



OPERATIONAL CONSIDERATIONS FOR SUB-SAHARAN AFRICA

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Given the recent history of U.S. military operations in Somalia, Rwanda, and Liberia, it is reasonable to assume that we will again be committed to some sort of action in Sub-Saharan Africa in the near future. This action may range from strictly humanitarian operations (as in Rwanda) to noncombatant

evacuation or hostage rescue operations (Congo 1964-65, Kolwezi 1978, Liberia 1990) to peacekeeping (Angola) to low-intensity conflict (LIC) peacemaking or peace enforcement operations (Somalia).

The U.S. experience in Somalia revealed many of the opera-

tional challenges that face armies operating in Africa. Although some of the considerations discussed here were unique to Somalia, many of them are true of the entire area.

The single most important factor is the sheer size of an area of operations. Somalia, for example, is the size of California, and at the height of UN participation, there were fewer than 30,000 soldiers of all nations in and around the country and a high ratio of support and nation-building units to combat units. This meant that small units were given large areas of operation (AOs), in terms of either population density (one Marine battalion for Mogadishu) or area (one Army infantry battalion with an AO bigger than Connecticut).

Another consideration is logistics. After the relatively benign environment of Operation *Desert Shield/Desert Storm*, Somalia came as a shock, and it is reasonable to assume that in future interventions we will face what we experienced there to one degree or another. In many nations in Africa, the infrastructure dates from the 1950s or early 1960s at best. Everything logistical is an issue, even such simple things as potable water. Nothing is available from the host nation.

Intelligence is likely to be inadequate. As in Bosnia or any number of areas of conflict in the former republics of the Soviet Union, many of the conflicts we are likely to face in Africa will be multi-sided. Far from being simple operations against a national adversary (such as Iraq) or even operations against a formally organized guerrilla force (such as the Viet Cong), many of the combatants in African conflicts are organized along tribal and familial lines. Gathering intelligence on the plans and operations of these closed groups can be extremely difficult. A dozen armed groups may be vying for the dominance of their particular clan power base.

It is important that we consider now, before our next commitment, the best organizations and tactics for employment in this unique environment.

Organizing for Extended Operations

Although organizing for extended operations is in many ways based on METT-T (mission, enemy, terrain, troops, and time), most force packages for African interventions will share several common characteristics:

They will be heavy on combat support (CS) and combat service support (CSS). Because of the austerity of the environment and the possibility of supporting allied units as well as our own, U.S. forces will have a higher tail-to-tooth ratio than they would have in Europe or Southwest Asia. This will be especially true of transportation units, both ground and air. Extensive engineer efforts will have to restore (or create) the transportation infrastructure to support extended operations.

They will require extensive augmentation to command and control. Because of the size of the AOs, normal doctrinal distances will be at least quadrupled. Units that normally communicate with their higher headquarters and adjacent or subordinate units on FM or secure radio may find that their equipment does not have the necessary range.

In Somalia, both Army and Marine Corps units were extensively augmented with tactical satellite (TACSAT) teams, and these were often the only way the separate units could commu-

nicate with one another. It is even more critical than usual that J-6 personnel be in on the initial planning for operations in this part of the world so they will fully understand the communication requirements and task organize effectively to meet the challenges of distance.

Psychological operations (PSYOPs) and civil affairs participation will be critical. In spite of the ultimate failure of the Somali mission, the role played by PSYOPs and civil affairs personnel cannot be overstated. PSYOPs units should be included in all tactical operations. Leaflet drops can also be useful, but care must be taken that these are not at cross-purposes with tactical operations. (If you're trying to surprise and apprehend bandits, it's not a good idea to have a leaflet drop the previous day telling them you're coming. Coordination can help eliminate such problems.)

Along with PSYOPs, civil affairs units can help build rapport between the local people and the U.S. and UN forces. Various programs—medical missions, public construction assistance, food distribution, and agriculture assistance—will help keep the populace non-hostile.

PSYOPs and civil affairs units must have enough interpreters with them. Because of the non-threatening nature of these operations, local-hire interpreters can be more successful with them than with units involved in actual tactical operations.

Tactical units must have enough organic or attached transportation to move all their assets. Light units such as airborne, air assault, light infantry, or Marine should receive transportation assets that will allow them to "motorize" themselves. Although the actual tactical operations are normally on foot, units need the additional transportation to get to the AO. The fleeting nature of most intelligence and the distances involved make it impractical to coordinate for centrally controlled transportation. In this kind of environment, when you need to go, you need to go *now*.

Much of the deployed combat power will be involved in securing logistics bases and transportation hubs. Although CS and CSS units ostensibly provide their own security, in practice this has its drawbacks. The austere nature of the environment causes them to expend most of their efforts just meeting their support responsibilities. Although still responsible for interior guard, these units cannot be expected to guard the outer perimeter of the base cluster or transportation hub as well.

Planning for operations in this kind of environment must include tactical units (light infantry) to secure logistics bases. Unlike the tactical units on offensive operations, these light battalions will not require extra transportation because their role will be a more stationary one, consisting mainly of perimeter defense and local patrolling.

Tactical Operations

The considerations for tactical operations can be broken down into the eight battlefield operating systems:

Intelligence. The threat in these kinds of operations can vary widely, from lightly armed, poorly disciplined bandits to heavily armed, highly motivated, and well trained soldiers of political factions. Therefore, human intelligence is vital.

Most opponents on the African continent will have access to

the most modern arms and equipment. Although this can include a relatively large amount of rolling stock (usually confiscated commercial vehicles with some military-type vehicles mixed in), most of the opponents faced by U.S. forces in future LIC operations will fight as light infantry. They will carry small arms of U.S., Soviet, Chinese, French, Italian, German, or British manufacture. They will normally have mortars and simple antiarmor weapons such as rocket propelled grenades (RPGs) or recoilless rifles. They may have such air defense artillery (ADA) weapons as .50 caliber and 12.7mm machineguns as well as the single and dual variants of 14.5mm and 23mm cannons. They may also have shoulder-fired surface-to-air missiles such as SA-7s.

Although the mix of these weapons will not normally follow any organization and equipment structure, the weapons can be approximated into loose groupings of tactical units based on tribal or political affiliations. Building an intelligence base on a specific group should focus on getting a count of its weapons and their type. (For example, if only one group in your area of responsibility is known to have a ZSU 23-2 and you're taking fire from one, either you've found a portion of this group or there's another one you didn't know about.)

The weapon of choice for operations against ground columns will be mines (command-detonated and the traditional buried kind) and ambushes ranging from small point-type to the large well-organized kind covering several kilometers (in the manner of the one that destroyed Group Mobile 100 in 1954 French Indochina). It is important that realistic appraisals of the threat determine the tactics used (and the risks assumed) by the force commander.

These tactics can vary with different locales in the same operation. In Somalia, for example, operations against bandits in the lower Shabelle Valley called for squad-sized patrols and vehicles on the major roads. Operations against warlord forces in Mogadishu, on the other hand, called for large multi-battalion operations with a lot of supporting firepower in the form of helicopter gunships and AC-130s.

Because of the fragmented nature of many of the combatant elements, developing an intelligence base on them will be difficult and laborious. And it will be made more so by the requirement to cross-check information, much of which will contain inaccuracies, half truths, or downright lies. Thus, a large part of the S-2's function will be finding out whom and what to believe.

Intelligence gathering will be hampered by a lack of qualified linguists in the many African dialects. In Somalia, the forces had to hire local interpreters who often brought their tribal biases and interests with them.

S-2s will have to be on the lookout for local interpreters and constantly watch them to ensure that they are not gathering intelligence for opposing factions. Local interpreters should always be excluded from the tactical operations center, and troops must be cautioned not to talk about operational plans in their presence.

Maneuver. A study of operations in Africa in this century reveals the fairly constant theme of relatively small maneuver forces operating independently over vast distances. Prime ex-

amples of this are the German *Schutztruppen* in World War II, the British in their 1941 campaign in Italian Somaliland, and more recently the operations of Major Hoare's 5 Commando (a mercenary battalion recruited by the government of the Congo to combat the Simba insurrection). Operating from bases of logistical support, independent columns would conduct operations for weeks and months at a time. Each of these columns was a self-contained combined arms unit of infantry, artillery, engineer, signal, and logistical elements.

In more recent history (the Congo in the 1960s, Chad, the fighting in Rhodesia and Namibia), light armor has been used

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as well, with column strength normally varying from a two-company battalion to a brigade-size element. These columns could operate either as part of a larger scheme of maneuver in a conventional or semi-conventional war (the World War I campaigns in East Africa, the World War II campaign in Italian Somaliland and Ethiopia) or independently in an unconventional or LIC environment (the Congo in the 1960s, Rhodesia, Angola). In some cases, the operations of these independent columns were combined with air-dropped, air-landed, or air assault forces.

The recent U.S. operations in Somalia were also of this type. Although most of the serious fighting took place in the major metropolitan areas of Mogadishu and Kismayu, both Army and Marine forces operated over extended distances, especially in the early days of the deployment. In fact, the Marine movement from Mogadishu through Baledogle to Baidoa and Bardera in December 1992 was a model of expeditionary warfare. The long counter-bandit and security operations conducted by the 2d Battalion, 87th Infantry, in the lower Shabelle Valley were good examples of operations over extended areas.

U.S. forces employed in similar tactical operations will have to be task-organized to cope with the challenges of the environment. Although this task organization will again be subject to specific considerations of METT-T, we can make certain assumptions:

- Dispersed forces will operate over great distances.
- Reaction forces will have to respond to tactical emergencies and opportunities.
- Security forces will have to secure base and logistics sites, maintain presence in designated areas of operation, and conduct aggressive patrolling to keep the enemy off balance.

On the basis of these considerations, we should look at the following types of task organization:

- Independent combined arms maneuver columns—predominantly motorized or mechanized—to conduct sustained operations throughout a designated area of responsibility.
- Reaction force elements consisting mainly of attack helicopters and airborne or air assault infantry. These assets could quickly reinforce units in trouble and provide extra firepower.

They could also capitalize on tactical opportunities by quickly providing surge combat power to an area.

- Security elements consisting of mainly light infantry or military police for site or base security, dismounted patrolling within designated areas of operation, and local convoy security.

All three of these functions will take place at the same time and in coordination with each other. For example, both a reaction force and an independent maneuver element may be tasked to develop a contact that has been initiated by a security patrol. In other cases, it would not be uncommon to see airborne, air assault, and ground maneuver elements being used simultaneously to cordon off a suspected guerrilla area.

Due to the sudden nature of the requirement and the need to project power immediately, initial deployments to Africa will probably be light forces. Typically, supporting arms would be apportioned to maneuver battalions, and each separate maneuver battalion task force would become its own self-contained “flying column” with artillery, engineer, signal, and other CS or CSS attachments.

Although they would be METT-T dependent, typical columns would look like this:

- Mounted infantry (at least two companies).
- Mounted cavalry element in HMMWVs (high-mobility multipurpose wheeled vehicles).
- Armor, if available.
- Indirect fire assets (81mm mortars or towed artillery).
- Engineer platoon with mineclearing devices and demolitions as well as basic pioneer tools.
- Signal element to allow for long-range communications—TACSAT or high-frequency (HF) radio.
- Supply section, Classes I, III, V.
- Maintenance section.
- Medical section.

If the requirement to deploy is known well ahead of time, and the deployment itself is more deliberate, units may be able to task organize with special non-TOE equipment. For example, an M113 with the old Vietnam armored cavalry assault

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vehicle (ACAV) kit is in many ways ideal for these types of operations. Armed with either M2 .50 caliber machineguns or Mk 19 grenade machineguns, in addition to the two M60 machineguns, the M113 ACAV has formidable firepower. In addition, its mechanical reliability and limited amphibious capability are an important advantage in this austere environment, and because of bridge weight capacity, it is more useful than heavier vehicles.

Units tasked to deploy for peace operations could be reconfigured to a modified J-series TOE mechanized formation (three or four line companies, no antitank company). Ideally, the mechanized units could be formed from existing Bra-

dley units because this would require the least train-up and equipment transition. Light units could also be designated for M113 fielding, but this would require considerable CS and CSS augmentation. The Army has a rich data base from Vietnam on the employment of an M113 mechanized battalion in a LIC environment, and many of those lessons are still applicable.

As useful as the M113 units would be, their employment reflects a deliberate involvement in LIC or operations other than war. Most U.S. involvement in such operations comes from sudden policy decisions that require the rapid deployment of light forces, normally by air. Neither light infantry, airborne, nor air assault units have enough rolling stock to haul their organic infantry. These units will have to be augmented with either transportation units (five-ton trucks) or locally contracted vehicles. In addition, their antitank companies will have to reconfigure for LIC—specifically, leaving their TOW systems at home station and carrying a mix of .50 caliber machineguns and Mk 19s.

Armor units can come equipped with either the standard M1A1 or, if time permits, M60A3-type vehicles. The type of tank will be dictated by a number of factors. The M1A1s are more survivable and would decrease crew casualties from RPGs and mines. On the other hand, M1A1s weigh a great deal more than M60A3s, and there are places the smaller tanks could go, and bridges they could cross, that the newer tanks could not. In addition, M60A3s have better fuel economy than M1A1s.

Another advantage of the M60A3 is the internal stowage of ammunition—65 main gun rounds compared to 40 in the M1A1. This extra internal ammunition would be important in urban fighting and close infantry support. Also, the 105mm family of ammunition is more varied and includes high-explosive plastic and APERS (antipersonnel) as well as high-explosive antitank and sabot like the M1A1. Armor units designated to deploy to operations in sub-Saharan Africa would re-equip with M60A3s, just as Bradley units would re-equip with M113s.

A key advantage U.S. forces have in this environment is night vision. Few of our potential opponents will have more than rudimentary first-generation passive or infrared (IR) night vision devices, and not many of these will be working. Units deploying to this environment must make sure all night-vision equipment, both passive/IR and thermal, comes with them.

With a general dearth of good roads, Army and Marine Corps aviation will be key to the logistical support of operations. Aviation units will have to practice carrying maximum cargos over extended distances. In addition, attack aviation and air cavalry will play important roles in aerial escort and reconnaissance or economy-of-force missions.

The mainstays of logistics operations will be Army UH-60s and CH-47s and Marine Corps CH-53s. On more than one occasion in Somalia, air assaults and aerial logistics missions used both Army and Marine aircraft. Planners will have to be familiar with the endurance and FAARP (forward area aircraft refueling point) requirements of sister service aircraft—what may be easy for a CH-53 may be impossible for a UH-60.

Planners must also take the changes in temperature and altitude into account in their flight plans. Although Somalia was

relatively flat, temperature and humidity varied from place to place. Other parts of Africa have these variations and those of elevation as well. Nothing could be more embarrassing and detrimental to a mission than having to return to a staging area to offload some cargo because the aircraft couldn't climb high enough to reach its destination.

Sling riggers must be familiar with all the aircraft. In addition, all units deploying to this AO should carry extra sling equipment and practice using it. Every organization that can conceivably operate independently should have personnel capable of configuring sling loads and rigging vehicles.

Attack helicopters and air cavalry will find themselves in roles reminiscent of Vietnam. A large part of their time will be spent in escort duty for resupply and air assault troop carriers and ground convoys. The minimum escort package for any mission—no matter how routine—should be two gunships and one scout. This will allow suppressive capability as well as a command and control ship (the scout) to coordinate the action.

In addition to escort duty, attack helicopter and air cavalry units will make up a major portion of the aerial reaction forces that respond to tactical emergencies. An air assault infantry company combined with gunships or scouts will be one of the most popular reaction force packages in this type of environment.

Air cavalry units with their ground troops will also be used to conduct security patrolling and main supply route security missions. Although this type of patrolling is less effective than light infantry in actual foot patrolling, it can keep the enemy from massing and possibly provide early warning of larger enemy movements.

Attack helicopters are also useful in a counterbattery role in areas with restrictive rules of engagement (ROEs). For example, in Somalia, mortar positions could be pinpointed using counterbattery radar, but it was impractical to fire on those positions because of their proximity to large civilian populations. As a result, attack helicopters were kept on short notification to move to and attack or suppress the mortar positions based on the locations identified by counterfire radar.

Given the distances over which forces in Africa will operate, the requirement to conduct FAARP operations assumes even greater significance. Aerial resupply missions, medical evacuations, air assaults, and aerial convoy escort missions may have to refuel many times in each direction from their base of operations. Ground maneuver units may find aviation support elements integrated into their columns to rearm and refuel aviation assets. This may be as part of the overall scheme of maneuver or—in the case of a task force operating independently an extended distance from the major logistical bases supporting the deployment—in support of normal operations. FAARP operations should include the use of Air Force tactical airlift to either drop or land replenishment fuel or ammunition supplies for FAARP detachments operating with deployed task forces.

Fire Support. Fire support in this environment will be more decentralized than on conventional battlefields. There will be fewer opportunities to mass the fires of single or multiple artillery battalions on large lucrative targets. Fire support will often consist of mortars and a direct support artillery battery. In

addition, the requirement to keep collateral damage to a minimum will limit the use of both indirect fires and Air Force assets.

Although heavy artillery offers more range and weight of metal, light artillery will be the most useful because of its rapid deployability, air transportability, and weight of systems that enable it to access the regions with less infrastructure. Bridge weight limits are a key consideration.

The lack of massed armored targets, along with the light forces flavor of the operations, gives the 105mm howitzer a utility it does not have in Europe or the Persian Gulf, for example. This is not to say that self-propelled or towed 155mm artillery units do not have a place on this battlefield. In fact, if the terrain and climate support mechanized units and the tactical situation requires it, heavier artillery should be deployed. In many cases, however, the lack of trafficability, the dependence on aircraft for movement and resupply, and the logistical burden of supporting heavier artillery units will drive the deployment of field artillery toward the lighter side of the spectrum.

If both heavy and light artillery units are deployed (for example, a Marine Corps 155mm battery from an amphibious

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ready group and U.S. Army light artillery), the heavy artillery would be best used in the counterbattery role near major logistics and command and control nodes, freeing the more flexible light artillery for the direct support of maneuver units.

If a column includes both mortars and artillery, the mortars should carry a larger proportion of illumination rounds while the artillery carries mostly lethal munitions. If necessary, illumination can also be set to ground-burst for a thermal effect on dry vegetation or on grass or wooden structures.

Indirect fire elements must be ready to come into action at a moment's notice. Hipshoot missions will be much more frequent than in normal conventional fire support operations.

In many cases, columns will not operate in areas that have maps of 1:50,000 scale to conduct calls for fire using UTM grid references. Therefore, both observers and batteries need to practice calls for fire using the polar plot method. Small lightweight GPS (global positioning system) receivers (SLGRs) are critical for all observers who are directing fires and equally critical for laying batteries. Without dependable maps, both groups must know exactly where they are in relation to each other and to the target.

Mortars and artillery will also be used in a direct-lay role more often because of restrictive ROEs and the sudden nature of many contacts. The 105 can provide accurate direct fires in terrain that is unfavorable to wire-guided missiles. The 105 should carry some beehive rounds for reaction to ambush and

close combat against bandits. The amount of ammunition carried should depend on the duration of the mission, the likelihood or severity of expected contact, and the ease with which the column can be resupplied by helicopter or airdrop.

Indirect fire units will find major employment in the counterfire role, especially in the protection of critical nodes. Although counterfire radars will be much in demand, there will not be enough to go around, and commanders will have to make hard choices in force protection for the employment of these radars. If indirect fire is coming from areas with large civilian populations, the possibility of collateral damage will preclude counterfire missions.

If there are few artillery units in country, these units must be prepared to airlift from one location to another to support operations. Like maneuver units, artillery units should bring extra sling equipment and practice slingload procedures frequently. They should also be prepared to sling under internal loads in other services' or other nations' aircraft.

Fire control measures will normally be the boundaries of unit areas of responsibility, restrictive fire lines or areas, and no-fire areas. Although aircraft control areas are impractical at this decentralized level of execution, the direction of fire and maximum ordinates should be communicated to aircraft working with the column.

The direction of tactical air support will be in accordance with normal SOPs. The emphasis should be on controlling tactical air in support of forces in close contact with the enemy. Vehicles or units should always carry the appropriate signaling devices to reduce the chances of fratricide. Units should carry smoke grenades and strobe lights to mark their own positions and smoke rounds for indirect fire weapons to mark targets.

The ROEs for the employment of tactical air are likely to be restrictive. The weapons of choice will be precision air support such as AC-130s or precision guided missile-equipped fast movers. Unit leaders down to platoon level, all forward observers, and certainly attached tactical air control parties should be intimately acquainted with the procedures for directing and adjusting AC-130 fires.

Air Defense. Since the air threat in Africa is almost nonexistent, air defense units will most likely be used to augment

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transportation (Stinger HMMWVs with their missile racks removed, battalion support platoon vehicles) and as critical site security troops (batteries deployed with small arms and without Avenger systems). Units with Vulcan systems may also be used in the ground role to augment critical site security. The air defense battalion headquarters probably will be best used as a rear area operations center or a base cluster defense head-

quarters. This will free the CS and CSS unit headquarters to concentrate on support operations.

Mobility, Countermobility, Survivability. Mines will be one great counter to mobility, and poor trafficability will be another. Periodic minesweep checks of heavily travelled roads are essential. In addition, engineers must be quickly available to deal with any newly discovered mine threat. Roads and other corridors must also be inspected after any radical change in weather conditions, and units must always be ready to do hasty repairs.

Independent columns should have at least a platoon of engineers with countermine equipment and basic breaching equipment, in addition to pioneer tool kits, block and tackle equipment, and ground clearing equipment such as chainsaws. Each vehicle in the column should have its full operator's vehicle material as well as an extra D-handled shovel. The engineers' time will be largely spent in mobility tasks such as filling holes in the road, removing mines, improving fords, repairing bridges and buildings, repairing or improving airstrips, and creating helicopter landing zones. Engineer leaders must use the materials at hand (local lumber, labor, building materials).

During countermobility operations, units should carry rolls of concertina on each vehicle to be used in the perimeter defense of a night defensive position or laager site. If space permits, vehicles should also carry RPG screens made of cyclone fencing to be erected around the vehicle itself.

If a unit is to operate from a base camp for an extended time, additional concertina and building supplies should be brought in. Antipersonnel mines should be added to the perimeter, but these minefields must be surrounded by triple concertina fences and clearly marked in the local language as minefields. This will not reduce the deterrent effect of the minefield, and it will help prevent civilian casualties.

Units on operations should dig survivability positions at all extended halts or overnight defensive laagers. The depth of the positions will depend on the indirect fire threat. For a low threat (bandit groups with small arms), shallow prone fighting positions will be enough. If the enemy is armed with indirect fire systems, positions must, of course, be deeper.

In base camp areas, fighting positions should be standard armpit-deep with overhead cover. In addition, there should be revetments for all vehicles, key pieces of equipment, and logistics sites. Hopefully, engineer assets will be available to help; if not, the unit will have to fill a lot of sandbags.

Class IV supplies will be at a premium, and units will probably have to use local materials to improve their defenses. Knowledgeable personnel must inspect these materials to ensure that they can stand up to the weights and stresses placed on them. Soldiers will also have to clear fields of fire to ensure that concealed approaches are devoid of foliage, trash, and other obstructions.

All wheeled vehicles, except armored HMMWVs and Marine light attack vehicles, should have no doors and canvas only over the driver's compartment. Troop-carrying trucks should have their seats reconfigured so that the troops sit facing outward. All vehicles should have their driver and troop compartments sandbagged.

Nuclear, Biological, Chemical (NBC). Few African nations or tribal-political entities have chemical weapon capabilities. This means that NBC personal decontamination units can be used as troop showers in conjunction with clothing exchange and other CSS services. NBC defense units can also be used for site security and local convoy security in low-threat environments.

The most likely employment of NBC will be riot control agents. These agents will have a dramatic effect on both rioting civilians and armed opponents due to the general lack of chemical defense equipment. Major considerations for using riot control agents are the proximity of friendly forces and the effect on the personnel in the area being gassed. Units about to employ riot agents should warn the units around them and those downwind. Ideally, the people being gassed should have adequate avenues of retreat available to them. Units should avoid using gas on a crowd in a confined space if at all possible, because the people may panic and trample one another.

In addition, powdered CS (tear gas) can effectively improve obstacles if placed between rows of barbed wire, but the downwind hazard should be carefully considered before using this type.

Command and Control. Most, if not all, major operations conducted by U.S. forces in Africa will be combined as well as joint, and command and control of a combined joint task force (CJTF) should be based around an existing tactical headquarters. This offers the advantage of a clear chain of command and trained staff members who are used to working together. Ideally, this will be a corps-sized headquarters. Due to the limited number of corps left in the force structure, however, the most probable base component will be a division headquarters heavily augmented for the specific mission (for example, the 10th Mountain Division in Somalia and Haiti). The CJTF will have to rely heavily on liaison officers and communications augmentation to ensure that coalition partner units are adequately integrated into the overall plan.

In cases where the CJTF headquarters is not a U.S. one, the U.S. force commander will have to rely heavily on liaison and coordination to ensure that his units are being used to best exploit their capabilities and as intended by the national command authority.

The nature of a CJTF opens up many command and control problems that are not normally addressed in training. These problems become especially acute when dealing with coalition partners that do not have a habitual working relationship with U.S. forces.

Ideally, all units in a coalition should be able to operate under a single set of ROEs and take operational direction from the CJTF headquarters without any requirement to obtain permission from parent nations. Unfortunately, this is not usually the case. In Somalia, for example, the commander of UN Operations in Somalia (UNOSOM II) was often unable to conduct operations because coalition forces ostensibly under his command were not permitted by their parent nations to take certain tactical actions. It is reasonable to assume that at least some of our future coalition partners in Africa will have this kind of restriction. The most important thing for a CJTF com-

mander in his relationships with units from other nations is a clear understanding of their capabilities and their permission to conduct operations.

To begin with, the capabilities of the coalition partner force must be thoroughly appraised. The battlefield operating systems are a good guideline for this. This analysis should be made with an eye on the compatibility of systems and the ability of the partner force to accomplish complex tactical tasks.

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Most critical is its ability to communicate with the U.S. units in general and the CJTF headquarters in particular. This analysis will drive considerations for liaison elements.

Liaison requirements will vary. Forces such as those that come from our NATO allies are accustomed to working with us and will require minimal liaison. Other nations will need large staffs located with their headquarters as well as subordinate liaison teams with their maneuver units. This is especially true of forces that do not have compatible communication systems and must have liaison and communication teams attached. Many of these teams will be special operations coalition support teams consisting of as many as a dozen soldiers who have a high skill level in command and control of tactical operations and who come with a communications package sufficient to support their mission.

Because of the extended distances associated with operations in sub-Saharan Africa, satellite communications or HF will often be the primary means of communication between units. Because of the limited number of TACSAT sets available, a commander may have to allocate most of the radios to the units operating farthest from the headquarters. The communications plan must take into account those who can be reached only by TACSAT, those who can be reached by both TACSAT and HF, and those who are within the range of FM, and allocate resources accordingly. A certain number of TACSAT sets should be placed in "communications reserve" to replace broken sets or to provide TACSAT teams to units moving to operate farther afield than the HF/FM profile allows.

Communication officers must be prepared to extend the range profile of their FM systems by such means as directional antennas and retransmission or relay sites. Security considerations in placement of a retransmission site must be paramount to ensure its survival. It does little good to have found a great site if you don't have the people available to protect it.

Communications within task force maneuver columns will be primarily through FM with enough wire to set up hot loops and other internal security communications. Communications with higher headquarters will normally be by TACSAT or HF. If the column is operating with the forces of other nations, care must be taken to insure communications compatibility, including the exchange of liaison officers and vehicles.

In Somalia, the most common control measure used by both JTF Somalia and UNOSOM was the area of operations. This involved assigning responsibility for operations in a given area to a specific unit. This unit would then be responsible for all operations within that area, and units passing through or operating in the area would have to coordinate with the headquarters of that unit. Other control measures used frequently were main supply routes, checkpoints, assembly areas, and designated base camps.

A maneuver unit can be given an objective or a series of march objectives. All the normal control measures for a tactical road march, movement to contact, deliberate attack, or air assault can be used to plan and control the movement of the unit. Units will normally operate within designated boundaries or tactical areas of responsibility. Maneuver or fire outside these boundaries must be coordinated with higher headquarters and, if possible, with the affected units on the other side of the boundary. If a column is converging on or operating near another friendly element, a restricted fire line should be established.

Another problem will be maps. Often those available will be little better than nothing. Units must get used to operating off large-scale maps (1:250,000, 1:500,000) or even commercial road maps. Even when relatively good maps are available (as former Soviet 1:100,000 scale maps were for Somalia), they do not help for operations inside urban areas. In many cases in Somalia, maps of large towns did not exist.

Units operating in such areas may have to create their own street maps using SLGRs to confirm grid coordinates of the street intersections and the distances between points. Maps can then be produced with a simple draftsman's kit. Although limited in scope, they can be surprisingly accurate. Whatever maps are available, however, they will not be as good as the ones a unit uses at home station. To prepare for this, units need to train their troops using maps other than the 1:50,000 maps and operating from strip maps or no maps at all.

Combat Service Support. The austere environment of Africa will place more strain on the logistical support structure of the forces operating there. Logistics operations are most likely

Command and control of a combined joint task force should be based around an existing tactical headquarters.

to be conducted from a series of fixed or semi-fixed bases that support the mobile operations of maneuver forces. This is especially true of operations other than war and low-level guerrilla warfare, but it is also true to a lesser extent of conventional war. The tyranny of distance, combined with the lack of infrastructure, makes logistics the primary consideration in most operations.

Logistic bases will need to provide all classes of supply except VI and VII, as well as some services such as vehicle and equipment repair. A logistics base can be positioned alone but will normally be located with command and control nodes and

aviation units to facilitate services to subordinate units and the security of the base itself.

Key factors in the emplacement of a logistics base are all-weather access and trafficability, defensibility and security of the location, and proximity to the forces being supported. In some cases, logistics bases in an African deployment will look very much like their Vietnam ancestors of 30 years ago—heavily fortified and bunkered positions with an eye to survivability and security—as opposed to dispersion and displacement in more conventional combat operations.

Major logistics bases that support the operation of the entire CJTF will be very large, on the order of Long Binh in Vietnam or the logistics support infrastructure in Mogadishu. At the smaller end of the spectrum will be bases normally consisting of forward support battalions with augmentations specific to the mission and deployment (such as an aviation support slice). In most cases, these bases will be located near or with their command and control counterparts.

The base will have to be secured by the tenant units themselves with augmentation from infantry, armor or cavalry, and military police units. Ideally, these units will provide reaction forces as opposed to local security. Additionally, in an environment that has an indirect fire threat, large logistics bases may have indirect fire units with counterbattery radar positioned in support of them. The overall security of the base can be either under the command of the senior tenant unit or delegated to a subordinate headquarters that has security as its primary task. In an environment with no air threat, the divisional air defense battalion is the most logical, but any unit can be designated.

Any support of coalition partner troops must be agreed to in detail before those troops are committed to the theater, if at all possible. Few things are as disruptive to logistics operations as suddenly finding out that an 800-man battalion that just arrived in country is yours to sustain and that this sustainment begins tomorrow. Just as command and control requires a frank and honest assessment of coalition partner capabilities, so does CSS.

Supply compatibility is a big consideration. Some of the issues are potential war-stoppers, such as partners that have incompatible fuel or ammunition requirements or vehicles and equipment not in the U.S. supply system. The best way to prevent such problems is extensive coordination at the outset of the support relationship.

Maneuver units within the AO of a logistics base will draw sustainment from it in either ground or air-delivered logistical packages. Vehicular maneuver elements operating in combined arms columns will be accompanied by sustainment packages that allow for several days of independent operations. Units far from their logistics base may have to halt operations until more supplies reach them. Fuel is the sticking point for these types of operations. Each vehicle in a column should have two five-gallon cans of fuel to be used only in operational emergencies.

In many cases, the distances involved will be such that only air-delivered supplies are practical. Units should try to take advantage of aerial resupply as much as possible to extend their

range and endurance. If a CJTF is looking to sustained operations (as opposed to limited, one-time in and out) in an area more than one day's drive from a logistics base, serious consideration should be given to establishing a base farther forward.

In maintenance and recovery, the doctrine of "fix forward" is still valid. Vehicles and equipment that can be fixed on site should stay with the parent unit. Items that cannot be fixed promptly enough to keep up with the maneuver unit should be evacuated to a secure area. Each maneuver element should bring with it Class IX supplies and mechanics to address the most common occurrences in motor operations for this particular environment (flat tires, broken torsion bars). Vehicles that cannot be repaired should be sling-loaded out if possible, or towed back to a secure area. If towing a vehicle would impede the column too much, the unit commander must have the authority to strip the vehicle of all useful parts and destroy the hulk.

In the area of medical support, Africa has a long history of swallowing up armies that do not practice good field hygiene and preventive medicine. Unit leaders have to be relentless in their demands that soldiers receive immunizations and follow appropriate preventive measures. Leaders must also ensure that troops maintain high standards of hygiene, particularly in base camps where latrines can become major health hazards if poorly supervised. Soldiers must also be cautioned against eating unapproved foodstuffs because of the parasite hazard most of these present.

Units on operations some distance from the logistics base should have a physician assistant or doctor with them as well as an emergency treatment team and the usual unit medics. In extended range operations, it could be several hours before evacuation helicopters reach the column, and casualties will need to be stabilized in the meantime.

The distances and the time it would take to evacuate casualties must always be considered in planning. Units may have to operate at such distances that evacuation helicopters will have to resupply to reach them and resupply again on the return flight. Units anticipating contact may consider requesting that medi-

cal evacuation assets be moved forward to temporary FAARP sites to be closer to the action when it occurs.

One of the principles of medical evacuation and treatment is to get the casualty to the nearest treatment facility, but caution is required in using the services of coalition partner units. Although some of these medical facilities are as good as (even superior to) our own, others do not meet our standards in terms of equipment and personnel training. The senior CJTF medical officer and his staff must evaluate their capabilities.

The African environment is extremely hard on clothing, and units should expect to do clothing exchange or new clothing issue at least once a month. Even if there can be no new issue, troops should be given an opportunity to have their laundry done and repair their uniforms and other items of personal equipment.

Troop showers with approved water are also important. Although streams and rivers are plentiful in many parts of Africa, they should be avoided as untreated sources. Several soldiers in Somalia required medical evacuation because of parasites they picked up on unauthorized swimming or bathing trips. Salt water from the ocean is the safest in most places, but salt-water soap must be made available, along with a limited amount of fresh water for thorough rinsing.

Sub-Saharan Africa presents some of the most severe environmental and operational challenges encountered by U.S. soldiers in this century. The U.S. Army has no large historical background of operations in this area to draw upon. We must analyze in detail our operations in Somalia and Rwanda and also look to the campaigns that were conducted in Africa earlier in this century. Only through a study of our own experience and that of other armies will we become better prepared for operations in this most challenging area.

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