza, are mutating and spreading.[4] These new and developing strains are airborne and resistant to antibiotics.[5]

Desertification and deforestation are causing populations to flee to cities, making criminal anarchy the real strategic danger. Kaplan describes the worst of its victims: "Young men [are] like loose molecules in a very unstable social fluid, a fluid . . . clearly on the verge of igniting."[6] This increasing propensity to violence is partially mirrored by US crime statistics. Between 1985 and 1992, the murder rate for 14–17 year-old males doubled for whites and increased by more than 300 percent for African-Americans.[7] In the

year 2000, the number of youths aged 14–17 will increase by 500,000 in the US alone—effectively, each subsequent generation is three times more dangerous than the one preceding it.[8]

Homer-Dixon believes the environment is "*the* national security issue of the early 21st century" (emphasis in original).[9] He predicts future wars and civil violence may arise from the scarcity of such resources as water, cropland, forests, and fish.[10] Huntington warns of wholesale tribal conflict.[11] He pictures a world in which democratic liberalism gives way to a darker Hobbesian world—Hegel and Fukuyama's "last man" supplanted.[12] While these polemicists paint a bleak landscape, perhaps the change will be more gradual and evolutionary. Just as these forces are irretrievably affecting the world, movements are underway to change the way we fight wars.

Battlespace Trend

> To many men . . . The miasma of peace seems more suffocating than the bracing air of war.[13]

Since World War II (WWII), warfare has both changed and remained chillingly the same. The collapse of colonial empires resulted in nearly 200 nation-states, many of them small, unstable, and vulnerable. According to van Creveld, "Judging by the experience of the last two decades, the visions of long-range, computerized, high-tech warfare so dear to the military-industrial complex will never come to pass. Armed conflicts will be waged by men on earth, not robots in space."[14] He also implies that warfare will be frequent in the developing world: "In light of the fact that 95 percent of the earth's population will be in the poorest areas of the globe, the question is not whether there will be war (there will be a lot of it) but what kind of war. And who will fight whom?"[15]

Van Creveld speaks of conflicts which require conventional, special operations, and peacespace warriors. Whenever the US engages in these situations, certain trends in the US domestic arena will both constrain and empower future force structure. We must understand these trends to accurately determine force composition for 2025.[16]

Domestic Trend

War is hell, but peace is a pain in the ass.[17]

An emerging domestic trend is America's aversion to casualties.[18] Any future military planning must take this into account. The death of 18 soldiers in Somalia effectively ended that mission. One death in Bosnia received national attention. Preoccupation with prisoners of war in Vietnam, friendly-fire incidents, and the expectation that precision strikes will limit collateral damage—all these result in the conclusion that there is simply less room for error, particularly in missions of questionable vital national interest.

The competing demand for fiscal resources is also likely to increase. At some point, the US appears to have no options other than to either narrow its interests or act before a situation requires large injections of armed force. These choices are especially important in light of the high operations tempo characterized by the first three years of the Clinton administration.[19] Force readiness and retention will be contingent on addressing the future conflict set.[20] Three recent expeditions into peacespace illuminate both lessons learned and current shortfalls facing leaders and planners.

Somalia

Graphic evidence of famine, provided the by Cable News Network (CNN), triggered the intervention in Somalia.[21] At no time did anyone portray the Somalia relief mission as in the national interest. According to one analyst, the military and civilian agencies had little entry criteria—only that the US had the means to act and so should.[22] Subsequent events expanded the US involvement to a force of 28,000. Their task was to suppress the violence and relieve interruptions in the delivery of aid. Gradually, the United States, operating in conjunction with the UN, became involved in a nation-building effort for which some believed the military was ill-suited. This mission was abruptly aborted with the deaths of 18 soldiers in October 1993.[23] Among the many lessons drawn from the Somalia engagement: we conclude that the lack of clear entry and exit criteria combined with foggy rules of engagement to inhibit a successful mission.[24]

Haiti

An influx of refugees, not famine, triggered the 1994 US intervention in Haiti. Haitian citizens, attempting to escape violence, political instability, and economic chaos, flooded our shores.[25] Thus, some criteria for intervention were used and the operation appears to have been in the national interest. US involvement in Haiti included an effort to legitimize President Jean-Bertrand Aristide's government and restore democracy through the use of military forces. One CINC cited Haiti as evidence for the notion of training warriors for missions of violence and—literally within the space of an airplane ride—changing them into police and peacekeepers.[26] During Operation Provide Hope, military forces used radio and television broadcasts, leaflet drops, and personal contacts to educate Haitian citizens on democracy. US Army Civil Affairs units trained Haitian government officials, established judicial courts, and developed a governmental system.[27] US forces performed infrastructure development duties by "reinitiating legitimate civil functions . . . public activities, water, electricity, sanitation, medical, [services], food, public information, town meetings, broadcasts, and monitoring the local Haitian army and police."[28] These actions created environments where economic growth could occur. Even so, these activities do not mean that careful planning is institutionalized or that successful execution is certain.

Bosnia

The Bosnia mission was one of the more carefully considered US interventions to date; it effectively blended ground, naval, and air forces in support of peace.[29] Careful debate centered on US national interests in the former Yugoslavia. Attention concentrated on the utility of inserting ground forces between warring factions. Ultimately, airpower brought contending groups to the bargaining table.[30]

> The precision of the NATO coalition's attacks last summer altered the course of that three-year war, resulting in the Dayton peace talks and preventing the conflict from spilling over into other countries. This force was effective, ultimately, because it was applied towards clear, achievable policy objectives, in effective coordination with other diplomatic tools, with a clear view of military requirements.[31]

Airpower also limited violence by creating no-fly zones. Naval craft enforced the arms embargo in the Adriatic in Operation Sharp Guard.[32] After brokering a peace settlement, army units provided essential ground forces to secure the peace.

Summary

This chapter reviews world trends that increase the range of actions in support of peace. Battlespace will include both major regional contingencies and excursions into low-level conflict. Peacespace dominance may mean working problems before they boil over into war. "If we can prevent the conditions for conflict, we reduce the risk of having to send our forces into harms way to deter or defeat aggression."[33] As our recent experiences in Somalia, Haiti, and Bosnia demonstrate, we have difficulty operating in and transitioning back into peacespace. These operations provide important lessons for devising rational entry and exit criteria.

> It is also true that if we move early in dealing with these conflicts, and if we have an effective method for carrying out international peace enforcement, especially in a preventative way, we have a new tool which can help in the early resolution of enormously difficult, potentially intractable situations that could well offset our national interests and our future.[34]

In the next chapter, we will propose the most efficient way to defend our national interest: act before a situation flares into violence. We will propose a force to act as a catalyst for change to dampen violence and orchestrate peace.

Notes

[1] Robert D. Kaplan, "The Coming Anarchy," *The Atlantic Monthly*, February 1994, 44-76; Thomas Homer-Dixon, "Environmental Change and Violent Conflict," *Scientific American*, vol. 268, no. 2 (February 1993): 38–45; Martin van Creveld, *The Transformation of War*, (New York: Free Press, 1991): 192-223.

[2] Kaplan, 44–76.

[3] Lawrence C. Hellman, Ph.D., "Humanitarian Operations," lecture, Air Command and Staff College, Maxwell AFB, Ala., 19 January 1996. Dr. Hellman is a consultant to USAID, and data included was used by permission. Additionally, Dr. Armin Ludwig, "Ecosystemic Violence," ***2025*** program lecture, Air War College, Maxwell AFB, Ala., 6 September 1995. Dr. Ludwig presented a fascinating picture of population, net primary production, and the world's ability to feed itself given current trends in population growth. His computations did not include the potential effects of genetic engineering (plants that grow in arid or saline

soils), synthetic soils, or biogenetic plant species development (higher yield, greater yield per year, yield of cross-fertilized varieties, etc.). On the balance, he caveated each condition or phenomena with a caution to address the consequences of actions which "tamper" with nature (e.g., fertilizers and irrigation practices).

[4] Anita Manning, "Viruses Mutate Among Underfed," *USA Today*, 17 April 1996, 1. Malnourished people and animals may provide a breeding ground for mutant viruses that can then infect others. Dr. Orville A. Levander, a nutritionist with the US Department of Agriculture, concludes, "we are not protected from what might be happening to malnourished people in Africa." The World Health Organization report, "The Tuberculosis Epidemic 1996: Groups At Risk," states:

> In 1995, more people died of TB than in any other year in human history. It kills more adults than all other infectious diseases combined. Multidrug resistance is growing, threatening to make TB incurable again. Since issuing the global warning three years ago, some initial steps have been taken but they are dangerously insufficient. Tuberculosis cannot be controlled in some parts of the world and left to spread in others. Tuberculosis is a global epidemic that requires a unified, global response.

On-line, Internet, 18 April 1996, available from http://www.who.ch/programmes/gtb/tbrep_96/execsum.htm.

[5] Kaplan, 44–76.

[6] Ibid, 46.

[7] In "Moral Poverty," John Dilulio writes, "Americans are sitting atop a demographic crime bomb." *The Chicago Tribune*, 15 December 1995, section 1: 31. If the US is to effectively engage abroad, many of these systemic social problems must first be correctly addressed. The thesis of this paper assumes the US will successfully correct many internal problems in the next 30 years.

[8] Ibid. Peter Schwartz discusses the opportunity and dilemma presented by the "Global Teenager" in *The Art of the Long View*, (New York: Currency Doubleday, 1991): 124-140. Comparing the current demographic trends with projected population trends, he notes "Barring widespread plague or other catastrophe, there will be over 2 billion teenagers in the world in the year 2001. That's *fifty* times the number of teenagers in America in the peak years of the baby boom." The "Global Teenager" existence will be a driving force. However, Schwartz does not see this driver in a wholly negative vein, particularly with respect to education.

[9] Homer-Dixon, 38–45.

[10] Ludwig and Homer-Dixon assert growing scarcities of renewable resources can contribute to social instability and civil strife.

[11] Samuel P. Huntington, "The Clash of Civilizations?" *Foreign Affairs* 72, no. 3 (Summer 1993): 22–49.

[12] Francis Fukuyama, *The End of History and the Last Man* (New York: Free Press, 1992), 287–328.

[13] George Steiner (born 1929). French-born US critic and novelist. "Has Truth a Future?" Bronowski Memorial Lecture, 1978. *The Columbia Dictionary of Quotations*, (New York: Columbia University Press, 1993). Microsoft® Bookshelf.

[14] Van Creveld, 212.

[15] Kaplan, 73.

[16] Colin S. Gray, "The Changing Nature of Warfare?," *Naval War College Review*, 69:2 (Spring 1996): 13-14. Gray cites information from Edward N. Luttwak, *Strategy: The Logic of War and Peace*, as follows: "War, in common with sport, has the characteristic that what worked yesterday may not work tomorrow, precisely because it worked yesterday. Nothing tends to fail like success."

[17] Quoted in "A SIOP for *Perestroika*?" by Col Richard Szafranski in a research report (Maxwell AFB, Ala.: Air University, Air War College, 1990), 1. James Schlesinger made the statement on a *Face the Nation* edition.

[18] Eric V. Larson, "Casualties and Consensus, The Historical Role of Casualties in Domestic Support for US Military Operations," (Santa Monica, Calif.: Rand, 1996), iii, 102–3. Larson provides a comprehensive look at the role of casualties in administering public policy.

> The relationship between US casualties and public opinion on military operations remains an important yet greatly misunderstood issue. It is now an article of faith in political and media circles that the American public will no longer accept casualties in US military operations and that casualties inexorably lead to irresistible calls for the immediate withdrawal of US forces. If true, this would not only call into question the credibility of the US Armed Forces in deterring potential adversaries but would be profoundly important in decisions regarding the country's strategy, alliance, and other commitments, force structure, doctrine, and military campaign planning.

However, Larson concludes the public support or lack thereof is more accurately a reflection of the US leadership position and disagreements among key political figures. "As the historical record shows, attributing declining support solely to casualties misses the real story." When the public perceives benefit, they will exhibit a high tolerance for casualties. Also, Colin Gray argues as follows in "The Changing Nature of Warfare?" *Naval War College Review*, 69:2 (Spring 1996): 10–11.

> It is true that a machine-rich American culture has looked sensibly to maximize the roles of vehicles, steel, and explosives in lieu of human flesh whenever appropriate—and sometimes beyond that point. But it is also true, contrary to popular mythology, that when the stakes are very high, as in the Civil War and the two world wars, the United States has no tradition of being especially sparing of American lives."

[19] Operations and personnel tempo for some USAF weapons systems and respective personnel reached crisis proportions by 1994. General Fogelman, CSAF, instituted a process to track and reduce this to below 120 days. On 17 April 1996, AF/XOOOR (Major Fink) passed the following figures to the authors for frame of reference.

USAF Weapon System PERSTEMPO (average #days TDY/crew/year)	1994	1995	1st Qtr 1996
HC-130 (rescue)	194 days	135 days	38*days
EC-130E (ABCCC)	186 days	175 days	29* days
E-3 (AWACS)	162 days	129 days	24 days
U-2	148 days	148 days	36* days
RC-135 (Rivet Joint)	143 days	161 days	37* days
EC-130H (Compass Call)	104 days	123 days	54* days
HH-60G USAF rescue Pave Hawks	53 days	116 days	28* days
Special Operations Forces (SOF)			
AC-130 Spectre Gunship	159 days	83 days	25 days
MH-53J Pave Low	134 days	74 days	23 days
MH-60G SOF Pave Hawk	158 days	106 days	30* days
Combat Control Teams (CCT)	186 days	160 days	39 days

*Continuing at 28 days and higher will exceed the 120-day limit for the year.

The Navy, Army, Marine Corps and US Special Operations Command provided similar data which is submitted to the Joint Staff as part of the Joint Monthly Readiness Review. Of particular interest currently are all units designated as "low density/high demand" or LD/HD. In addition to some of the Air Force systems and units above, Army civil affairs and psychological operations battalions, Patriot missile batteries, Navy Seabees and SEALs receive additional scrutiny in this category. While specific data is classified, the following general trends are provided for comparison. USMC 1 MEF wings average 160 days deployed per year for training deployments; divisions average 145 days deployed. Some USN surface

combatants, amphibious ships, fast attack submarines and aircraft squadrons range from 10-40 percent above the maximum Chief of Naval Operations PERSTEMPO program goals. These goals are (1) a maximum deployment of six months, portal to portal, (2) a minimum turn-around ratio of 2:1 between deployments (if out six months, should be in port 12 months before going afloat again), and (3) a minimum of 50 percent time in home port for a unit over a five-year period (three past years and two projected years). Roughly, the Navy numbers equate to 180 days over 18 months or 120 days per year. USSOCOM provided detailed data for special operations personnel, many of whom are deployed well above the 120-day goal. In US Army Special Operations Command, special forces and civil affairs officers average 180 days deployed per year. In Naval Special Operations Command, SEAL team corpsmen and officers average 175 and 163 days respectively. AC-130H navigators average 184 days and pararescuemen (PJs) average 168 days from Air Force Special Operations Command.

[20] "World View: The 1996 Strategic Assessment From the Strategic Studies Institute," edited by Earl H. Tilford, Jr., US Army War College, Carlisle Barracks, Pa.: 1996, 3-4.

[21] Cable News Network (CNN)® is an affiliate of Ted Turner Productions, Atlanta, Ga.

[22] Kenneth Allard, *Somalia Operations: Lessons Learned* (Washington, D.C.: NDU Press, 1995), 89.

[23] Ibid., 30. Also see Col F. M. Lorenz, USMC, "Forging Rules of Engagement: Lessons Learned in Operation United Shield," on-line, Internet, 10 March 1996, available from http://www-cgsc.army.mil/cgsc/milrev/95novdec/lor.htm.

[24] Lorenz, Internet, http://www-cgsc.army.mil/cgsc/milrev/95novdec/lor.htm.

[25] W. Darrent Pitts, "A Guantanamo Diary—Operation Sea Signal," *Joint Forces Quarterly*, no. 9 (Autumn 1995): 118. Operation Sea Signal was a humanitarian mission designed to care for over 14,000 Haitian refugees at the US Guantanamo Naval Base, Cuba. Overwhelmed civil affairs personnel were unable to deal with subhuman camp conditions. Linguists were in short supply.

[26] Address to Air War College. Academic privilege applies to this source.

[27] "United States Special Operations Forces Posture Statement," 1994, 26–27.

[28] Sqn Ldr Sam Allotey et al., "Planning and Execution of Conflict Termination," a Research Paper presented to the Directorate of Research, Air Command and Staff College (Maxwell AFB, Ala.: Air University, Air Command and Staff College, May 1995), 83.

[29] As it took four years for the US to engage in Bosnia, presumably we preceded our actions by pragmatic and thoughtful preparations to correct the perceived deficiencies of the UN operations.

[30] George C. Wilson, "A Lesson in Peacekeeping," *Air Force Times* (11 March 1996), 54. Wilson, a former defense correspondent of *The Washington Post* and author of several military affairs books, discusses a "presence" maneuver used by Adm Leighton Smith, NATO commander in Bosnia-Herzegovina. F-18 Hornets scrambled from the USS *George Washington* in response to the shelling of Malaysian military in "B-Hatch." When the Malaysians did not "come up" on frequency to direct the bomb drop or missile launch, the Navy pilots converted to a "presence" maneuver—a major part of NATO's strategy for peacekeeping in Bosnia-Herzegovina. Dropping to 10,000 feet, the pilots advanced throttles to make more noise with their engines. The resultant thunder stopped the shelling of Malaysians. Lt Bill Lind, USN, quipped, "It's called peace through superior volume." The deterrence works because the planes *have* dropped bombs. These tactics are essentially ad hoc in nature and not planned in advance.

[31] The Honorable Sheila Widnall, secretary of the Air Force, "AF Evolving Through Contacts With Other Nations," MSgt Gary Pomeroy, Air Force News Service, on-line, Internet, 15 May 1996, available from http://www.dtic.mil/defenselink.

[32] Information of Operation Sharp Guard found on-line, Internet, 15 May 1996, available from http://www.nato.int/ifor/general/shrp-grd.htm.

[33] Perry, remarks delivered to the John F. Kennedy School of Government, Harvard University, on-line, Internet, 13 May 1996, available from http://www.dtic.mil/defenselink.

[34] Joint Warfighting Center, "Joint Task Force Commander's Handbook for Peace Operations," *Air Command and Staff College War Termination Coursebook* (Maxwell AFB, Ala.: Air University Press, 1996), 64.

Chapter 3

Concept Description

> *We conducted such operations* [operations other than war] *during the Cold War, but they were few and far between. And frankly, we did not always do them very well. So we lack a time-tested template that we can lay down every time we commit to one of these operations.*
>
> —Gen John M. Shalikashvili

The template requested by the Chairman of the Joint Chiefs is a complex one. The propensity for oversimplification often leads us to reduce the template to a "boilerplate." Leaders and planners require more. This chapter covers a proposal for a small, rugged, and specialized composite force dedicated to creating and operating in the physical and psychological state we call the peacespace. The proposal moves from situation assessment and enabling doctrine (rules) and technology (tools) to SAF core capabilities.

Situation Assessment

Some triggering mechanism currently launches excursions into peacespace. This may be public opinion, a UN resolution, or perceived national interest. In 2025, national or international authorities will still judge whether or not to intervene. This assessment should use clear criteria meant to assess the prospects for success in creating a better state of peace.[1] Candidates for intervention might be identified by spikes or flash points which erupt on a digital cultural map as "boundary" lines are penetrated.[2] Figure 3-1 illustrates our vision of the digital cultural map.

Figure 3-1. Digital Cultural Map

Using technology, a digital cultural map (DCM) could decrease peacespace ambiguity and aid leaders responding to conflicts or crises by sorting disparate data. It would "navigate" the geopolitical globe in a manner similar to an aircraft navigation digital map, blending together a multitude of diverse databases in visual or graphical interface. These candidates for intervention can be prioritized or "triaged" using basic, yet flexible criteria. Appendix A gives detailed intervention criteria.

The National Security Council (NSC) or the United Nations would evaluate the situation and classify the case as (1) costly, (2) borderline, or (3) clear-cut candidate for intervention. For example, the DCM assigns values which indicate candidate "A" has a high level of violence, an inadequate political or social climate, and a deteriorated infrastructure. This case may very well be categorized as too costly, regardless of perceived importance to national interest. Candidate "B," on the other hand, has a moderate level of violence that could be quelled by nonlethal technologies and a well-trained constabulary force. Its social and political institutions are minimally deteriorated, lending credence to education efforts. Finally, its

infrastructure is capable of rejuvenation, leading to optimism that private investment might prove successful.[3] Figure 3-2 depicts intervention candidates and correlates them to specific criteria.

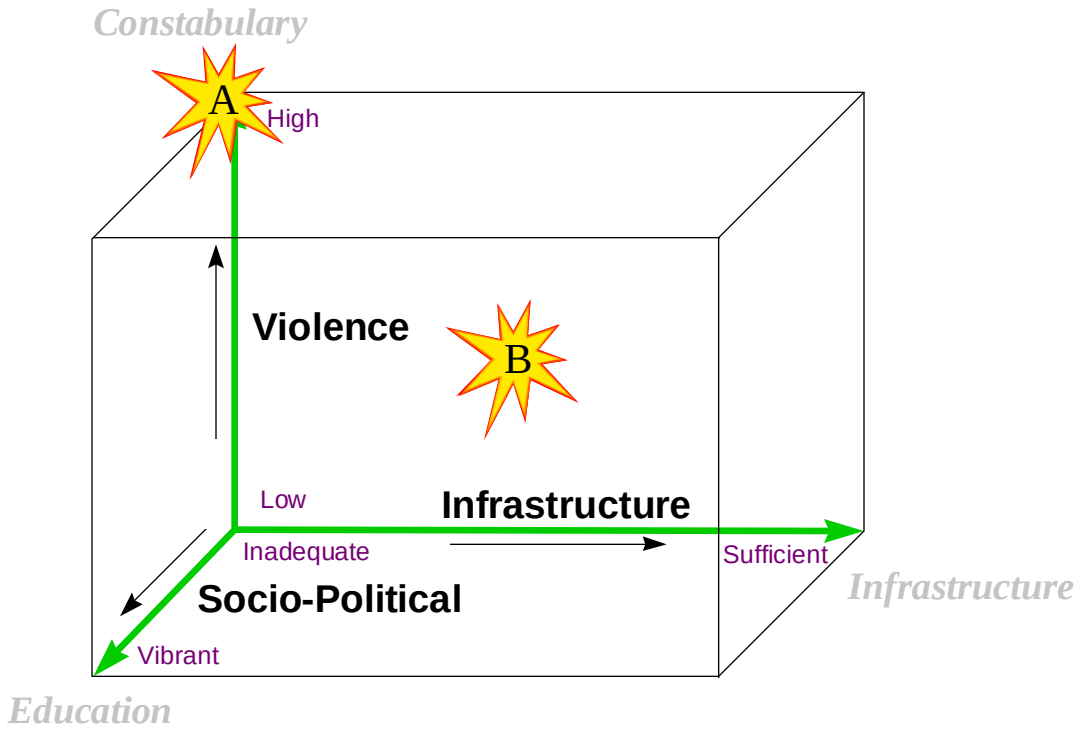


Figure 3-2. Intervention Candidates

Ultimately, leaders make the decision to intervene, using subjective judgments: (1) Is the intervention in US or UN interests? (2) Is the desired outcome worth the cost? (3) Is SAF the appropriate force? (i.e., Does open violence currently exist? Can SAF establish a secure environment or are more conventional forces appropriate?) (4) What timetable exists for achieving objectives? (5) Do we have measures of merit for success or withdrawal?[4] The decision is made either to intervene or not. The same objective and subjective criteria can determine when goals are met and an exit is appropriate. They can also demonstrate when an operation is stalled and should be abandoned. This paper asserts that the current force structure does not adequately meet the tasks at hand. The SAF concept, beginning with doctrine and tools, is one alternative to accomplish this mission.

Rules and Tools

The first step required in building this new force is to make "rules." Doctrine covers many aspects of policy from the national security strategy level to tactical employment. While a comprehensive doctrine is beyond the scope of this paper, initial thoughts regarding doctrinal changes for implementing SAF are appropriate.[5]

Flexibility/versatility. The dynamics of intervention missions demand a fresh approach to each operation. To avoid overlaying "previous experience" inappropriately, every operation must be tailor-made and sized to the situation. Just as civilian industry is innovatively exploiting niche markets, "tailoring" manufacturing on a mass scale, SAF must flex great power on a small scale.[6]

Concentration. CEI efforts need teeth in order to ensure credibility. These functions seek to affect whole societies and will require a complete fidelity of purpose. The small, rugged, mobile, and composite structure of SAF encapsulates the notion of concentration of effort. SAF launches an offensive by attacking the causes of conflict before they erupt into hostilities. Conflict prevention also provides economy of force by limiting the application of violence and reducing the chance of escalation.

Persistence. CEI efforts should be comprehensive, coordinated, far-reaching, systematic, and applied until they succeed or the decision is made to withdraw. The appeal of airpower to SAF is the ability to persist in end-state efforts until established goals are achieved.[7] While airpower may reduce risks and increase effectiveness of both land and sea components, success in peacespace operations lies in balanced air, land, and sea dominance.

By design, we have only hinted at the doctrinal possibilities.[8] Even if further exploration and developments lead to a "virtual" presence in the peacespace, someone will still require technology or tools to achieve their goals and objectives in 2025. Parallel to formulating doctrine is determining what tools SAF needs to perform its mission. Embedded in the CEI concept are potential technologies to enable SAF forces.[9]

Constabulary, Education, and Infrastructure (CEI) Concept

The integrated use of CEI provides a foundation for dampening conflict and promoting stability. Certain characteristics are crucial to success: appropriate doctrine (carefully matched technologies), small force structure (4,000-10,000 total active and reserve component mix), mobility, ruggedness, and specialization.[10] The elements of CEI are discussed in the following pages.

Constabulary

One of the commander's first concerns in entering a SAF engagement will be to impose order while protecting the participants. Builder defines *constabulary* as an "armed police force organized on military lines but distinct from the regular army."[11] The constabulary envisioned is primarily composed of military forces who dominate situations of lawlessness. If levels of violence escalate, SAF constabulary forces could temporarily pass control of the situation to stand off "guardian" systems.[12] As another option, SAF could direct increasing levels of lethal force until order is restored. In extremis conditions require clean hand-offs between SAF and either special operations or conventional combat forces.

As in battlespace dominance, peacespace constabulary actions can occur in serial or parallel with education and infrastructure, similar to battlespace dominance.[13] Effects and effectiveness will depend on a variety of non-lethal, sub-lethal, and lethal technologies integrated with effective command and control to create an environment conducive to long-term development.[14]

Lift

Air and space power capabilities could significantly enhance the constabulary force. Reacting to violent situations will require delivery of either forces or equipment—anytime, anyplace. Some lift requirements mirror those of today; for example, moving SAF or civilian forces and their equipment, or delivering food, water, fuel, and medicine. Although we anticipate significant improvements in capability, survivability, and reliability, these subjects are adequately covered in other studies. Table 2 depicts SAF's unique mission, objectives, and potential technologies.[15]

Table 2

Lift Objectives and Technologies

MISSION	OBJECTIVE	TECHNOLOGY
Lift	Mobility • Transship SAF forces and equipment • Transship NGO/PVO people/equipment • Supply infrastructure/education "stuff" • Deliver food/fuel/medicine	• Tiltwing super short takeoff and landing Advanced theater transport (TSSTL/ATT) • Heavy lift aircraft with mission Pod • Low observable transport • Precision/Large scale airdrop • Global Navigation System
SAR	Vertical lift extraction of SAF ground troop	• SOF vehicle • Advanced personnel locators
Resupply	Replenishment	• Precision/Large scale airdrop • Advanced material handling equipment

Potential technological advances should address current shortfalls in airlift capability. Perhaps the innovative low altitude parachute extraction system (LAPES) tactic of the twentieth century will spawn equally creative solutions in 2025, such as the precision/large-scale airdrop technologies listed in table 2. The Special Operations Forces Vehicle, listed as a search and rescue (SAR) technology, is a potential CV-22 follow-on aircraft (1500nm range, high subsonic speed, low-observable technologies). This vehicle may allow vertical extraction of SAF ground forces when required. Additionally, rapid identification of threats to ground operations could allow calmative agent application from a low-altitude (atmospheric), orbital unmanned aerial vehicle (UAV).[16] Thus, accurate identification of threats is a key enabler. Figure 3-3 displays the employment of some required lift technologies.

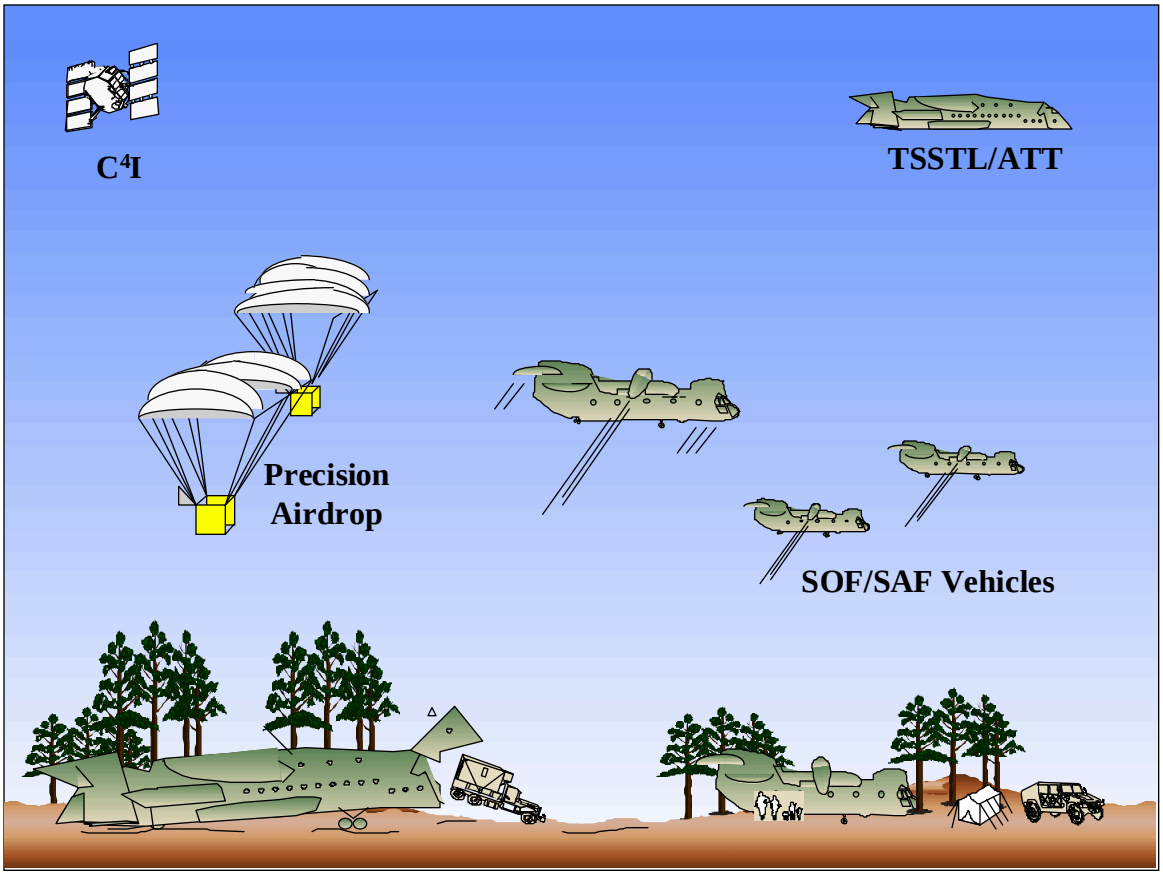


Figure 3-3. Lift into Peacespace

While required items could be either strategically prepositioned or vertically hoisted in by CV-22 or follow-on aircraft, we could also deliver them to littoral regions by sealift for overland transport.[17] Regardless, these and other infrequent loads will require rapid delivery under unusual or extreme circumstances. SAF forces and planners could identify alternative solutions to either infrastructure requirements or planned lift acquisitions through early identification of known military shortfalls and limitations. Getting people and material to the right place at the right time will also necessitate advances in intelligence, surveillance, and reconnaissance.

Advanced Intelligence, Surveillance, and Reconnaissance

One centerpiece of SAF is that of amplifying the efficiency of what should be a small force. We can accomplish this by providing highly detailed and timely intelligence or information.[18] The needs of SAF are

not particularly unique—they mirror those of combat forces. Current intelligence, surveillance, and reconnaissance (ISR) needs will persist; the challenge will be to pursue technologies and develop processes that create advanced ISR appropriate to SAF requirements in 2025.

Three principles govern ISR in the peacespace: timeliness, accuracy, and precision. Peacespace dominance will drive an increased reliance on information residing primarily in open sources. Timeliness drives a need for on-scene information acquisition (fig. 3-4). Sensor-laden UAVs or ultralight aircraft platforms could be the workhorse of SAF's advanced ISR toolkit. Advanced ISR, contributing to "information dominance," will allow a limited number of ground troops to leverage their coercive capability.

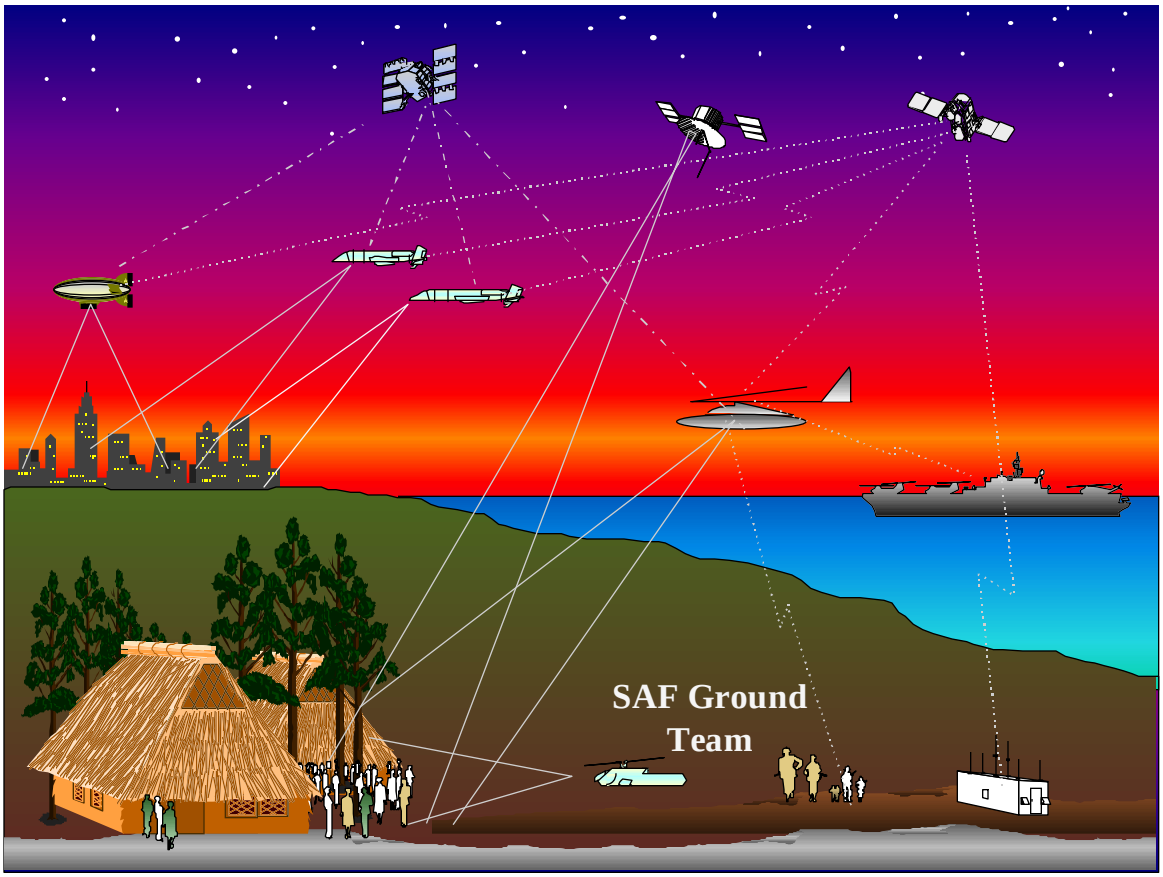


Figure 3-4. Advanced ISR in the Peacespace

Accurate intelligence could allow leaders to identify and preempt trouble before it becomes conflict. Analysis could come from nontraditional agencies, including the departments of Commerce, Treasury, State, and Agriculture; the Center for Disease Control; the World Bank or the International Monetary Fund; Save the Children; Doctors Without Borders; and Greenpeace. Coupled with open-source intelligence, wider use of human intelligence will help us know intentions as well as capabilities—the precision index.

> Rather than detecting and analyzing jet aircraft which emits [sic] a familiar visual, infrared, and telemetry signal . . . the intelligence community may have to detect and analyze old, small aircraft transporting drugs. Rather than spotting tank battalions in movement, it may have to spot guerrillas. And rather than dissecting a Soviet arms-control proposal, it may have to assess a country's attitude toward terrorism.[19]

Centralized intelligence can provide details on weapons movements and violent elements. Count de Marenches, former chief of French intelligence, stated, "Precision personal intelligence can be more critical than precision-guided munitions."[20] The vast amount of information will have to be culled in order to monitor the movement of aggressors. Their religious and cultural views must also be monitored. Information must be accurate, digestible, and relevant.

> The best satellites can't peer into a terrorist's mind. Nor can they necessarily reveal the intentions of a Saddam Hussein. Satellites and other technical surveillance technologies told the United States that Saddam was massing troops near the Kuwait border. But the United States—short on spies in Baghdad's inner circles—brushed aside such warnings as alarmist and mistakenly concluded the troop movements were just a bluff. One human spy in or near Saddam's inner circle might have cast light on his intentions and changed history.[21]

As a result of this enormous need for contextual intelligence, the attendant command, control, communications, and computers (C^4) support will be immense. Table 3 depicts advanced ISR/C^4 objectives and technologies.[22]

Table 3

Advanced ISR/C^4 Objectives and Technologies

MISSION	OBJECTIVE	TECHNOLOGY
Advanced ISR	• Strategic: feeders to NCA DCM • Operational: SAF requirements • Tactical: output/effects based targeting • Surveillance/Target ID: UAV constellation	• Long endurance UAVs/UTAs • Unmanned mini helos • Target reporter • Unattended ground sensors • Weather Surveillance and prediction • Low-cost space-based surveillance • Virtual presence
C^4	Reliable, high fidelity, robust	Scavenge C^4 solutions from expert sources

Command, Control, Communications, and Computers

The peacespace mission is also based on conflict prevention or resolution, which dictates accurate communication with local leaders. Improvements in computer voice recognition technology may permit the development and fielding of translators for installation onboard the UAV or ultralight. By 2025, real-time

broadcast of instructions via remote transmission might obviate the need to develop large forces of language experts. We can leverage a small cadre of linguists remotely. This capability also would increase the effectiveness of both the psychological operations team and the education/infrastructure mission.

Finally, SAF will require data links to rear areas to provide recurring information and updates. This requirement is an entry point of SAF to the "metasystem."[23] SAF must tie into other C^4 systems for point-to-point communications. The concept might be along the lines of an Iridium® system potentially placing more than 50 dedicated satellites in a low-earth orbit (LEO).[24] Essentially, SAF requires reliable communications to any individual with the correct equipment and cryptologic material or device, particularly while performing the envisioned air dominance role.[25]

Air Dominance

To provide a viable constabulary force for 2025, Builder notes certain technological challenges.[26] First, the constabulary must immediately identify, engage, and suppress certain kinetic weapons. Current methods of counterbattery fire, which result in area barrages of suspected gun emplacements, do not provide the surgical strike capability required to ensure engagements with limited collateral effects.

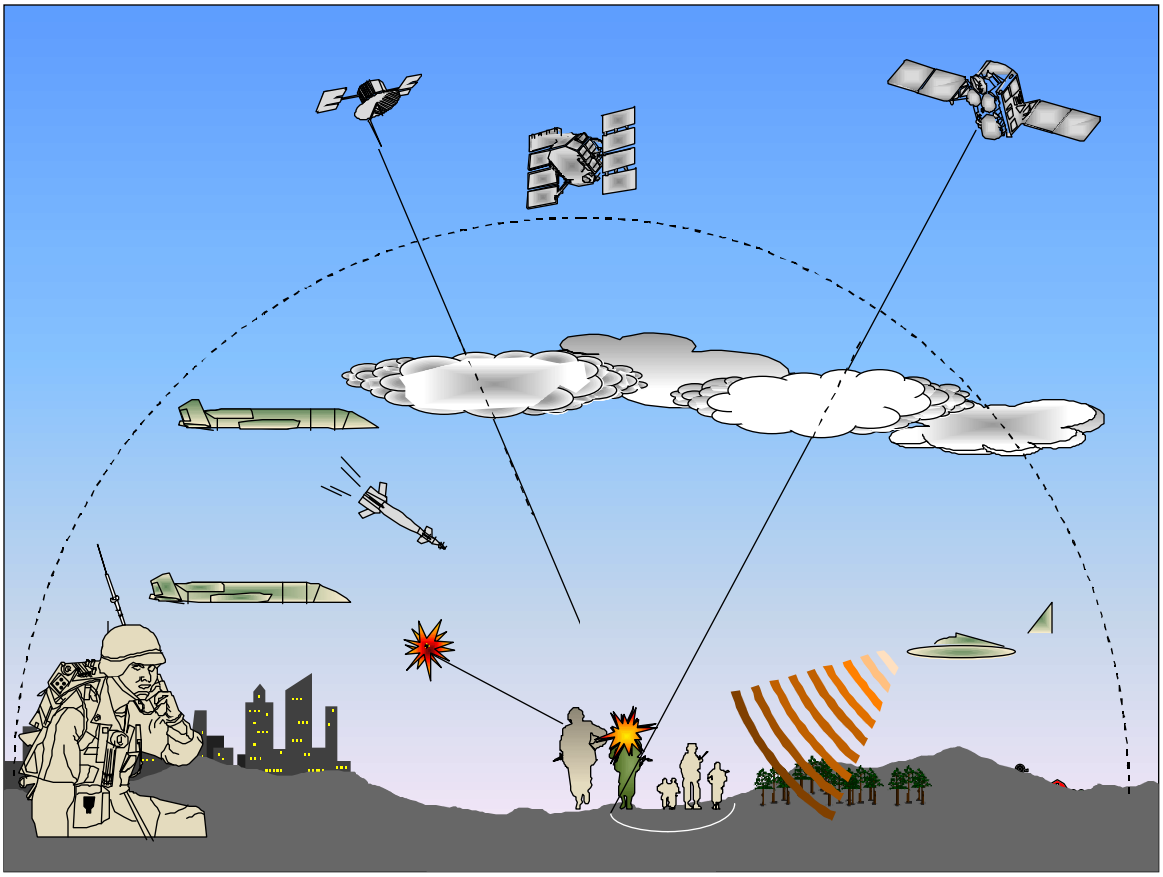


Figure 3-5. Security Assurance Force Fire-Free Zone

Additionally, the problem of mobile kinetic targets burdens the conventional lethal forces. SAF must solve this equation effectively in the most difficult terrain—urban environments—to limit collateral damage and assure a "fire-free" zone. Figure 3-5 graphically depicts one solution to this problem. Additionally, we have outlined air dominance missions, objectives, and technologies in table 4 below.[27]

The air dominance mission will be significantly enhanced by certain technologies. For example, Lawrence Livermore Laboratories developed a system—LifeGuard—which provides accurate computerized thermal bullet tracking.[28] Less than 300 milliseconds (ms) after an incoming round is fired, LifeGuard gives a track back to the point of fire. Pinpointing the "shooter" allows direct application of lethal, sublethal, or nonlethal means to apprehend the individual or entity and deter others. SAF forces would mount the LifeGuard system on one of several UAVs and ultralights operating in a constellation over the target area. Constellation configuration is tailored to the environment, taking into account urban or desert terrain (fig. 3-6).[29]

Table 4

Air Dominance Objectives and Technologies

MISSION	OBJECTIVE	TECHNOLOGY
Air dominance	Deterrence, law and order	• UAV/ultralight configured with LifeGuard • Anti-sniper probability device • Suppress hostile artillery • Laser Anti-sensor Weapon
Air dominance	Urban assault	• Helo vehicle hybrid
Air dominance	Psychological operations	• UAV configured as replacement EC-130
Air dominance	Weapons delivery (lethal & nonlethal)	• UAV with rocket launchers, EMP, microwave, lasers • Pyrotechnic Electromagnetic Pulse • RF warhead
Air dominance	Survivability	• UAV configured with chameleon concept • Full body armor
Air dominance	Command and control	• Holographic C^2 Sandbox (also applicable to C^4 section)

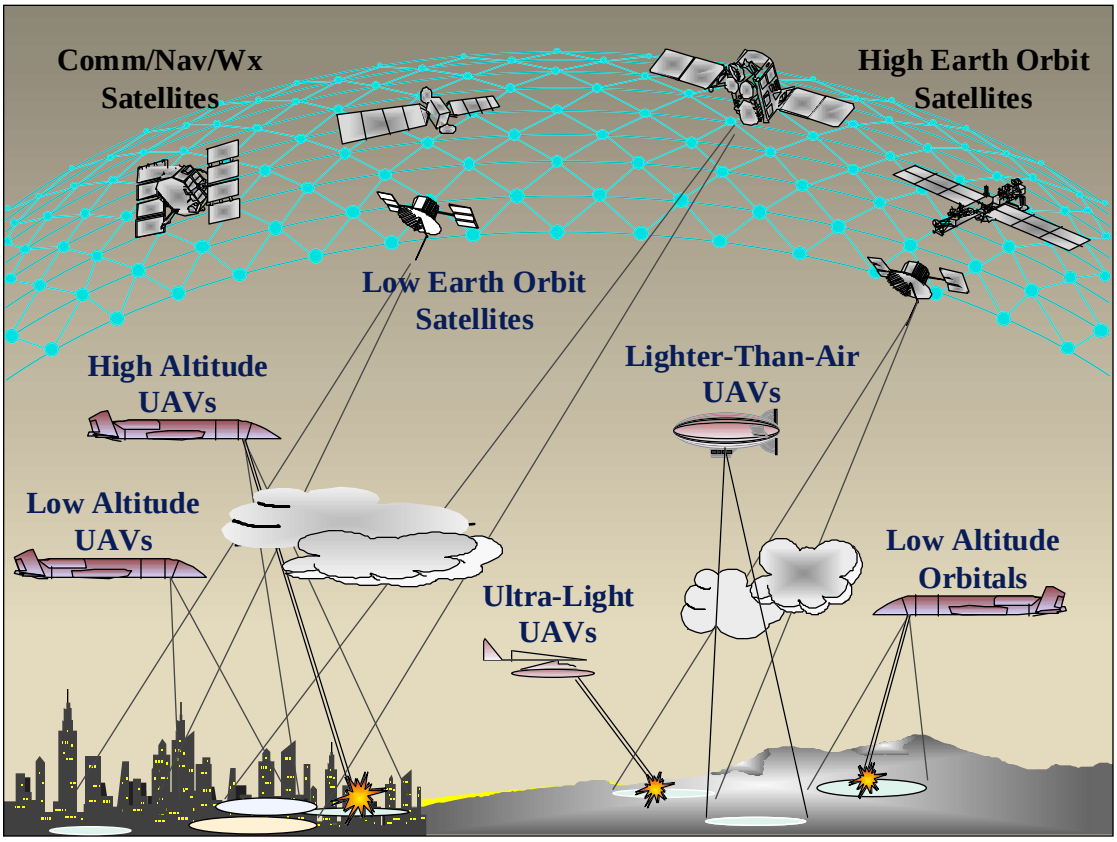


Figure 3-6. SAF UAV "Constellation"

While rapid reconfiguration of the UAVs for tailored employment is a linchpin to this concept, SAF's constellation must meet other criteria as well. The UAVs and ultralights must be cheap, durable—long-

loiter, reliable—and create zero requirements for logistics support (i.e., cheap enough to be expendable).[30] Some of the orbitals would be camouflaged with the chameleon concept to resist detection.[31] Different configurations would answer several missions: (1) some would be configured with the LifeGuard system and potentially a delivery means for nonlethal/sublethal weapons or targeting devices; (2) others would replace EC-130 psychological operations platforms rigged with communication devices or relay antennas; and (3) certain orbitals could mimic potent lethal platforms in sound or radar cross section (e.g., the AC-130 gunship to further the deterrent ability of SAF).

Airpower's speed and maneuverability are central to neutralizing potential conflicts. Increased loiter times deliver a "psychologically exhausting presence" to coerce people to obey prevailing civil and military law or merely to instill order.[32] Introduction of pervasive UAV constellations would obviously lead to an opposing force desire to destroy or neutralize the SAF capability for political, ideological, or economic reasons. Several minimum measures would enhance constellation survivability: (1) keep it cheap—not worth killing, (2) keep it small—easy to multiply, tough to pick the "right" target, and (3) camouflage—can't see, can't kill!

Education

The second component of SAF's CEI is education, a long-term remedy for social or political ills. SAF constabulary forces should provide a conducive environment for education programs conducted by both local leaders and outside personnel.[33] One goal of education is to create a literate population that can support either industry or other market-friendly opportunities. Attainment of this goal would attract foreign investment as a self-fulfilling prophecy. Portions of the US education solution set can be exported via technological means to rapidly answer short- and long-term stability goals (table 5).

Table 5

Required Education Technology

Mission	Objective	Technologies or Concepts
Export best of US education structure, philosophy,[34] & architecture, not necessarily "values" (must have broad cultural appeal)	• Initial foundation • Secondary • Undergrad/grad college • Vocational/technical	"Selective" school or "dial a subject" • Economics • Military/Martial Arts • Politics • Religion
Global Schoolhouse[35] Teach to Think & Question (not necessarily spout media sound bites)	"Tools" + Desire = Education Doctrine: Retain ability to read, write, and arithmetic	Brilliant Warrior[36] distance learning program basis for global schoolhouse (just as military "gave" the world internet, we will "give" them distance learning)
Export hard solutions— "info" on target fixes...answers to natural disasters, refugees, humanitarian actions, or economic crises.	• Market/financial • Infrastructure Medical Logistics Engineering	Innovative answers for organic fixes. Zero sum "imports" such as wood, water, power, food, or medicine. What's here to use? Come as you are peace.

Today, military forces conduct traditional military-to-military education missions, primarily US Army Civil Affairs units performing civil administration and military civic action tasks.[37] However, operations in the peacespace cloud traditional roles and may cause mission creep. SAF doctrine should spell out specific military responsibilities for education and differentiate these from civilian roles and missions. Primarily, the military will continue to provide lift, information "pipes," and security for civilian or country teams.[38] The primary differences between SAF and today's forces are organization, training, and equipment tailored to the peacespace mission. SAF will allow clearly defined roles for both the nontraditional and traditional warriors in 2025.

Nongovernmental and private volunteer organizations may require airlift support of personnel and equipment. One preemptive measure of education would be to "pipe" the necessary tools and equipment remotely. Distance learning could enable foreign stability or crisis response by extensive use of communication hookups under dissimilar architecture. SAF forces could harvest innovative solutions, both military and civilian, to integrate disparate mediums and levels of technology. Print, radio, television, telephone, and computer networks all facilitate SAF missions. These lines of communications would allow

passage of information, and processing or translating it, to ensure accurate comprehension and communication.

Infrastructure

In 2025, infrastructure development will be a cooperative effort between the host nation and multinational efforts. US Commerce Secretary Ron Brown's ill-fated mission to former Yugoslavia and Croatia in 1996 was designed to bolster foreign investment in the region.[39] To achieve the desired end-state, SAF may coordinate the efforts of such agencies as the departments of Justice and State, the Environmental Protection Agency, nongovernmental organizations, multinational corporations, and private volunteer organizations for lift, security, or education. These institutions offer critical knowledge to developing a host nation's infrastructure. Those US military forces performing infrastructure missions will work side-by-side with these agencies. While SAF can build roads, bridges, and industrial facilities, and perform environmental cleanup, the bulk of infrastructure development should come from indigenous sources or foreign capital investment provided by private investors and international lending organizations.

To transition SAF out of an area or region requires a "handoff" to civilian control. Before this transition can occur, some infrastructure should be in place to entice foreign capital investment for continued economic growth. Infrastructure in this sense includes both man-made and natural elements. Stewart Brand suggests "the whole world is worried about the natural infrastructure—soils, aquifers, fishable waters, forests, biodiversity, and even the atmosphere. The natural systems are priceless in value and nearly impossible to replace, but they are cheap to maintain."[40] Table 6 outlines the projected infrastructure missions, objectives, and applicable technologies.

Table 6

Required Infrastructure Technology

MISSION	OBJECTIVE		TECHNOLOGY	
Category	SAF rqmts	Customer rqmts	SAF rqmts	Customer rqmts
Acquisition	Specialize in acquisition of non or sublethal weapons	Exploit organic capability through contractual actions before "importing" Western goods or services	N/A	Situation dependent
Logistics • Supply • Maintenance • Transportation • Plans	Primarily commercial off-the-shelf or contracted support	Situation dependent • Food, water, shelter? • Industrial? • Advanced technical?	Situation dependent	Situation dependent
Medical	• Preventive care[41] • Triage (SAR) • Medevac	• Organic capability • Preventive care • Triage • Advanced care • Infrastructure	Tailored to environment	Tailored to long/short-term needs
Personnel	• Small, rugged, Mobile • Selected for behavior traits	N/A	Increase intel dependence—keeps force small	N/A
Training	• Restraint • Conflict prevention • Conflict resolution	Tailored to region	Unlimited potential	"Global schoolhouse"
Engineering	• Power, roads • Billets	• Power, roads, rail • Buildings	Reusable buildings[42]	• expertise • organic
Command, control, communications, computers	Service and commercial dependent	Depends on level of development & cultural needs	Robust and minimum architecture	Lend/lease commercial enterprise

Infrastructure is the largest area of SAF, yet we have deliberately chosen to limit our focus to only a few examples. This area requires substantial development by experts in each field. For example, SAF may require such unique mission equipment as an autonomous cargo handling capability—essential, and achievable by advanced systems such as computer control from a cockpit console, a rapidly reconfigurable powered floor, and an articulated cargo ramp. These systems permit transfer of pallet loads directly to and from bare trucks with minimum crew member assistance.[43] Each area in infrastructure requires careful and thoughtful analysis before final planning, programming, or acquisition.

Summary

"Try not. Do, or Do not. There is no try."

"I don't believe it."

"That is why you fail."[44]

While we presented many technological options to "solve" peacespace operations, the real solutions lie with people. Someone has to agree to confront peacespace problems. We believe that person should be a warrior, not a wizard. Defining Liddell Hart's "better state of peace" may reveal exactly why we choose to engage. We *may* opt to apply SAF's force, avoid the battle, and enter the peacespace for prevention or resolution. Accepting the challenge to shape the better state of peace determines the rules and tools.

SAF's constabulary, education, and infrastructure force is evolving even now. Many traditional military tasks are migrating to civilian contract or civil service. Nongovernmental and private volunteer organizations are proliferating as quickly as web sites on the internet. These questions must be addressed. The US military option for maintaining credibility, legitimacy, and competency as warriors may be as simple as leading the way. SAF is one answer to this problem.

Notes

[1] Liddell Hart, *Strategy*, (1954; new imprint, New York: Meridian, 1991): 338; Fred Charles Iklé, *Every War Must End*, (New York: Columbia University Press, 1991): 106–31; Paul Seabury and Angelo Codevilla, *War, Ends & Means* (New York: Basic Books Inc., 1989): 263–69. Liddell Hart, Ikle, Seabury and Codevilla developed a fascinating thesis through the past 42 years. Liddell Hart began with a simple but ill-defined sound bite, "better state of peace." Iklé discusses ending wars before they begin. Finally, Seabury and Codevilla distill the argument down to three choices: (1) peace of the dead, (2) peace of the prison, or (3) peace by cultural conquest. Dr. Cable ("The End State," lecture, 16 January 1996), contends the "dead dictate policy" for any nation bringing conflict to closure. Obviously, the notion of *peace* consumes the intellectual and military alike. Our most fragile problem today remains—deciding exactly what a better state of peace means to ourselves and our opponents.

[2] The digital cultural map depicted and envisioned would be a complex beast (i.e., an equivalent supercomputer in 30 years) that ties into a nearly unlimited number of open source databases and archives. Several examples would include weather, financial, agricultural, cultural (religious, language and dialects, ethnic), population, disease, technological advancement, infrastructure, water or food source and supply. Leaders could select specific geopolitical or geostrategic map displays. Tripwires and flashpoints for intervention could be triggered through a combination of the fuzzy cognitive mapping technique described by Bart Kosko, *Fuzzy Thinking, The New Science of Fuzzy Logic*, (New York: Hyperion, 1993): 222-32; and Maj Glenn James, "Chaos & Campaign Planning," lecture, Air Command and Staff College, Maxwell AFB, Ala., 8 March 1996. The database management and weighting of individual intangibles would remain largely

the purview of cabinet level staffs. Ultimately, a leader could peel back the layers of the onion on demand to review migratory trends or consumption data, or to evaluate measures of effectiveness for investments made. This concept would rely on unprecedented interagency, international, and individual cooperation.

[3] Alvin Toffler and Heidi Toffler, *War and Anti-War* (New York: Warner Books, 1995).

[4] Benjamin Schwarz, "The Diversity Myth: America's Leading Export," *The Atlantic Monthly* 273, no. 5 (May 1993): 67. Schwarz asserts US intervention in ethnic, nationalist, and separatist (ENS) wars should be an option only when specific, vital US interests are threatened."

[5] This doctrine section adapts original tenets of aerospace power as listed in AFM 1-1, *Basic Aerospace Doctrine of the United States Air Force*, vol. 1 March 1992: 8. Also, Col Phillip Meilinger, USAF, wrote a treatise, "10 Propositions Regarding Air Power," Air Force History and Museums Program, February 1995. Proposition 5 states, "Air Power produces physical and psychological shock by dominating the fourth dimension—time." This proposition led Colonel Meilinger to conclude: "This leads to an important insight regarding the effectiveness of airpower in low-intensity conflicts. Because guerrilla war is protracted war, by its very nature it is ill-suited for air power, denying it the ability to achieve decision quickly." This conclusion ignores the potential for airpower as demonstrated by the Navy in Bosnia and likelihood of UAV, UCAV employment. Col Richard Szafranski rebutted Col Meilinger's position in "Twelve Principles Emerging from 10 Propositions," *Airpower Journal* 10, no. 1 (Spring 1996): 51–80. Certainly all land, air, and sea dominance missions, either civilian or military, require disciplined examination of preconceived notions in the "new world order." This paper only addresses some air disciplines involved. We recommend the reader search such lucrative sources as Toffler and Toffler, *War and Anti-War*, 19–27, 103–13, 146–57; Thomas J. Peters and Robert H. Waterman, Jr, *In Search of Excellence* (New York: Warner Books, 1982), 89–119; Michael Hammer and James Champy, *Reengineering the Corporation*, (New York: Harper Business, 1993): 31–50. SAF will require innovative doctrine that synthesizes military and civilian philosophy into a single, seamless structure. For example, Toffler and Peters provide examples from the civilian world which would enrich military doctrine.

[6] Toffler, 67–68.

[7] UAVs and long-loiter platforms provide the ultimate in persistence. As technology improves, they give many of the advantages of physical presence without the disadvantages. Thus airpower is found in many venues such as the recent employment of the Predator UAV off the *USS Carl Vinson*. In the extreme case, you would pursue some goals without ever physically occupying the land. The current debate over "air occupation" notwithstanding, sufficient "air dominance" should significantly reduce the number of ground personnel required as well as decreasing the risk of casualties. Additionally, Dr. Larry Cable (interview with authors, 28 March 1996) notes that "physically exhaustive presence" often succeeds in wearing down the will to resist and airpower is uniquely suitable to this task.

[8] Composite force doctrine is fertile ground for further research and inquiry. Peacespace forces require the discipline of other fields such as international organizations, politico-economic analysis, crisis resolution, and comparative politics. Lt Col Ann E. Story and Major Aryea Gottlieb call for additional work in their article "Beyond the Range of Military Operations," *Joint Force Quarterly*, Autumn 1995, 99.

[9] We have included a list (appendix B) of all technologies for ease of reference.

[10] We arrived at these force structure characteristics after careful investigations of current efforts around the world by US military personnel. While one senior officer agreed "4000 was about right (brigade size)," he did not advocate the conversion of any combat forces to this role. Zero sum budgets artificially constrain speculation of possibilities for 2025 force structure changes. Also, military personnel are covered by "limited" liability and have the right to die for their country without recourse (Feres Doctrine). Force structure for civilian expertise requirements in hazardous, albeit peacespace conditions, and their implications are not addressed in this white paper.

[11] Carl H. Builder, "Doctrinal Frontiers," *Airpower Journal* 9, no. 4 (Winter 1995): 9.

[12] Maj Edward O'Connell, USAF, "Nonlethal Concepts: Implications for Air Force Intelligence," *Airpower Journal* 8, no. 4 (Winter 1994): 26–33. In his first draft of this article, Major O'Connell developed a concept for a mixed-bag adaptive response capability where both lethals and nonlethals are configured aboard a B-1 aircraft. With advanced command and control capability, NCA could redirect

responses in flight as the ground situation changes from "hot" to "cold." He was instructed to remove this section before publication. Used by permission.

[13] Col John Warden, *The Air Campaign: Planning for Combat* (Washington, D.C.: NDU Press, 1988), 4. Colonel Warden introduces a concept for battlespace dominance now known as "strategic paralysis." Peacespace dominance may need a "strategic paralysis" to impose the pause required for a change of course or course correction.

[14] We have only begun the transition to less than lethal technology and now that change will affect the way we execute the business of war. The impact will probably be immense. Suggest reading Capt Vicki J. Rast and Maj Bruce R. Sturk, "Coalitions: The Challenge of Effective Command and Control in Support of the Air Campaign," *Air Command and Staff College Theater Air Campaign Studies Coursebook* (Maxwell AFB, Ala., 1996): 169–90. Rast and Sturk provide an excellent analysis of direct and indirect effects versus effectiveness, and the often hidden second-order consequences for actions taken during any campaign. Second-order consequences are effects felt "down the road" and not readily apparent at the time. This paper is a necessary read for anyone establishing the SAF concept.

[15] ***2025*** Concept, no. 900664, "Tiltwing Super Short Take off and Landing Advanced Theater Transport," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/ ***2025,*** 1996); ***2025*** Concept, no. 900203; "Heavy Lift Aircraft with Mission Pod," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996); USAF Scientific Advisory Board, *New World Vistas: Air and Space Power for the 21st Century* (unpublished draft, the mobility volume, 15 December 1995), 15, 16, 22; *New World Vistas,* (unpublished draft, the aircraft and propulsion volume), 39; ***2025*** Concept, no. 900906; "Personal Identification Friend or Foe (PIFF)," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/ ***2025,*** 1996).

[16] Calmative agents are but one category of an ever-increasing litany of nonlethal weapons.

[17] During the team brief to HQ AFSOC/CV on 6 March 1996, Brig Gen Ingersoll discussed the requirement for vertical emplacement of water purification devices. In 1996, this requires the cubic space of a C-5, a significant shortfall in current lift capability.

[18] Szafranski, 76. Col Szafranski notes the greatest weakness of airpower lies in the fact we "can blow a door off of its hinges, but—unlike a simple soldier or marine—airpower cannot see what is behind the door."

[19] Toffler and Toffler, 185.

[20] Ibid.

[21] Ibid., 186, 189–190. One example of "innovative" intelligence gathering would have been monitoring how long before the invasion of Kuwait Lloyds of London stopped issuing insurance in the region.

[22] *New World Vistas,* (unpublished draft, the aircraft and propulsion volume), 10, 43; ***2025*** Concept, no. 900701, "Long Duration UAVs," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996); ***2025*** Concept, no. 900763, "Unmanned Mini Helos," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996); *New World Vistas,* (unpublished draft, the sensors volume),48, 50, 57, 62; *New World Vistas,* (unpublished draft, the directed energy volume), 29.

[23] Col Richard Szafranski coined this phrase in a paper co-authored with Dr. Martin Libicki entitled, ". . . Or Go Down in Flame: An Airpower Manifesto for the 21st Century," unpublished ***2025*** white paper. Used by permission.

[24] Figure 3-4 in the air dominance section depicts the envisioned UAV Constellation including both air occupation platforms and ISR/C^4 orbitals.

[25] See Szafranski, "Twelve Propositions," 73, for a caveat. We present air dominance as one possibility to reducing the total ground troops required, not necessarily to replace them entirely.

[26] Builder, 11–13.

[27] Not all of the constabulary missions are "high tech." Cable's "psychologically exhausting presence" may encompass "low tech" alternatives which were successfully employed in Just Cause and other special operations/conventional missions. Some examples of "low tech" would be lights, lasers, noise, and "positive" communication. Scott R. Gourley, "The Sniper's Latest Nightmare," *International Defense*

Review 28, no. 4 (April 1995): 66. Gourley reports on the Lawrence Livermore Laboratory concept for computerized thermal bullet-tracking capability developed by Dr. Thomas Karr and originally brought to our attention by Janet Morris. Further investigation revealed Bosnia officials requested this technology as part of their containment efforts. (Also in *Wired* magazine, *Newsweek*, and *Washington Post*.) Hereafter referred to as LLLab concept. ***2025*** Concept, no. 900705, "Anti-Sniper Probability Device," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996); *New World Vistas*, (unpublished draft, the attack volume), 11, 13; *New World Vistas*, (unpublished draft, the directed energy volume), 9; ***2025*** Concept, no. 900658, "Urban Assault Helo Vehicle Hybrid," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996); *New World Vistas*, (unpublished draft, the aircraft and propulsion volume), 10, 24; ***2025*** Concept, no. 900711, "Multipurpose UAV," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996); ***2025*** Concept, no. 200009, "Pyrotechnic Electromagnetic Pulse 'PEP'," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996); ***2025*** Concept, no. 900699, "Chameleon Camouflage," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996); ***2025*** Concept, no. 900753, "Full Body Armor," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996).

[28] LLLab concept.

[29] "Constellations" will encompass a complex architecture by 2025, composed of low-altitude (atmospheric or air breathing) orbitals, low-earth orbitals, and so forth. Just as gunships, tankers, and AWACS "orbit" in racetrack patterns in 1996, new UAV replacements would employ these and new tactics.

[30] Lean logistics, two-level maintenance, and streamlined acquisition process concepts currently allow circuit cards valued from $3,000 to $33,000 to be disposed without developing technical orders, test stations, or training for their repair. This trend, coupled with industry's response for "just in time" supplies, may change our preconceived notions of what is expendable and what should be repaired. This same logic applies to the automobile industry—we "replace" computers instead of "repairing" the old Chevy.

[31] ***2025*** Concept, no. 900699, "Chameleon Camouflage," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996).

[32] Cable, "The Dangers of Dogma," lecture, Air Command and Staff, Maxwell AFB, Ala., 28 March 1996.

[33] Lt Col Federico J. Rodriguez, Ph.D., USAR, "Interdisciplinary Collaboration in the Americas," *The Officer*, vol. 62, no. 3 Reserve Officer's Association of the US (March 1996): 24-27. Dr. Rodriguez is the professor of graduate education at California State University, Dominguez Hills, California. The Collaborative Educational Programs for the Americas (CEPA) is an international program that brings together an interdisciplinary group of professionals from education, law enforcement, and the military to meet future challenges and to develop an educational infrastructure for personnel and material resources. "This program serves as a model for education and social reform within our [southern] hemisphere for the 21st century." Rodriguez' insight and suggestions were invaluable to our research efforts.

[34] Lt Col Anita M. Arms, "Strategic Culture: The American Mind," *ACSC Theater Air Campaign Studies Coursebook*, 1996, 150–63. In a subsection of this article, Ms Arms discusses education as the equalizer in "purveying political ideology to immigrants and native-born (Americans) alike. Further, in an endnote, she quotes Michael Olneck and Marvin Lazerson, "Education," *Harvard Encyclopedia of American Ethnic Groups*, Stephen Thernstrom, ed, 304. It is also interesting to note the lack of a national school system effectively prevented, and still prevents, arbitrary testing that would divide students into white collar and blue collar educational tracks early. University attendance still does not depend on the score of an exam taken at age 10 or 12. It depends on completing high school with grades high enough to meet the college entrance requirements. It permits the illusion that in the US, anyone can succeed, and thus furthers the belief in social equality.

[35] Schwartz, *The Art Of the Long View*, 125. Schwartz discusses at length the possibilities associated with technology and education in the future, especially as associated with the "Global Teenager."

[36] Lt Gen Jay Kelley, Air University commander, "Brilliant Warrior," ***2025*** white paper (Draft).

[37] Joint Publication 3-0, *Doctrine for Joint Operations*, 1 February 1995, v-1 through vi-12.

[38] Dr. Martin Libicki, "Battlespace Dominance," lecture, 25 March 1996. Dr. Libicki briefed the evolution of communications "pipes" which carry data such as telephone lines, television cable lines, and power lines. The size restricts the throughput and is the next step in the information "revolution."

[39] Bill Montague and Christine Dugas, "Peacemakers Slow to Invest in Bosnia," *Pensacola News Journal*, Gannett News Service, Sunday, 7 April 1996, 3D. US companies invested $4.5 million in Croatia from 1992 to 1994 representing just 4.4 percent of foreign investment. The World Bank approved $269 million in loans for three projects on 1 April 1996. The US and other nations have promised to fund a $5.1 billion plan to rebuild bridges and other infrastructure.

[40] Steward Brand, "Army Green." Document was originally published in *Whole Earth Review*, Issue #76; on-line, Internet, 14 May 1996, available from gopher://gopher.well.sf.ca.us:70/00/WER/Army_Green.

[41] We envision development of a computerized personal doctor that maintains individual history, takes vitals, and emits basic prescription requirements which is "licensed" to practice medicine for deployed troops.

[42] On 10 April 1996, 2100 hours, Montgomery Alabama Public Broadcasting Channel (PBC) ran a special on Buckminster Fuller, an engineer who developed geodesic structural designs in the 1950s. Shunned by the architectural community as little value added, these structures have greater tensile strength than "stick-built" homes, they snap up and down relatively quickly, and can be stored until required. "Architect, inventor, scientist, teacher and philosopher, he advocated intelligent use of the earth's resources to gain the maximum return for the minimum of material and energy expended, and produced numerous models of how it could be done." Information provided by Lt Cmdr Alton Ross, Air Command and Staff College, Seminar 17, 1996. On-line, Internet, 14 May 1996, available from http://www.echonyc.com/~mysticfire/MABucky.html.

[43] ***2025*** Concept, no. 900664, "Tiltwing Super Short T/O and Landing," ***2025*** concepts database (Maxwell AFB, Ala.: Air War College/***2025,*** 1996). Also articulated by General Ingersoll as a dynamic factor in current operations.

[44] Yoda speaking with Luke, *The Empire Strikes Back, ©1980, Lucasfilms Ltd.*

Chapter 4

Concept of Operations

It's not the bullet with my name on it that worries me. It's the one that says "To whom it may concern."

—Anonymous Belfast resident

With clear entry criteria, SAF conducts its operation. Three notional scenarios illustrate our concept. To combat a cholera outbreak in Benin caused by contaminated water, SAF would deploy directly into outbreak areas in strategic aircraft using advanced navigation systems coupled with vertical take-off and landing platforms. Simultaneously, containerized inoculation facilities and medical teams would deploy to remote regions and provide medical care. In this instance, levels of violence are low, thus reducing the need for a SAF constabulary force. SAF's primary role would be to contain the disease outbreak and prevent further occurrences. Long-term fixes result from educating the population on health and sanitation procedures. The primary education effort would be civilian-led with SAF assistance, protection, and delivery. SAF would only minimally improve Benin's modest infrastructure. The SAF military effort would be short-term (less than one year) with follow-on education and infrastructure terminated in the midterm (five years).

In another scenario, a region is in a state of anarchy, suffering from a collapse of its infrastructure. This region is marked by widespread disease and mass famine—similar to the situation US forces encountered in Somalia. In this scenario, US/UN conventional forces would first move to secure the area. SAF units would then deploy in-country via strategic lift, reducing the need to maintain security of port facilities. In their constabulary role, SAF would employ both nonlethal weapons and linguists to develop and maintain order. Constabulary forces could establish judicial processes, local police, and legal institutions to permit an

effective transfer of law and order duties to local authorities.[1] Constabulary forces would also employ ultralight UAV to ensure air dominance and provide continuous presence while reducing risks for ground force elements. Technology such as LifeGuard would identify snipers and other potential combatants. Simultaneously, education and infrastructure personnel would provide medical and famine relief. In this example, the constabulary effort to redress violence is modest. Education requirements are high as they must effectively "jump start" and sustain sufficient infrastructure development to maintain a better state of peace. This would be a mid-term effort—five to ten years.

Finally, factions may actively fight in a technologically adept society similar to those of the former Yugoslavia or Northern Ireland. If leaders decided to intervene, special or conventional forces may engage the combatants before SAF would assume their constabulary role. Constabulary duties could be long-term (greater than ten years), pending a political settlement (as in Northern Ireland). Traditional education efforts would be minimal if key indicators (such as literacy rates) are high. Infrastructure needs would be both high and long-term if the infrastructure suffers widespread destruction (as in former Yugoslavia). Infrastructure rebuilding could be accomplished in five-to-ten years. If leaders decide to progress a first wave society to the second or third wave, SAF would require a 20 to 30-year commitment.[2]

Some scenarios will remain beyond SAF's core competencies. Conflicts based on deep-seated cultural or political differences will likely have to be solved at the bargaining table before SAF's introduction. SAF constabulary forces could separate belligerents (at great risk), but centuries old hostility and a nearly unlimited willingness on the part of some factions to kill one another may exceed all available resources. New options and solutions such as nonlethal weapons, advanced airlift, cultural knowledge, funding, or even improved infrastructure may prove fruitless. However, a preponderance of missions tackled in 1996 fall neatly into SAF's area of expertise.

Notes

[1] Discussions with Headquarters Air Force Special Operations Command personnel who participated in Operation Just Cause revealed the methods for transfer of law and order responsibility from military to civilian personnel. Essentially, Panamanian Defense Force (PDF) personnel were offered asylum and amnesty in exchange for turning in their weapons. At the first station, PDF members would relinquish their weapons. At subsequent stations, they would (1) denounce the current regime, (2) indicate a desire to serve

under the new regime, (3) swear allegiance to the new regime, and (4) receive back their weapon and a schedule for training and indoctrination.

[2] Alvin Toffler and Heidi Toffler, *War and Anti-War* (1993; new imprint, New York: Warner Books, May 1995), 35–94.

Chapter 5

Recommendation

Frankly, I'd like to see the government get out of war altogether and leave the whole field to private industry.

—Joseph Heller

This paper asserts the need for a force dedicated to preventing conflict. On 13 May 1996, Secretary of Defense Perry stated, "America must lead the world in preventing the conditions for conflict and in creating the conditions for peace. In short, we must lead with a policy of preventive defense. It's about hard work and ingenuity today, so that we don't have to expend blood and treasure tomorrow."[1] In this chapter, we will discuss plausible options for implementing SAF—a blueprint for change.

One option encompasses either unilateral US action or a US-led multinational team in performing the SAF mission. This option has several merits, since it avoids placing American lives in the hands of others and allows the US to determine its own destiny. In addition, the US possesses unique capabilities that argue for its leadership: we have enormous energy, and we often lead in managerial and technological initiative; harnessing the power required to avert war is within our capability; and leading the SAF effort will foster the perception that we are "giving back" to the rest of the world in some tangible way.

The US role as lead agent could have unintended consequences. US efforts might be caricatured as a latter day "white man's burden," where we solve the world's problems by exporting US values and beliefs. This would be unpalatable in many cultures. Also, the temptation exists for the US to favor our interests at the expense of the resident population. This is not only bad public relations, it is also counterproductive to US interests in the long run.

It may also be in US interest to allow an "evolved" UN—or another nation—to lead in developing a SAF capability. Peacespace dominance may be more suitable for other nations (Japan, Singapore, Scandinavian countries, Canada) which have forsworn the use of force or are perceived as more neutral. Their domestic cultures might be more conducive to performing a SAF role.

The drawbacks to this option: The US may have little leverage determining if and when an intervention should be made; we can exercise little control once the mission starts; and these operations require substantial funding. Would the US be willing to pay when we are not "calling the shots"?

Another option may be to stay the course. It can be argued that the current system is working fine and needs only minor modifications to the concept of operations to and doctrine.[2] Many assert that the military can both keep the peace and fight. In their view, ramping down for peace operations is well within the present capability of the military. Our warriors are well-educated, trained, and psychologically nimble enough to do both.

This is not a universally-held view however. Opponents argue that SAF would free the conventional military to concentrate on its primary combat mission while providing a critical capability in crises that will only become more numerous and complex. Table 7 summarizes three possibilities for peacespace dominance.

Table 7

Responsibility for SAF

	US Unilateral or US Led Multi-National	UN Initiative or "other National" Effort	Stay the Course
Pros	• US leadership prods other nations to act • Education structure and technological prowess ("science" skills) enjoy a reputation as "best" in much of the globe • Education is a great export item • World's largest economy, highest per capita income, and low debt as percentage of gross domestic product = we pay for "it," therefore we should *do* it • Improved public image for sharing the wealth	• Nations who have forsworn the use of armed force possess instant credibility abroad • Already perceived as neutral • Cultures are amenable to the concept • Other cultures' education systems are already sophisticated in art of conflict resolution and prevention as opposed to simply termination	• Military easily ramps down from combat mission • Current system largely works with minor doctrine/training modifications
Cons	• Unintended consequences • Makes US a target rather than a benefactor ("I'll help as long as you do it *my* way") • US lead or unilateral action creates obstacles obtaining "legitimacy" . . . might be viewed as imperialistic	• Legitimacy of UN interventionary action is currently questionable • US interests may diverge from UN • Entry/exit criteria blur for UN	• The system is broken and should be fixed • Performing *peacespace* missions erodes combat capability

Conclusion

What needs to be done to make SAF a reality? This paper only touches areas which beg greater exploration.[3] Leaders have 30 years to focus energy and funds against specific requirements and capitalize on existing progress. Joint, service, and civilian doctrine need to apply rich lessons learned from the past. The technologies mentioned in this paper hint at the possibilities.[4] The digital cultural map might accurately predict and identify trouble areas, but the concept requires careful study prior to development. Unmanned aerial vehicles, nonlethal weapons, and a "global schoolhouse"—all present tantalizing possibilities.

Like US businesses struggling to restructure, the US military has transformed itself from the demoralization of the 1970s to a peak performer in 1990—"an elegant force."[5] An evolving world order, increasing demands on declining resources, and potential technologies afford the "elegant" warrior an unprecedented opportunity. If properly developed, planned, and funded, SAF could be available in 2025 to

help dampen violence and orchestrate the peace. The military has demonstrated an ability to lead the way and change the future. It is in our best interests to act.

> What vast additions to the conveniences and comforts of living might mankind have acquired, if the money spent in wars had been employed in works of public utility; what an extension of agriculture even to the tops of our mountains; what rivers rendered navigable, or joined by canals; what bridges, aqueducts, new roads, and other public works, edifices, and improvements . . . might not have been obtained by spending those millions in doing good, which in the last war have been spent in doing mischief.[6]

Notes

[1] William J. Perry, remarks delivered to the John F. Kennedy School of Government, Harvard University, on-line, Internet, 13 May 1996, available from: http://www.dtic.mil/ defenselink.

[2] Col Anthony Wood, USMC, Quantico Warfighting Laboratory Director, "Sea Dragon: Warfighting in the Future," lecture, Air War College, Maxwell AFB, Ala.: 17 May 1996. Col Wood stated a corollary to the familiar maxim "If it ain't broke, don't fix it," which says "Just cuz it ain't broke, don't make it relevant."

[3] "World View: The 1996 Strategic Assessment From the Strategic Studies Institute," edited by Earl H. Tilford, Jr., US Army War College, Carlisle Barracks, Pa.: 1996, 12. Steven Metz eloquently summarizes the requirement to explore these questions in depth. Most importantly, Tilford concludes on page 54, "If the Army is to have the capabilities to deter and, when necessary, to compel calculating aggressors of this nature, it must be able to resolve conflicts at levels where human and economic costs are sufficiently low to justify intervention. Otherwise, extortion of the Army's ability to promote and protect non-vital interests will result.

[4] Maj Kenneth E. McKenzie, Jr., USMC, "An Ecstasy of Fumbling: Doctrine and Innovation," *Joint Force Quarterly*, Winter 1995-96, 67-8.

[5] Kevin Kelly, "Shock Wave (Anti-) Warrior," *Wired*, February 1995; on-line, Internet, 14 May 1996, available from: http://www.hotwired.com/wired/1.5/features/toffler.html. The US military has "gone from the pits of post-Vietnam, drug-drenched, corrupt, bloated bureaucracy into an elegant force." Alvin Toffler in conversation with Peter Schwartz as reported by Kevin Kelly.

[6]Benjamin Franklin (1706–90), US statesman, writer. Letter, 27 July 1783, to Sir Joseph Banks, president of the Royal Society, after the American War of Independence (published in *Complete Works*, vol. 8, ed. by John Bigelow, 1887–88). *The Columbia Dictionary of Quotations*, Columbia University Press. Copyright © 1993. Microsoft ® Bookshelf.

Appendix A

Criteria for Intervention

CATEGORY	CRITERIA	METRIC*
Sociopolitical	Education literacy rates	percent increase
Sociopolitical	Education infrastructure	growth in secondary, vocational technical schools, colleges, university-type institutions
Sociopolitical	population growth or birth rates	deviation from what region can organically support
Sociopolitical	multilateral intervention requested	existence of coalition, status of forces, or treaty agreement
Sociopolitical	universal suffrage	laws passed/polls measure *(cannot be unilaterally applied vis-à-vis Muslim nations)*
Sociopolitical	liberties/human rights	international measurement
Sociopolitical	environmental consumption	conservation technology
Infrastructure	indigenous medical capability	rates of infectious disease, infant mortality
Infrastructure	transportation network	adequacy of roads/ports/ airfields to meet "universal" standards
Infrastructure	power grid	ability to convert/upgrade to "universal" standards
Infrastructure	communication grid	ability to convert/adapt to "universal" standards *(required/desired?)*
Infrastructure	agriculture base	ability to feed population
Infrastructure	potable water supply	adequate to consumption and sufficient for expected growth
Infrastructure	industrial capacity	as required
Economic	knowledge base	exportable? perceived value?
Economic	market structure import/ export rates	open/closed MFN status
Economic	employment rates	percent improvement . . . appropriate to 1st, 2nd, 3rd wave
Economic	inflation rate	control mechanisms
Economic	GDP/capital spending/interest rates	"stability" or growth indicators
Economic	per capita income/personal income	relative personal expectations
Financial	existing internationally recognized "institutions"	adaptability to universal standards of financial trade (i.e., convertible currency/foreign exchange rates)

* As per Dr. Martin Libicki and others, to quantify costs leads to "Slighting the Intangibles" or excessively weighting the analytical vise versa intuition. SAF needs balance. Such tools as a digital cultural map, using fuzzy cognitive mapping (Bart Kosko, *Fuzzy Thinking*) or chaos theory (Maj James lecture) should help to qualify, not quantify.

Appendix B

Underlying Technologies

Technology concepts from the USAF Scientific Advisory Board's (SAB) *New World Vistas* and technology concepts submitted for the 2025 study were reviewed for applicability to the SAF. Concepts harvested from these efforts, which directly or indirectly apply to the SAF roles of constabulary, education, or infrastructure, are summarized and included below.

Aircraft and Propulsion Volume

Uninhabited Aircraft or Unmanned Tactical Aircraft (UTA). This concept would develop unmanned aerial vehicles (UAVs) to do the air-to-air, suppression of enemy air defense (SEAD), strike, and surveillance & reconnaissance (S&R) missions currently done by manned aircraft. The concept also envisions that, without a human in the aircraft, the vehicle could be miniaturized to reduce signature. These UAVs could provide some of the ISR, SAF needs to conduct an air occupation.

Modular Vehicles. This concept calls for manufacturing aircraft that are modular in their components and use. The concept would permit a force to mix-and-match "parts" of an aircraft to change its role. Modular parts would also aid in maintenance. Instead of fixing an engine in the field, the team would simply replace the engine module with a new one. The concept would reduce the logistic tail brought into the field by SAF.

Future Attack Aircraft. This concept envisions a 500-nm-range manned or unmanned aircraft that would use stealth technology (both RF and IR) to reach a target and employ laser or high-power microwave

(HPM) weapons. An unmanned aircraft with a "tunable" HPM weapon could provide either the nonlethal or lethal punch SAF needs in the constabulary mission.

Special Operation Forces Vehicle. This 1500-nm radius, high subsonic speed, vertical take-off and landing (VTOL) aircraft would employ low-observable (LO) technology to reduce signature. The concept is evolutionary and would represent the next generation V-22. This concept could provide the tactical transport for SAF and the primary search and rescue vehicle to recover SAF personnel in distress.

Long-Endurance Aircraft. The concept envisions an unmanned aircraft that can fly for days, weeks, even months, at an altitude of 80,000 feet or more. This high-altitude, long-endurance (HALE) aircraft, with an appropriate suite of sensors, could provide the constant monitoring platform SAF needs. The engines would be solar-powered props, and the aircraft could carry a 2,000-pound payload, enough for sensors or even a single weapon. One drawback for such an aircraft is that its wingspan would probably require it to self-deploy, which might take days.

Attack Volume

Radio Frequency (RF) Warhead, Disabling Enemy RF Sensors. This concept would use UAVs to get very close to the enemy and emit a pulsed RF transmission to knock out the RF (radar, communications) equipment of the enemy. The concept would provide a nonlethal weapon for SAF to use on modern weapons.

Suppress Hostile Artillery. Using moving target indicators (MTI) on UAVs along with unmanned ground sensors (UGS, see later), the concept could track the location of firing artillery and then react with a killer UTA. Expanding on this concept, if SAF were to use multiple UGS sensors along with very accurate MTI sensors on a UAV, we might be able to track sniper rounds over a large area. Once a "shooter" is detected, the UAV could employ lethal or nonlethal weapons.

Directed Energy Volume

Laser Power Beaming. The concept would provide energy (power) to remote systems. For example, this ground laser could "shoot" at a receiver on an orbiting satellite to reenergize it. The laser would work for any electrically powered system.

Virtual Presence. The concept would use a laser to "scan" an area to provide a picture of the area the laser strikes. If combined with in-orbit mirrors, US leaders could obtain real-time pictures of any location in the world. Potentially, the laser could be used like a fiber-optic cable to shine anywhere in the world. The presentation would resemble a TV picture of where the laser hits solid mass. This concept would help SAF monitor situations as they develop and could help in determining if SAF should be employed in an area before we place personnel on the ground.

Mobility Volume

Global Range Transport. This concept would provide an aircraft with a 12,000-nm range and a 150,000-pound payload capacity. The aircraft would require a runway to land, but the concept could employ the precision airdrop concept.

Global Navigation System. This concept is an evolution of the current Global Positioning System (GPS). Improved sensors, coverage, and receivers could increase navigation accuracy to one meter.

Advanced Material Handling Equipment. The concept would provide a solution for how to load or unload cargo from an aircraft when aerial port equipment is not available. One potential technological solution is to load cargo on magnetic levitation pallets. At the destination, the pallets would levitate from the aircraft to where the payload is needed on the field. This concept would be very useful in reducing the amount of equipment SAF would need at a field before moving into the area.

Precision/Large-Scale Airdrop. Using GPS for positioning and light-or laser-imaging detection and ranging (LIDAR) to determine winds, cargo could be dropped into a small area. Though not mentioned in the volume, if we take this concept and add the use of pallets with remote or automatically controlled fins, wings, or stabilizers, and steerable (square) parachutes, we could steer the pallet to exactly where it is needed,

maybe within a couple of meters. This hybrid concept would basically give a form of precision-guided cargo (PGC).

Sensor Volume

Target Reporter. The concept involves fielding a UAV with a 72-hour endurance, 4,000-pound payload, and a normal operating altitude of 65,000 feet that could hold various sensors to cover a 200 x 400-nm area. Sensors include electromagnetic spectrum measures (ESM), moving target indicators (MTI), synthetic aperture radar (SAR), and receivers for UGSs. Data from the ESM, MTI, SAR, and UGS sensors would be fed into an auto target recognition (ATR) system that would classify each target and report the data. This system (a UAV with multispectral sensors) would meet the intelligence, surveillance, and reconnaissance needs of SAF.

Unmanned Ground Sensors. An acoustic UGS was used along the Ho Chi Minh trail during the Vietnam War. Modern UGSs could sense acoustic, seismic, chemical/biological, ESM, or magnetic emissions. Many of these systems placed over an area could be used to report activities. Data could be relayed to a UAV overhead (such as the target reporter concept) or, if a small and powerful enough energy source could be developed and installed in the UGS, the UGS might be able to report directly to a satellite.

Weather Surveillance and Prediction. Using a UAV with passive infrared, passive microwave, LIDAR, and Radar systems, enough information can be gathered to report the weather and to make reasonable predictions. This valuable information would be used in the initial deployment of SAF teams.

Low-Cost Space-Based Surveillance. The concept envisions multiple low-cost ($25M in FY95 dollars) satellites. The low cost is due to the limited life, of these satellites—approximately six months. The systems could be tailored to the need of the customer and launched on demand. In the long run, it might cost much less to place as many as 10 of these satellites to get high coverage over an area (especially during the initial constabulary phase of a SAF operation) than it would cost to move (and use the limited life of) a $500-$700M satellite.

Pyrotechnic Electromagnetic Pulse (PEP)

Concept No. 200009 would use pyrotechnic explosions to produce electromagnetic pulse (EMP) radiation to affect enemy sensors and communication equipment. SAF could employ weapons with small versions of this explosive to reduce the ability of organizations to coordinate their actions.

Noise

Concept No. 900153 is a hand-held, directed, variable-pulse noise weapon that could be capable of a range of options from disorienting to incapacitating the enemy. A larger, directed-noise weapon could be used to attack larger targets ranging from mobile launching systems to military infrastructure. These weapons could easily be mounted on land vehicles or satellites.

Mission Pods

Concept No. 900203 is the development of mission pods that could be quickly loaded and unloaded from a transport aircraft. Once deployed at its location, a pod would provide all essentials (e.g., power, lighting, computer, and communication equipment). Medical, command and control, teaching, UAV control, and water treatment pods could be developed.

Inflatable Workspace

Concept No. 900255 is containerized, modular, and state-of-the-art buildings that could be deployed to provide workspace for SAF teams. For more transitory encampments, huge tents that inflate from relatively small packages could be used. Several tents could be tied together or, technology permitting, tents the size of shopping malls (from individual packages fitting in the cargo compartment of a heavy-lift vehicle) could be developed. An instantly inflatable tent would decrease setup time and alleviate on-site requirements for deployed SAF teams.

Force Sustainment

Concept No. 900433 is a pill, shot, or internally-planted nutrient that provides all the necessary nutrition for an individual in combat for up to seven days. It would be chemically controlled to provide required nutrients over the stated period. It would not eliminate the need for water. It would be most useful for personnel in transit or in sustained conflict prevention. The pill or shot would have minimal short-term effect on the digestive system. Compounds could be included that would reduce the urge to eat. This would be a "sensitive" way to sustain forces in famine areas.

Steerable Pallets

Concept No. 900485 is to airdrop loads with steerable chutes, controlled by a computerized navigation system, on any desired drop zone (DZ). Loads could find the DZ via differential GPS. Steerable loads could compensate for unknown winds and give unprecedented accuracy. This capability would allow needed supplies to be inserted to a specific area.

Remote Presence

Concept No. 900615 is to integrate satellite communications into helmets to provide two-way voice communications. A one-way color camera mounted on the helmet to provide rear-echelon personnel with full visual information is also possible. This concept ties into another SAF need for robust point-to-point communications. The system would be along the lines of an Iridium® system that would place more than dedicated satellites in low-earth orbit (LEO) to provide secure and reliable communications to any individual with the correct equipment and cryptologic material or device.

Air/Land Assault Craft

Concept No. 900658 envisions a hybrid of a ground vehicle and a helicopter. The vehicle would be capable of slow in-flight speeds using rotor systems or adjustable thrusters. When in the ground mode, the rotors or thruster would fold and the lightweight vehicles would move on a wheeled drive system.

Advanced Tactical Transport

Concept No. 900664 is a VTOL aircraft capable of carrying large payloads to nations that have limited airfields. SAF will need an extremely agile, large cargo transport for both intratheater and intertheater transport. A solution may be the tiltwing, super-short-takeoff and landing, advanced theater transport (Tiltwing SSTOL ATT). The Tiltwing SSTOL combines extreme short-field capability with autonomous cargo handling to enable deliveries to unprepared landing areas on short notice. The propulsion system may use turboprop or jet engines. Minimum flight speed would be approximately 50 knots, with a field length requirement in excess of 750 feet at high-altitude, hot temperature conditions.

Camouflage

Concept No. 900699 would use tiny sensors and electronic devices capable of changing across multiple spectrums to develop camouflage paint or uniforms that blend with the differing terrain. This concept has value for a SAF trying to monitor an area.

Long-Duration UAVs

Concept No. 900701 is the development of long-duration UAVs that use solar- powered engines to enhance on-station time. Use of these lighter-than-air vehicles would reduce weight and the power require to move the vehicle around. Lighter-than-air structure would also make the vehicle easier to deploy via heavy-lift aircraft.

Anti-Sniper Planning

Concept No. 900705 is a computer-based planning tool that uses a three-dimensional layout of urban areas to predict the most likely location of snipers based upon available fields of fire. The system would aid SAF in determining where surveillance needs to be established and which areas should be secured first.

Multipurpose Unmanned Aerial Vehicle

Concept No. 900711 is the development of UAVs with removable line-replaceable units that would permit a quick change of the UAVs payload. Cameras could be replaced with nonlethal or lethal weapons as the situation required.

Chameleon

Concept No. 900746 would use optical lenses to generate any color at any angle to make an object look like the environment in which it is operating. Complemented by stealth, chameleon could help aircraft counter radar and optical tracking systems.

Improved Body Armor

Concept No. 900753 is improvements in materials technology that could provide a lightweight material for ballistic protection. This material could be molded to fit over the uniforms of SAF members to provide protection not only for the wearer's torso but also for limbs and feet against mines.

Unmanned Mini-Helicopters

Concept No. 900763 calls for development of small, remote-controlled helicopters with sensors that could provide reconnaissance of urban areas or, if the vehicle is small enough, of building interiors. The system would require a precise navigation subsystem to permit it to enter confined areas and conduct its mission.

Personal Identification Friend or Foe

Concept No. 900906 is a human identification friend or foe (IFF) system to track and identify individuals. UAVs and unmanned reconnaissance systems, equipped with sensors, could provide real time continuous monitoring of SAF personnel in the area.

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