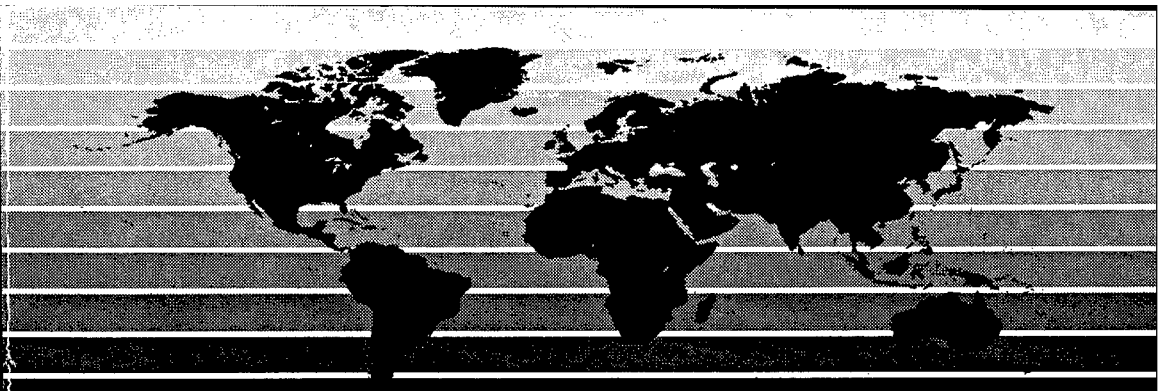


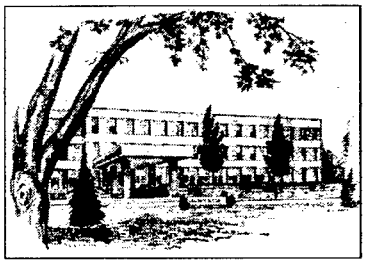
Strategic Studies Institute SSI

MILITARY MEDICAL OPERATIONS IN SUB-SAHARAN AFRICA: The DoD "Point of the Spear" for a New Century

C. William Fox, Jr.

U.S. Army War College

STRATEGIC STUDIES INSTITUTE



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C. William Fox, Jr.

June 24, 1997

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Comments pertaining to this report are invited and should be forwarded to: Director, Strategic Studies Institute, U.S. Army War College, 122 Forbes Ave, Carlisle, PA 17013-5244. Copies of this report may be obtained from the Publications and Production Office by calling commercial (717) 245-4133, DSN 242-4133, FAX (717) 245-3820, or via the Internet at rummelr@carlisle-emh2.army.mil

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FOREWORD

Sub-Saharan Africa poses a somewhat ironic strategic dilemma for the United States in the post-Cold War era. Most authorities are quick to acknowledge that the United States has no vital interests in the region, and the end of the Cold War eliminated the East Bloc/West Bloc competition as an incentive for involvement. Yet, over the past decade, Africa has been the recipient of more U.S. military interventions than all other regions of the world combined. The interventions stem, of course, from complex humanitarian emergencies which the developed world cannot ignore. For a variety of reasons, it seems very likely that Africa will continue to suffer calamities which will require expensive humanitarian interventions.

Because of the perceived limited national interest in Africa, U.S. "African" policy does not have a strong constituency in the American political process and lacks coherence and focus. U.S. regional involvements tend to be inconsistent and reactive. The result is that the United States invests much more for "cures" to Africa's ills than might be the case if U.S. policy could place more emphasis on "prevention." For their part, at no time in history have African nations been more receptive to U.S. assistance, or more eager for cooperative efforts to address the difficult issues of national development.

While the United States may not have vital interests in Africa, the entire world (including the United States) clearly has an interest in durable regional stability. In view of Africa's huge size and substantial resources, it also clearly is in the interest of the United States to see sustained regional economic development and to maintain unfettered commercial and military access throughout the region. But more importantly, tropical Africa is one of the "Hot-Zone" regions from which devastatingly lethal pandemic diseases can emerge with little warning: the most important access could well be that of disease monitoring and prevention. This may, in fact, be a vital "defense of the homeland" interest for the United States.

One Army officer, Lieutenant Colonel C. William Fox, Jr., a physician who has had extensive experience in U.S. activities in Africa over the past two decades, has personally supervised operations that have considerable potential as models for

future regional involvement. In this publication, he offers a rationale and vision for future DoD activities in Africa. His account also serves to remind us that substantial strategic benefits can accrue to the United States even from small, tailored teams deployed under creative, energetic leaders.

RICHARD H. WITHERSPOON
Colonel, U.S. Army
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BIOGRAPHICAL SKETCH OF THE AUTHOR

C. WILLIAM FOX, JR., M.D., is en route to assignment as the Commander of Bayne-Jones Army Hospital, Ft. Polk, LA, where he concurrently will serve as Command Surgeon of the Joint Readiness Training Center. Lieutenant Colonel Fox received his undergraduate degree in biology at the University of San Francisco and his medical degree from the Uniformed Services University of the Health Sciences in Bethesda, MD. A Special Forces officer and flight surgeon, he has commanded a variety of unique organizations, including a Special Forces Medical Training Company, an Army airborne forward surgical team, and a Mobile Army Surgical Hospital. He also has served as Command Surgeon for the Army's Special Operations Command. Lieutenant Colonel Fox's operational experience includes numerous Special Forces missions to Latin America and Africa, and a number of complex medical operations on the African continent. He also served in combat in Operation DESERT SHIELD/DESERT STORM.

MILITARY MEDICAL OPERATIONS IN SUB-SAHARAN AFRICA: THE DoD "POINT OF THE SPEAR" FOR A NEW CENTURY

Rhetoric Versus Reality.

The most prominent characteristic of the U.S. engagement in Sub-Saharan Africa in the mid-1990s is that it is diminishing. Both real U.S. dollar expenditures and significant programs, such as those of the United States Agency for International Development (USAID), which have played a significant role in U.S. assistance in the past, are simply vanishing. Ironically, this is occurring as African states are desperately seeking development strategies that will attenuate the almost overwhelming problems they face. Like it or not, they continue to look to the developed world, particularly the United States, for inspiration and assistance.

The United States has both an interest in and opportunity to make a permanent difference in this area of the world. According to the last two National Security Strategy (NSS) reports, the Clinton administration is committed to "addressing" Africa's "economic, political, social, ethnic and environmental challenges" and to "identify[ing] and address[ing] the root causes of [African] conflicts and disasters before they erupt,"[1] and to "...identify[ing] [in Africa] those issues where we can make a difference and which most directly affect our interests and target our resources efficiently."[2] The National Military Strategy (NMS) asserts that the two fundamental national military objectives are to "promote long-term stability" and "thwart" aggression.[3] The rhetoric is sound, but to date is matched by little tangible accomplishment. Unfortunately for Africa and for the United States, the lack of an integrated, coherent implementation of the NSS and NMS for Africa comes at exactly the time when just the opposite

is needed. Meanwhile, Africa's problems threaten not only the region, but the developed world as well.

A myriad of factors that undermine African regional stability are on a dramatic rise. Africa's annual population growth of 3.2 percent is the highest rate among the world's regions. Some 40 percent of the total African population presently is under the age of 15.[4] This and rising expectations for material well-being have resulted in a rapid and unplanned urbanization. Explosive population growth contributes to environmental degradation and depletion of some natural resources (particularly arable soils), deterioration of government services, ethnic conflict, and even, civil war. Particularly worrisome is a concurrent rapid rise in severe epidemic and pandemic diseases. Due to global interconnectivity, these are a threat not only to Africans but to all mankind. Ignoring African disease threats is both reckless and dangerous.

In the recent past, subregional instability has resulted in cataclysmic human tragedies such as the genocide in Rwanda in 1993 and 1994. Catastrophes which produce large-scale, egregious suffering will continue to occur in Africa and will likely result in further expensive foreign interventions. The United States will bear some of the costs of such activities.

Government reform, sustainable economic development, preservation of the natural environment, and regional cooperation, all goals of the current NSS, will not be achieved if severe threats to human life in Africa are not seriously addressed. A combined and melded effort of "preventive diplomacy"[5] and "preventive defense"[6] by the United States could be particularly instrumental in assisting Africans to withdraw their continent from the status of a "humanitarian theme park."

If the United States will not face the implications of its own NSS for Sub-Saharan Africa, it will find itself on the horns of a substantial dilemma; "pay a little now or pay a lot later." Recent history suggests that U.S. policymakers will not resist domestic and international pressures for

intervention to resolve humanitarian emergencies. Future African humanitarian interventions may require commitments of forces on a scale that could significantly impair the U.S. ability to respond to other major crises.[7]

The United States has the resources and the ability to assist in attenuating many of the most severe African problems. Other countries are looking to the United States for leadership in such efforts. To date, the missing ingredients are leadership and vision–attributes which should characterize the world's remaining superpower. The United States should now implement an NSS which coordinates the programs of developed nations to assist Africans in attacking the conditions which threaten regional stability.

A Department of Defense Role?

Implementation of the National Security Strategy for Africa would combine the attributes of the commonly discussed foreign policy initiatives found in "preventive diplomacy" with "preventive defense" as discussed by former Secretary of Defense Perry. Preventive diplomacy involves efforts to forestall civil wars and conflict by early intervention, with concerted action to resolve, manage, or contain disputes before they become violent.[8] Such diplomacy accommodates the effects of poverty, environmental degradation, inadequate government infrastructure, disease threats, and other factors that increase the likelihood of conflict. Lund, among others, argues that it is feasible to predict state collapse and conflict, and that we ignore the warning signs and delay intervention at our own peril.[9] Some U.S. foreign policy analysts, such as Stedman, question the feasibility of preventive diplomacy, characterizing it as too costly.[10] This conclusion can be refuted by a careful consideration of all of the attributes of preventive diplomacy.[11]

Former Secretary of Defense Perry, in a landmark 1996 speech, argued that the post-Cold War era has seen a worldwide decrease in the sense of personal safety, and an

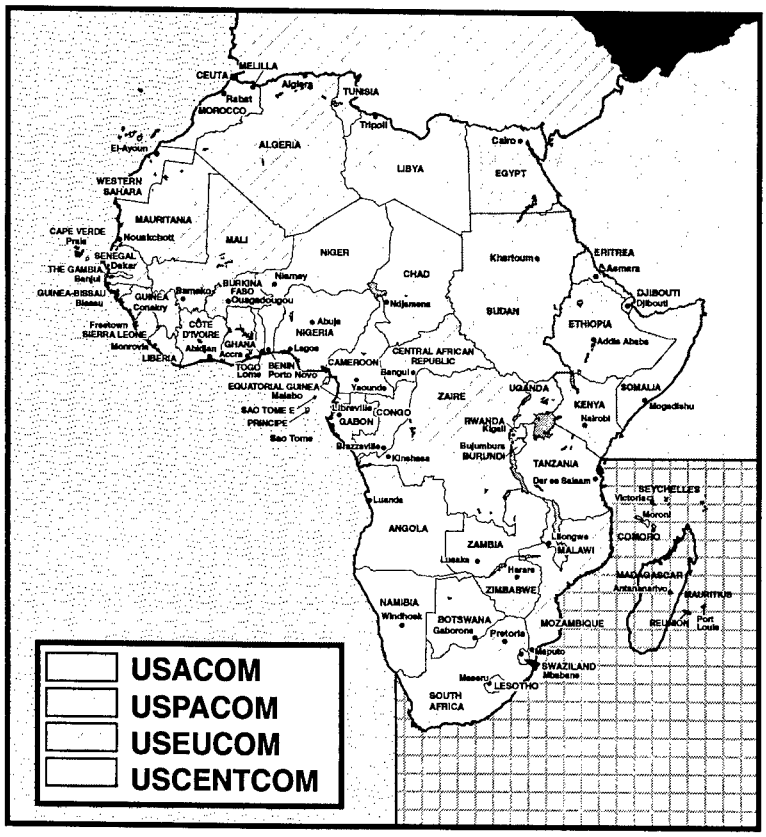
increased capacity of humankind for good and for evil.[12] He suggested that preventive defense is analogous to preventive medicine. "Preventive medicine creates the conditions which support health, making disease less likely and surgery unnecessary."[13] He further argued that, "America must lead the world in preventing the conditions for conflict and creating the conditions for peace."[14]

While few would contend that the Department of Defense (DoD) is the only, or even the most important, U.S. Government agency appropriate to address African problems, it can play an enormously beneficial role. DoD programs in Africa historically have been very modest in scope, and have been scaled back in the wake of post-Cold War budget cuts and military downsizing. Even so, U.S. preventive defense missions in the 1990s, such as military medical assistance missions, have greatly benefited Africans and significantly advanced U.S. interests.

Despite the successes, these efforts have fallen very short of their potential. At least two reasons account for this. First is the inherent conservatism of military staffs, organizations typically reluctant to assume responsibility for highly nontraditional roles. Second, and more troubling, is a structural dilemma in the worldwide distribution of U.S. military forces and missions.

DoD activities in foreign countries are implemented by the U.S. Regional Commands–military organizations commanded by senior generals and each responsible for pursuing U.S. military interests over vast areas of the earth's surface. Responsibility for DoD activity in continental Africa is divided between two such commands: the U.S. European Command, whose main focus is Europe, and the U.S. Central Command, whose main focus is in the Arabian Peninsula and Persian Gulf. Islands off the African coasts fall under the purview of two other commands: U. S. Atlantic Command and U. S. Pacific Command (see Figure 1).

The headquarters of these commands are staffed by competent, dedicated professionals. However, except in



USACOM - U.S. Atlantic Command
USPACOM - U. S. Pacific Command
USEUCOM - U. S. European Command
USCENTCOM - U. S. Central Command

Figure 1. U.S. Military Responsibility for Africa.

times of major crisis, African issues are not a central focus of any of the four organizations. Carefully crafted, long-range plans for U.S. military "engagement" in Africa simply are not part of the organizational interest. There is little coordination between the commands to establish comprehensive, complementary programs for long-range efforts to achieve U.S. regional interests. This results in DoD relations with African countries that appear to be inconsistent and haphazard, driven more by the clout of local U.S. diplomats, convenience and crisis, than by any overarching plan.

But, if such an overarching long-term regional plan were to exist, what sort of DoD activities would it embrace? Certainly it will not include significant increases in military funding or material for African armies. No U.S. troops currently are based in Africa, a situation likely to continue. However, military medical missions in the form of MEDFLAG exercises, which feature a wide array of medical activities in Sub-Saharan Africa, have proven to be operational, strategic and political success stories.[15] They are the single best means of conducting the kind of melded preventive diplomacy and preventive defense program that is needed to implement the NSS in Africa today. They could form the template and centerpiece of DoD activities in Africa.

In the 1996 speech, Secretary Perry discussed the use of DoD programs and tools to create the conditions necessary for conflict prevention. The use of joint training exercises in peacekeeping, disaster relief and rescue operations were some of those he identified. The MEDFLAG exercises are a clear example of the joint training exercises he was describing. They are a tool of preventive defense. In Africa, MEDFLAGs have demonstrated such success as to qualify as the "spear point" in DoD efforts to implement the "National Security Strategy of Engagement and Enlargement."

DoD programs such as MEDFLAGs should be one of the key ingredients of any new program to implement the U.S. security strategy in Africa. This is evident from a brief examination of threats that exist in Africa and the benefits realized by the most recent MEDFLAG missions.

African Threats Assessed: The Root Causes.

Baker and Ausnik argue that in order to preclude or reduce the possibility of ethnic conflict, "an early warning and evaluation system would enable policymakers to minimize military involvement by taking preventive actions early and to better prepare for the mission if a military role is ultimately required."[16] These authors go on to offer a

predictive model that identifies early warning signs and root causes of ethnic conflict and predicts the development and likely outcome of any potential case. While Baker and Ausnik provide a model for analysis of the conditions which lead to ethnic violence, they stop short of recommending steps which policymakers must consider in interventions to stabilize the situation. No "strategy" is viable without a rough balance between "ends," "ways," and "means." The "ends" in this case are relatively clear. "Ways" and "means" require more definition, but all must be preceded by an accurate understanding of the "threats" which give impetus to strategic action.

Stability of African societies is undermined by a variety of factors, some of which are threats to the very survival of members. Any population which must necessarily focus on individual survival has precious little time to devote to the well-being of larger communities. By the same token, national coherence depends in great degree on a govern-ment's ability to assist the population in countering such threats.

Threats to stability in Africa can be grouped into four general categories within which the vast number of them fall: disease, economic distress/localized overpopulation/ urbanization, environmental degradation, and govern-mental incapacity. These categories are significantly interconnected, producing a synergy of negative effects.

The Disease Threats. The diseases most threatening to Africans and of most concern to the developed world can be grouped into four major categories:

- Human Immunodeficiency Virus (HIV) and the active symptom complex of infection with HIV called AIDS (acquired immunodeficiency syndrome).

- Ebola-Zaire and other hemorrhagic fever-causing viruses.

- Drug resistant and lethal strains of prevalent diseases such as tuberculosis and malaria.

- Preventable epidemic diseases such as measles and infectious diarrhea caused by typhoid or cholera.

Africa contains many diseases not grouped into the four categories listed here, including those like trypanosomiasis, that severely constrain economic options in some regions. However, an ability to tame the diseases in the listed categories would significantly improve the overall health of African peoples.

It is difficult to overstate the impact of disease on life in Africa. Of all the world's populations, Africans have the least chance of survival to the age of 5. After that age, the diseases and the effects of poor diets and other health threats in the environment take a serious toll. If fortunate enough to make it to adulthood, Africans are the least likely of the world's peoples to live beyond the age of 50.[17] The diseases to be discussed are among the primary reasons for this depressing statistic.

HIV is a pandemic killer without a cure, and viruses such as Ebola-Zaire are merely a plane ride away from the population centers of the developed world. Viruses like ebola, which are endemic to Africa, have the potential to inflict morbidity and mortality on a scale not seen in the world since the Black Plague epidemics of medieval Europe (which killed a full quarter of Europe's population in the 13th and 14th centuries.)[18] These diseases are not merely African problems, they present a real threat to mankind. They should be taken every bit as seriously as the concern for deliberate use of weapons of mass destruction.

Believed to have originated in Africa in the late 1960s, HIV is recognized as universally fatal. Since 1983, when HIV was first documented, more than 16 million men, women and children in Africa have become infected with the virus, constituting over two thirds of recorded cases in the world.[19] This viral infection progresses over time, from months to years, slowly attacking the immune system and finally leaving the victim defenseless against otherwise nonthreatening bacteria and viruses which begin to ravage

the body. The visible symptoms which then appear are known as AIDS.

Hiroshi Nakajima, director-general of the World Health Organization, stated that if the present infection rates continue, by the year 2000 there will 24 million Sub-Saharan Africans infected with the virus, accounting for nearly one half of the cases in the world.[20] In Malawi, one eighth of the sexually active population currently is infected. In Malawi's urban areas, one of three women attending antenatal clinics carry the virus.[21] In Uganda, the current average life span is 59, but by 2005 it will drop to 32.[22] In the countries located in the "AIDS belt," nearly 25 percent of the urban population is HIV-positive.[23]

The epidemic has profound economic and social implications. Economists calculate that by the year 2005, the subcontinent will lose from 15-20 percent of the gross domestic product (GDP) as a direct result of AIDS.[24] Current analysis suggests that the demands for health care in the subcontinent will increase by up to 16 percent over the next 6 years.[25] Health care workers also are vulnerable to the disease, with infection rates now up to 25 deaths per 1000 in 5 years. This has resulted in a marked increase in health care worker absenteeism, presently recorded as 16 percent.[26] The impact of HIV infection on health care providers constitutes a significant constraint on an already inadequate medical infrastructure.

Unlike western developed countries, in which homosexual intercourse and IV drug use are the primary methods of transmission, heterosexual transmission appears to be the primary cause in Africa.[27] The disease is not confined just to small, marginalized subgroups in the general population. This means that there are cultural obstacles and difficult behavioral ramifications inherent in any effort to arrest the spread of the disease.

Caldwell, *et al.*, argue that the best chances for combating AIDS everywhere lie in targeting education and prevention programs at high-risk groups.[28] Despite educational programs and financial assistance by the

United Nations, nongovernmental organizations (NGOs) and private voluntary organizations (PVOs), this killer has grown largely unabated in Africa. New approaches and additional efforts are needed.

Ebola-Zaire virus, first discovered in 1976, is the stereotype of the virulent, almost invulnerable "Hot-Zone" virus. It strikes with great suddenness and lethality, then disappears until the next outbreak. At the very least, in each of the four recorded mass outbreaks, the 90 percent death rate is a stark reminder of the vulnerability of the human species.[29] No one yet knows where the virus resides in nature, how the human epidemics get started or why they are so rare. In the recorded outbreaks in Zaire and the Sudan, flu-like symptoms typically appear within three days of infection and death soon occurs from generalized organ failure preceded by a hemorrhagic diathesis from every orifice.

In its present form, ebola is unlikely to become a world pandemic disease due to its means of spread (by infected secretions) and its extreme sensitivity to ultraviolet light. However, given a simple alteration to its genetic structure that provides for more protection during transmission, it could suddenly become a threat of global proportions.

This virus does serve to spotlight the very real horrors that epidemic and pandemic diseases can easily produce in today's interconnected world. A genetically altered ebola virus is just one of several lethal viruses found in Africa that could be utilized as biological weapons with cataclysmic lethality. Others, like Marburg virus and Congo-Crimean Hemorrhagic fever virus, require further investigation and research. These diseases are sufficiently threatening now to warrant an aggressive surveillance program and an expanded capability for isolation and containment of further outbreaks.

In contemporary Sub-Saharan Africa, both tuberculosis and malaria are undergoing a resurgence in total incidence and lethality. This is due to the emergence of strains highly resistant to current drug therapies, the spread of vectors,

declining health care services, and cutbacks in government services as a result of "structural adjustment." The spread of the anopheles mosquito (the vector for malaria) into new areas of Africa has been associated with a rise in cases and mortality.[30]

Tuberculosis (TB), a disease that has been present from antiquity, remains the world's leading single infectious killer of adults.[31] About 2 billion people, approximately one half the world's population, are believed to be infected. About 10 percent are at risk for developing active disease, with 1 percent suffering mortality from the disease.[32] Initially an infection of the respiratory tract, TB is transmitted by human microdroplets expelled into the air which are inhaled by others. The conditions of crowding and generalized poor health, which make infection more likely, are an obvious correlate of poverty and urbanization. TB in Africa has demonstrated new and highly resistant strains to common drug regimens, making it more contagious and more lethal.

Overcrowding and poor sanitation, conditions prevalent in urban Africa, also provide ideal conditions for diseases such as typhoid, cholera and measles. Both typhoid and cholera appear in situations where drinking water is contaminated with human waste. Measles, a highly contagious viral infection easily prevented by vaccine, along with infectious diarrhea, appear frequently in mass refugee situations. Combined with dehydration and malnutrition, they are the most common cause of refugee deaths.

A society's confidence in its national government can become strained as a result of the psychological effect of the rising incidence of morbidity and mortality from such diseases. This is particularly true in Africa, where disease epidemics often are considered to be evidence of spiritual deficiencies of leaders.[33] Present trends suggest not only that future epidemics in Africa will be ever larger and more virulent, but that national governments will be even less prepared to cope with the problems.

Programs sponsored by the United States which work with African nations to conduct research and disease surveillance are few and underfunded. Since 1972, the U.S. Army has maintained an active investigation of malaria and other diseases in Kenya, which has supported Kenyan education and active disease research. It has provided current field data on the best methods of disease prophylaxsis for soldiers deploying into endemic malarial regions. Other developed nations, the World Health Organization, some private foundations, and some academic institutions maintain similar small-scale programs, but these efforts also are underfunded, not mutually-supporting and fall far short of the requirement necessary to meet the current African disease threats.

The lack of U.S. engagement in Africa in this arena is puzzling. African people in general are very receptive to assistance which improves their health. Few private sector agencies in developed countries have the vision or resources to establish such programs in Africa. For minimum protection of the U.S. homeland itself from likely threats, the United States should expand its efforts to include new research centers located in each subregion of Sub-Saharan Africa. Centers must, of course, conduct disease research and education cooperatively with the host nation. Additionally, these programs should mobilize and interconnect existing programs and be expanded to include disease surveillance, isolation and containment.

The Disease Research, Surveillance, Isolation and Elimination Centers could conceivably incorporate U.S. efforts from Department of Defense, Centers for Disease Control, nongovernmental programs and private volunteer efforts with the World Health Organization and indigenous scientists approved by appropriate regional organizations. A cooperative effort at this level would not only directly benefit Africans, but would provide the necessary multinational commitment to disease research and surveillance needed to actively defend against the pandemic threats that exist today and will arise tomorrow. Africa is the most prolific "petri dish" of human biological

catastrophes on earth, and therefore the very place (in cooperation with Africans) to initiate large-scale research and surveillance to diminish these threats.

The United States itself must have the necessary "line of defense" which can stay abreast of newly emerging diseases and disease mutations. A laboratory capability to monitor disease threats could greatly increase the U.S. ability to protect against deliberate use of biological agents as weapons. This is particularly true since biological weapon effectiveness is contingent upon stability of the contagion, easy transmissibility to the human host, and rapid morbidity and mortality (all conditions which currently exist in Africa). Containment of the diseases that threaten Africans today, through the development of prophylaxsis and cures, is a means of ensuring that the U.S. maintains the scientific edge necessary to have an effective "defensive countermeasure" to biological threats from weapons or natural sources.

The Overpopulation and Urbanization Factors. Stability in many parts of Africa is threatened by poverty, rapid population growth and urbanization. During the last 25 years, annual growth rates of 2.5 to 3.5 percent have caused the population of Sub-Saharan Africa to double; at the current rate of increase it will double again in 25 years.[34] An increase of this magnitude in such a short period of time indicates an escalating proportion of children in the population, and thus an increased burden on those who must care for them and the social services needed to support them. Interestingly, a destabilizing factor in many African countries is popular discontent over the lack of educational opportunity for children.[35]

Population growth contributes to migrations to urban areas, particularly by adult males, seeking the pleasures reputedly afforded by urban life and hoping to find employment to supplement family income. National economies in Africa have been unable to provide anywhere near the urban employment sufficient to satisfy the needs of job seekers, but the growth of urban populations continues to escalate. In 1965 only 14 percent of Africa's

population was urban, by 1990 it was 29 percent. It may be 50 percent by 2020.[36]

The growth in urban population is accompanied by increasing poverty. The World Bank estimates that between 1985 and the year 2000, the number of persons living in destitution will rise from 185 million to 265 million.[37] A very high proportion of these are Africans. Doerr warns that,

> rapid population growth threatens population stability and may contribute to high and increasing levels of child abandonment, juvenile delinquency, chronic and growing unemployment, petty thievery, organized banditry, food riots, separatist movements, communal massacres, revolutionary actions and counter-revolutionary coups.[38]

Doerr, as well as Baker and others, has noted that rapid population growth severely impedes the rate of economic development otherwise attainable. It also stresses the environment in ways that threaten longer-term potential for food production, through cultivation of marginal lands and overgrazing. These contribute to desertification, deforestation, and soil erosion, with consequent depletion of soil nutrients, pollution of water, and rapid siltation of reservoirs. Most African nations are not in a position to maintain the infrastructure needed to safeguard the environment or adequately support human needs. Between 1974 and 1994, the subcontinent has recorded a 12 percent decline in food production, making it the world's only region of such size unable to feed itself.[39] Current (1995-1996) reports from the World Bank show this downward trend to have stabilized. However, the problem remains profoundly disturbing given the continued population growth and rapid urbanization.

The problem is not overpopulation per se, but the fact that the large majority of this population is impoverished with little hope of amelioration in the foreseeable future. By some accounts, the disparity between the "haves" and "have nots" is expanding globally, and in no place more profoundly than in Africa.[40] This circumstance can further stress populations and create a sense of disenfranchisement from

the national government. It creates the potential for conflict along class, ethnic or religious lines as people mobilize to compete for diminishing resources.

The impoverishment of African societies results in another unfortunate situation: many of the most gifted Africans despair of conditions in their societies, and emigrate abroad to apply their skills in developed countries. This drains Africa of many of its best engineers, managers and medical professionals. One result in Africa is societies which lack the basic services taken for granted in developed countries, especially that of health care. Ironically, a factor in Africa that draws rural people to urban centers is the expectation of better access to health care. Rapid urbanization is occurring at the same time that health care access is diminishing, which fuels popular discontent. This situation could only be reversed if talented African professionals were provided sufficient incentive to stay in their countries of origin, and more national resources were devoted to basic health care.

Piel argues that in order to stabilize the world's population at a sustainable level, the industrial revolution must be carried out world-wide. This would require the coherent, large scale assistance of the developed world. Piel estimates that the total capital outlay required for such a task would be $19 billion dollars per year, with decrements in that amount as development escalates in the under-developed nations.[41] Even if the industrialized nations had such readily available capital and agreed to invest it in Africa, regional stability still would depend upon programs that address the various threats already discussed. Overpopulation and urbanization place enormous strain upon already weak government social programs. As noted earlier, stability in Africa is threatened by epidemic and pandemic diseases. These, in turn, are exacerbated by overpopulation and urbanization.

The Fouled Environment. Air, water and land pollution are increasing throughout rural and urban Africa at an alarming rate. Due to the heavy use of wood and charcoal by Africans for heating and cooking, along with the

predominance of substandard industrial equipment and vehicles which have no emission control systems, the region has jumped from producing 2 percent to 19 percent of the total global carbon dioxide greenhouse emissions in just 4 years (between 1990 and 1994).[42] Air pollution significantly exacerbates existing health problems. High rates of pulmonary disease peak during the cold season, when airborne particulates are at a high level and Africans heat poorly ventilated homes with charcoal. African woodlands rapidly disappear to feed the demand for fuel in urban areas. Very few African countries are committed to reforestation. The long-term implications for both the African and the global ecology are disturbing.

The improper disposal of solid and toxic wastes in and around urban areas is routine. Refuse that is both toxic and infectious is commonly dumped along roadways and into waterways. Water sources are routinely contaminated by typhoid, cholera and organisms causing diarrhea and dysentery. As previously noted, these preventable diseases are the greatest threats associated with humanitarian disasters and mass refugees.

In some areas, unwise use of pesticides and artificial fertilizers (employed in efforts to increase yields of commercial crops) has created a health hazard. The extent of this problem is difficult to measure empirically, but lack of effective regulation of such usage means that the problem is likely to get worse.

Lack of potable water is a serious health threat, particularly in regions with prolonged dry seasons or downstream from countries which have built dams on major rivers. In countries from which statistics are available, ready access to water has declined since the 1970s.[43] African countries have placed little emphasis on water purification. With the increasing pollution (primarily from human waste), serious health care crises are routine and naturally result in epidemic outbreaks. These, in turn, erode the fragile health care infrastructure of African countries and overwhelm the limited available health care resources. The end result is a constant "fire fighting" practice of health care,

which leaves little energy or resources for attacking the sources of the problem. Ironically, while fresh water utilization for agricultural irrigation accounts for nearly 90 percent of the total consumption, only 37 percent of the water used for irrigation is actually absorbed by crops. The rest is lost to evaporation, seepage or runoff.[44] Availability of water is not the real problem. The issue is the effective management of resources, which also is at the core of another key African dilemma, the competence of national decisionmakers.

Illusory Infrastructure. Availability of western style government services, including health care, is rare in Africa. In an era of rising expectations and declining opportunity, this is a destabilizing factor. Legitimacy of existing governments is continuously challenged. Absence of the social services; growing nepotism and corruption; and lack of instruments for peaceful redress of grievances promote anger, conflict, and withdrawal.

To be fair, it should be acknowledged that since the mid-1980s in Africa there has been a steady progression of change toward free market economies along with more transparency and representativeness in government. This has resulted in some improvement of living conditions. However, even the best efforts are dwarfed by the lack of resources and escalating human needs. National priorities warrant continued rethinking. For instance, nearly all the current governments of Sub-Saharan Africa continue to spend more GDP per annum on defense than they do on health care.[45]

African countries also suffer from another problem–poor cooperation among government agencies, and between government agencies and civil society. Often it is difficult for African governments to produce needed cooperation between military and police establishments, or between police and health care care organizations. Weak civil societies cannot furnish the "watchdog" interest groups taken for granted in the west. This all results in slow, poorly-coordinated responses to life threatening emergency situations, and much unnecessary suffering. Sometimes

this is the result of inept management. Often, it is the result of sheer lack of resources and limited training.

The Inextricable Linkage of the Threats. Human health problems, environmental problems, poverty and managerial/infrastructural deficiencies in Sub-Saharan Africa all are inextricably linked. These must be addressed if regional stability is to be anything more than a dream. The majority of the countries in the subcontinent have not been able to satisfy the demands of their citizens for political reform, government services, and economic opportunity. As noted, reversing these problems is a fundamental goal in the U.S. security strategy for Africa.[46]

Obviously, Africa's problems are deep-seated and intractable. There are few easy or cheap solutions. However, the problems are not insoluble, though some clearly are easier to attack than others. It seems reasonable to assume, given the linkage of many of the worst problems, that significant progress in one area may render others less threatening, and may provide previously unanticipated solutions.

USEUCOM MEDFLAG Exercises: A Prescription for Multiple Ills.

In 1988 the Joint Chiefs of Staff directed that joint U.S. military medical exercises be conducted with selected Sub-Saharan countries on an annual basis utilizing Title 10 funding. The program was intended to include up to three exercises per year. The United States European Command (EUCOM) was given proponency for this program, since most of Sub-Saharan Africa is part of EUCOM's area of responsibility. EUCOM named these exercises "MEDFLAGs."

MEDFLAGs are centered around a military-to-military exchange program in which a U.S. joint (Army, Air Force, Marines, and Navy) medical task force deploys to the selected host nation and conducts an exercise lasting up to 3 weeks. Exercise activity includes medical training of the host nation personnel, a disaster response exercise and a

combined (U.S.-host nation) medical civic action assistance program to treat local populations. Other features of a MEDFLAG exercise are tailored to the specific medical needs of individual countries, though options are constrained by the size of the task force and the duration of the mission. The countries receiving a MEDFLAG are selected by EUCOM with input from the Department of State and approval from the Joint Chiefs of Staff (JCS). Since 1988, 21 separate missions have been conducted to 17 separate African countries, concentrated in west and southern Africa. (see Figure 2).

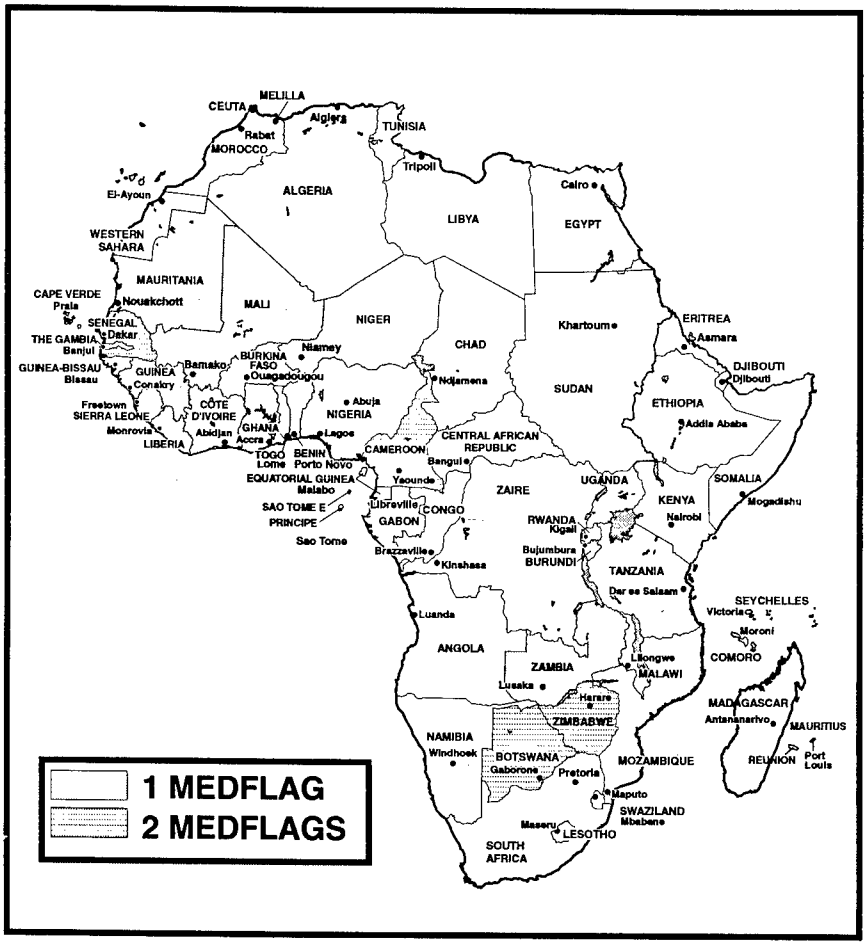


Figure 2. Location and number of MEDFLAGs.

Initially, these missions were limited in scope and accomplishments. However, the three MEDFLAGs conducted in 1994 and 1995 achieved a level of sophistication and complexity that has made them one of the best uses of the military element of national power in Sub-Saharan Africa. These three exercises were organized and implemented by the U.S. Army 212th Mobile Army Surgical Hospital (MASH) headquartered in Wiesbaden, Germany.[47]

The countries selected for these missions were Ghana and Cote d' Ivoire in West Africa, and Botswana in southern Africa. The basic medical element in each deployment was an Army unit (the MASH), but they included personnel from Air Force, Marine Corps, and Navy units. Additionally, medical officers from NATO allies were invited to participate. The presence of multiple services and of British, Dutch and German officers made the MEDFLAG organization both a "combined" and "joint" task force (CJTF).

Each of the 1994-95 MEDFLAGs followed a very similar pattern. Designing each exercise was a "team effort," in which representatives from the MASH would travel to a designated country in advance and conduct intense discussions with host nation political and military decisionmakers, U.S. diplomats, and health care professionals in the public and private sector. The latter included local community leaders, NGOs and PVOs.

This "pre-mission survey" would determine the interests and health care care needs peculiar to the individual country and would obtain the agreement of all parties to a specific plan. It also would clearly identify the expected contributions of all participants. A very important objective of the coordination was to reassure host country leaders that the MEDFLAG exercise was to be a genuine partnership with no hidden agenda.

The exercise itself started with the deployment of the U.S. CJTF to the host country. Typically, this was an 80-person force. Members of the CJTF would link up with

their host nation counterparts to begin activities. MEDFLAG activities were built around a standard format, with modifications to suit local conditions.

The MEDFLAG format included two obvious parts: first was training classes for local personnel in a variety of medical, health care care and disaster relief skills, leading to a large-scale, mass-casualty exercise; second was the delivery of medical, dental, and surgical care to individual citizens. The latter included a very ambitious immunization program against local disease threats. A less obvious (but much more important) part of the MEDFLAG was the effort to bring together the national/local governments and health care care communities in cooperative relationships that would endure long after the end of the exercise.

The 1994-95 MEDFLAGs provided services that were immediately obvious to host nation observers. They provided treatment to thousands of individual citizens, and supervised large-scale inoculation programs in areas of ongoing epidemics (yellow fever in Ghana, meningitis in Cote d' Ivoire). They provided health care training to medical personnel and lay persons in skills that citizens increasingly are demanding from African governments. The mass casualty exercises were a highly visible aspect of training that served to enhance host nation preparedness for the common disasters that produce large numbers of casualties and refugees. The MEDFLAGs proved to be intensely popular in each country, drawing the enthusiastic attention and involvement of senior political leaders. They also were lavishly and very sympathetically covered by local media.[48]

One of the strengths of the exercises was the ability to vary the detail to accommodate individual country needs. For example, at the host nation's request, the Botswana MEDFLAG included a U.S. Army veterinary team to assess the health of local cattle herds and the sanitation of meat processing facilities.

An unquantifiable, but very important, aspect of the MEDFLAGs was the "role modeling" of ethics and

competence by the U.S. military medical professionals. Further, with numerous women serving in key CJTF leadership positions (physicians, nurses, medics and medical planners), the MEDFLAGs demonstrated the professionalism, equality and skill of women in the U.S. military.

Another strength was the opportunity to test new equipment and techniques. For instance, the Cote d' Ivoire MEDFLAG featured the use of newly developed technology called "Telemedicine," a near-real-time video link that allowed daily consultation between U.S. personnel in Africa and specialists at Landstuhl Army Regional Medical Center in Germany.

MEDFLAGs Considered: Some Qualifying Observations.

In summarizing the results of the 1994-95 MEDFLAG operations, a number of observations are warranted. Despite the large number of patients treated and the new skills imparted to host nation personnel, it is evident that a 3- week exercise can have only a very limited direct impact on the overall health care needs of an entire country. However, the real value of a MEDFLAG is much more profound: the exercise serves as a catalyst to initiate (or energize) important long-term relationships and programs.

Another important and less obvious aspect of the MEDFLAG is the portrayal of values appropriate to health care personnel. The U.S. participants were expected to display the competence and self-sacrificing dedication which U.S. society expects of the medical profession. By extension, MEDFLAGs display an ethic of public service which serves as a challenge for observers to emulate.[49]

An extraordinary amount of planning and preparation is required for a successful MEDFLAG. To achieve anything even remotely close to its true potential, it must be led by an innovative, flexible and culturally sensitive task force commander. The exercise must be carefully coordinated in advance with the host nation and the local U.S. embassies.

The MEDFLAG leadership must make difficult choices about the specific issues it can address in each country and about how best to coordinate and communicate such decisions. A well-run MEDFLAG is a U.S. foreign policy triumph, but a poorly implemented MEDFLAG could be a public relations disaster.

That said, MEDFLAGs demonstrated a highly effective means for cooperating with African governments to improve medical services to the local population. In 1994-95, these missions graphically portrayed an active interest in the well-being of local communities on the part of African national governments, with the host nation military and the local civic leaders providing unprecedented services to the rural population with U.S. assistance.[50]

In each case, participants received valuable training in coordinating local government agencies and in linking the efforts of NGOs and PVOs. This markedly improved the ability of both the U.S. and host nation military medical staff to plan for cooperative future efforts. MEDFLAGs demonstrated on a national scale what might be achieved by similar cooperative efforts involving entire subregions. Interestingly, as a result of MEDFLAG activities, a number of participating PVO personnel also rethought previously held negative attitudes about military establishments.

U.S. diplomats in Africa recognized the obvious increase in U.S.-host nation interactions that resulted from these missions, which served to strengthen political ties.[51] U.S. military officers with extensive African experience expressed astonishment at the success of military medical operations in providing access to senior decisionmakers. They strongly believe that such operations significantly reduce African suspicions of U.S. regional motives and increase the willingness of African leaders to cooperate with the United States in other ways.[52]

MEDFLAG missions were tailored to differing needs of individual countries. Each MEDFLAG provided medical care for specific disease threats and medical education to indigenous medical personnel on a wide range of health care

subjects. It also offered training to laymen on family planning and hygiene, public sanitation, epidemic isolation and control, disaster relief and refugee management. In short, MEDFLAGs have proven to be an ideal template for future U.S. military operations, medical or otherwise, in Sub-Saharan Africa.

A number of authorities have questioned the wisdom of employing U.S. military forces on a large scale in military operations other than war. They argue that such usage degrades the ability of the U.S. military establishment to perform its primary mission: to fight and win the nation's wars.[53] While this argument may have merit when applied to the combat maneuver forces, it manifestly is not true of the MEDFLAGs.

Each MEDFLAG exercise provided excellent training for U.S. personnel. Each emphasized numerous essential individual and collective wartime tasks. MEDFLAGs tested combined and joint task force operations for all levels of U.S. command from theater level to the small dental and preventive medicine detachments that were attached to the CJTF. As a result of the MEDFLAGs, MASH combat readiness was directly and measurably improved at the individual soldier and unit level. The three missions in Africa in 1994/1995 contributed directly to the highly commendable performance of the 212th MASH in supporting the U.S. forces that deployed to Bosnia in December of 1995.[54]

Each successive MEDFLAG in 1994 and 1995 featured new characteristics and improvements, taking advantage of "lessons learned." Despite the obvious success of each, there is considerable room for further refinement. For instance, one appropriate development would be greater use of allied and U.S. reserve component medical personnel to offer a wider range of health training and medical treatment.

More fundamentally, the United States and the region would reap far more benefit from a long-range program featuring recurring MEDFLAG exercises in consonance with a coherent plan to address specific U.S. subregional

objectives. Unfortunately, MEDFLAGs like those conducted in 1994 and 1995 have not been repeated.[55] This is largely attributable to the recent preoccupation of EUCOM, the sponsoring command, with events in the Balkans and requirements in Eastern Europe.

The Road Ahead: A Prescription for Success.

African societies suffer from many problems, including severe threats to human health, which greatly undermine regional stability. The problems–and their "cures"–are recognized by U.S. policymakers; however, there is little agreement over responsibility for addressing the problems. It has been argued that the United States has no vital interests in Africa, and that taxpayers' dollars should not be spent merely to assuage humanitarian impulses. However, this paper has endeavored to demonstrate that attenuation of African problems can realize fundamental American interests. With the reality of global interconnectivity, what is an important or even peripheral interest today may become tomorrow's vital interest. The pandemic disease threats that exist now, and the potential for sudden spread of even more devastating maladies, should be of vital concern to the United States. Repeated mass movements of refugees is destabilizing, whether in Africa or elsewhere. The costs of the inevitable U.S. humanitarian interventions will come directly from taxpayers' pockets. As the industrialized nations depend more upon African resources, regional stability should be considered an essential ingredient for expanding African markets and maintaining access. The United States has a historic opportunity to become the principal leader in providing the support and assistance in Africa that is needed for stability.

The amalgamation of preventive defense and preventive diplomacy into an overarching program to implement the current NSS is a profoundly appropriate prescription for U.S. intervention in Sub-Saharan Africa. It should contain sufficient flexibility to adjust to subregional conditions. Such a program should have, as a key, the formulation of

cooperative U.S.-host nation programs that systematically improve host nations' abilities to manage the threats themselves. Further, a melded program of preventive diplomacy and preventive defense should utilize all of the elements of U.S. national power to effect the ends desired and articulated in the U.S. *National Security Strategy*. However, the recent increase in "human condition" threats must be addressed first, since concerns for economic growth and government reform are secondary to a struggle for survival. MEDFLAG exercises have provided a good model of how this can be done.

The Department of Defense should alter the current reactive approach to engagement and enlargement in Sub-Saharan Africa. The following DoD initiatives should be undertaken now:

- As a matter of "homeland defense," the United States must increase disease surveillance and research in Africa and elsewhere in the developing world. The basic capability currently exists in DoD, though it is extremely limited. An expanded capability must include cooperative efforts with African nations that emphasize outbreak isolation, containment and elimination. This action will directly assist African nations in attenuating disease threats, and allow them to build the capabilities to provide their own containment and elimination programs for the future. Research and surveillance clinics, staffed by U.S. and host nation personnel, should be established in each of the four major subregions of the subcontinent (east, west, central and south). It is worth noting that these activities will afford the United States an enhanced capability to deal not only with "acts of nature," but also with deliberate uses of biological weapons by a future enemy.

- Increasing the national disease surveillance efforts should be linked with an increase in exercises of the scope and capability of the 1994/1995 MEDFLAG series. Such exercises should focus on education and

training to improve disease prevention, hygiene, public sanitation, disease vector control methods, disaster management and medical expertise for cases of mass refugees. Medical civic action projects must focus on assisting the host nation in projecting and stabilizing the medical infrastructure and medical care capability within the areas of greatest need. Mass immunization of children, basic dental and medical care, and medical "train the trainer" programs are highly effective. These exercises greatly enhance the skills of personnel and units in combined and joint task force operations. The relatively low threat environment makes it a good training venue. This deliberate planning and execution can better prepare U.S. military units and higher commands for more rapid response requirements such as disaster relief. The additional benefit of having worked with and trained numerous African personnel could facilitate the rapid inclusion of trained African medical care responders in future disaster relief operations in Africa and elsewhere in the world.

- As an admittedly more complex and problematic issue, DoD must have a regional or sub-unified command that can provide a full-time focus on Africa. As noted earlier, the African continental land mass falls under the responsibility of two U.S. military commands (the U.S. European Command and the U.S. Central Command) whose primary focus is elsewhere. Islands surrounding the continent fall under the purview of other commands. The U.S. European Command, in times of crisis in Europe, cannot devote the necessary attention to the 40 African countries that are within its area of responsibility.

DoD can no longer afford simply to wait and react to the next crisis in Africa. A regional command separate from the U.S. European Command or the U.S. Central Command should be established to evaluate, plan and execute regional military exercises and operations. A more specific regional

focus would enhance DoD coordination and cooperation with the country teams, USAID, NGOs, and PVOs, as well as African organizations such as the Organization of African Unity.

One result of instituting just these three DoD changes will be a powerful preventive defense program which, if melded with a preventive diplomacy program, could have a significant bearing on African regional stability. A failure to implement these changes will, at a minimum, ensure that larger and less-well-prepared forces must be rapidly deployed into the next African humanitarian disaster. Instituting these recommendations provides no guarantee that complex humanitarian emergencies in Africa will be avoided; however, it is likely that the frequency, cost and magnitude of the subsequent interventions will be less. Ultimately these actions by DoD would expand African nations' capabilities for assuming greater responsibility in African disasters.

The United States stands at the brink of an era in which, with great vision and minimal additional expenditure of resources, it can profoundly affect the well-being of a huge area of the world. It is clearly in the national interest to do so. History is scathingly unkind to those who fail to rise to the challenges of their generation.

ENDNOTES

1. White House, *A National Security Strategy of Engagement and Enlargement*, Washington, DC: White House, February 1996, *passim.*

2. White House, *A National Security Strategy for a New Century*, Washington, DC: White House, May 1997, *passim.*

3. Joint Chiefs of Staff, *National Military Strategy of the United States of America 1995: A Strategy of Flexible and Selective Engagement*, Washington, DC: Joint Chiefs of Staff, 1995, pp. 4-5.

4. Yvette Collymore, "Short Shrift for Africa," *Africa Report,* Vol. 39, No. 6, November-December 1994, pp. 42-46.

5. Michael S. Lund, "Underrating Preventive Diplomacy," *Foreign Affairs*, Vol. 74, No. 4, July/August 1995, pp. 160-163.

6. William J. Perry, "Fulfilling the Role of Preventive Defense," *DOD Speech File Service*, 1997, pp. 7-13.

7. This subject warrants careful consideration in the ongoing DOD Quadrennial Defense Review. A more focused DOD Africa program is currently being crafted in the Office of the Secretary of Defense under the management of Mr. Vince Kern and Dr. Nancy Walker. This is a very positive development and should be emulated in a coordinated national level effort.

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9. *Ibid.*

10. Stephen John Stedman, "Alchemy for a New World Order," *Foreign Affairs,* Vol. 74, No. 3, May/June 1995, pp. 14-20.

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21. *Ibid.*, p. 16.

22. *Ibid.*

23. Caldwell, *et al.*, p. 64.

24. *Ibid.*

25. "Impact of HIV on the delivery of health care in Sub-Saharan Africa: A tale of secrecy and inertia," *The Lancet,* Vol. 345, No. 8961, May 27, 1995, pp. 1315-1317.

26. *Ibid.*, p. 1316.

27. *Ibid.*, p. 62.

28. Caldwell, *et al.*, p. 68.

29. Shannon Brownlee, Eric Ransdell, Traci Watson, Fred Coleman, and Viva Hardigg, "Horror in the Hot Zone," *U.S. News and World Report*, Vol. 118, No. 20, May 22, 1995, pp. 57-60.

30. "Africa for Africans," p. 15.

31. Lynn W. Kitchen, M.D., "AIDS Revisited," *CSIS Africa Notes*, No. 146, March 1993, *passim.*

32. *Ibid.*, p. 2.

33. Colonel Dan Henk, interview by the author, April 11, 1997. Colonel Henk is a cultural anthropologist with extensive African experience.

34. World Bank, "World Development Report 1992," New York: Oxford University Press, 1992, pp. 251-259.

35. Colonel Dan Henk, interview by the author, April 12, 1997. Henk points out that the problem is compounded in African countries which produce large numbers of primary and secondary school graduates who cannot find employment in the formal economic sector.

36. Akin L. Mabogunje, "The Environment Challenges in Sub-Saharan Africa," *Environment,* Vol. 37, No. 4, May 1995, pp. 4-35.

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38. Edd Doerr,"Curbing Population: An Opportunity Missed," *USA Today*, Vol. 123, No. 2590, January 1995, pp. 36-37.

39. "Africa for Africans," p. 8.

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42. Mabogunje, p. 9.

43. United Nations Development Programme, Environment and Natural Resources Group, "The Urban Environment in Developing Countries," New York: United Nations, 1992, p. 29.

44. Kent Hughes Butts, "The Strategic Importance of Water," *Parameters,* Vol. XXVII, No. 1, Spring 1997, pp. 65-83.

45. "Africa for Africans," p. 17.

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47. The MASH is a 148-person combat organization designed, staffed, organized and equipped to provide battlefield resuscitative surgical care to wounded soldiers. It must be able to move on a battlefield (without external assistance) in order to support mobile combat forces. MASH training for its wartime mission is specified in a document called the Mission Essential Task List (METL). The MEDFLAG exercises actually tested many tasks in the METL, and proved to be an ideal deployment for replicating a wartime operation in austere conditions.

48. For instance, the Botswana National Press characterized the 1995 MEDFLAG as a "monumental program for success."

49. Colonel Dan Henk, interview by the author, April 12, 1997, Carlisle, PA. Henk provides an anecdote that illustrates the importance of this MEDFLAG service. In the late 1980s, missionary medical personnel in southern Zaire began to encounter numbers of local citizens seeking care for complications associated with appendectomies. Because appendicitis is relatively rare in the region, this was puzzling. However, informal investigation soon got to the bottom of the mystery. Poorly paid government doctors were falsely diagnosing this malady in order to convince their countrymen to undergo an expensive–but unnecessary–operation.

50. This advantage was not lost on host nation leaders. In his farewell address to the 1994 MEDFLAG, the Ghanaian Vice President publicly requested another at the earliest opportunity.

51. The U.S. Ambassador to Ghana in 1994, the honorable Kenneth Brown, stated that the MEDFLAG mission to Ghana was the best example of U.S. engagement in Sub-Saharan Africa that he had

encountered in his many years of foreign service experience in the region.

52. Colonel Dan Henk, interview by the author, April 11, 1997, Carlisle, PA. Henk served as a U.S. Defense Attache in Botswana, Tanzania, Zambia, and Zimbabwe. And Lieutenant Colonel (Retired) Anthony Marley, interview by the author, April 9, 1997, Carlisle PA. In a very colorful career, Marley served in Cameroon, Liberia and as a U.S. negotiator mediating among competing sides in the civil war in Rwanda (1993-94).

53. Charles J. Dunlop, Jr., "The Military Coup of 2012," *Parameters,* Vol. XXII, No. 4, Winter 1992-93, pp. 2-20. Dunlop develops a hypothetical scenario which proposes the most graphic potential outcome of U.S. military readiness degradation due to numerous humanitarian operations: a military coup.

54. This is the author's opinion having served as the commander of the 212th MASH from July 1993 to July 1995, thus commanding the MEDFLAG missions to Ghana and Cote d' Ivoire. Follow up discussion with several of the officers who served on multiple MEDFLAGS with the 212th and subsequently deployed to Bosnia have validated this opinion.

55. Much smaller scale medical exercises conducted in Africa by USEUCOM units and special operations forces have continued. However, while of benefit to recipient countries, programming of these exercises does not fit a comprehensive, long-range U.S. national plan. Nor do these exercises offer the substantial benefits evident in the 1994/1995 MEDFLAGs.

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Although the United States may not have vital interests in Africa, the entire world (including the United States) does have an interest in regional stability, economic development, and unfettered commercial and military access throughout Africa. But most important is disease monitoring and prevention since tropical Africa is one of the "hot zones" from which devastatingly lethal diseases can emerge with little or no warning. For this reason, the author offers rationale for future DoD activities in Africa. He reminds us that substantial benefits can be received even from small, tailored teams if employed under creative, energetic leaders.

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