Overview of Planning and Programming Factors for Expeditionary Army Operations

Robert David Steele

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# Preface

This is the second of three monographs focused on the future of the US Army as an expeditionary force in a complex world that is rapidly decentralizing while also facing major development challenges. This second monograph (the first presented a notional Grand Strategy for discussion) presents the holistic analytic model and the resulting strategic generalizations from the Marine Corps’ original study, *Overview of Planning and Programming Factors for Expeditionary Operations in the Third World* (Marine Corps Combat Development Command, March 1990).[[1]](#endnote-1) The model is neither complete nor current – it is a starting point for reflection. A new comprehensive model is needed that supports Grand Strategy not only across the D3 – Defense, Diplomacy, and Development – planning and programming domains, but across Whole of Government (WoG) as well, and ideally, also into the multinational and “eight tribe”[[2]](#endnote-2) conceptual space as well – future operations demand the full integration of both estimative intelligence and operational inclusion of all elements of society, not just government – military.

The author was the primary architect of the original study, and the Study Director. The study was the first and most substantial product from the Marine Corps Intelligence Activity (MCIA) of which the author served as founding Special Assistant (civilian) and also Deputy Director (uniformed). It responded to General Al Gray, then Commandant of the Marine Corps, who created MCIA because he felt that he could not relay on the other services with their larger budgets and a lack of focus on the Third World, to design military systems appropriate to the Marine Corps: lightweight and suitable for amphibious transport including landing craft; affordable for a very lean force; and sustainable in the field with minimalist contractor dependency. In other words, it is the only existing analytic model for thinking about expeditionary force structure planning and programming.[[3]](#endnote-3) If the US Army desires to be an expeditionary force[[4]](#endnote-4) with global reach, this model is a starting point. It addresses not only military threat factors, but also civil factors and ground truth factors – the latter are deeply relevant to what we build at what weight.

The findings of the study are not likely to change materially, but can be broadened. Two factors not covered by the original Marine Corps study but vital to reinventing the US Army include aviation climate and bridge loading. The real world aviation day is hot and humid, not – as the US Navy (USN) and US Air Force (USAF) and others embrace, the “standard day” of 59 degrees Fahrenheit (F)with no humidity.[[5]](#endnote-5) This means that aviation as designed today – completely apart from poor design and logistics aspects – will fly half as far, carry half as much, and loiter half as long as “the book” says it will. Similarly, bridge loading (an average top weight of 30 tons) and line of sight distance (generally under 1,000 meters), combined with a lack of cross-country mobility, all suggest that a re-invented Army must think deeply about any platform that weighs more than 20 tons and cannot be moved via a C-130[[6]](#endnote-6) – and must move some armor and artillery functions into the air, suggesting that Close Air Support (CAS) should be organic.

A comprehensive analytic model is the second step toward reinventing the US Army.

# Introduction

## Where Are We Going Wrong Now?

A quarter-century after General Al Gray, USMC, then (1988) Commandant of the Marine Corps (CMC) established the Marine Corps Intelligence Activity (MCIA) to serve an a center of excellence for threat support to expeditionary acquisition, we still do not have an adequate joint planning and program process or adequate intelligence support to strategy, planning and programming, or operations.[[7]](#endnote-7) A harsh statement, but reality bats last and reality does not lie.

In 1988 there were five specific substantive short-falls and five specific process short-falls that have still not been corrected.[[8]](#endnote-8) They are listed below as originally written.

**Substantive Short-Falls**

1. Concept development that ignores threat and terrain generalizations, in many cases through reliance on outdated and implausible scenarios ignoring emerging non-state actor threats and ground truth determinations.
2. Mission need statements (MNS) or Required operational capabilities (ROC) that go “worst case” automatically without examining what the average threat is likely to be, or the actual trafficability, hydrography, and weather in the most likely regions where the systems will be deployed.
3. MNS or ROC, including those that are joint, that do not address Command, Control, Communications, Intelligence, and Interoperability (C4I2) support – it makes no sense to build expensive sophisticated military platforms if they cannot receive near-real-time targeting intelligence essential to their effectiveness in fast-moving threat environments.
4. MNS or ROC that never ask for updated threat support – or updated ground truth, e.g. the aviation day getting hotter and more humid as global warming advances – once the Milestone 0 threat “ticket” has been punched.
5. MNS or ROC that neither request nor receive logistics sustainability intelligence, nor test and evaluation with or without foreign materiel support and unconventional threat scenario development – for example, all systems “assume” that bandwidth and fuel will be available as needed.

**Process Short-Falls**

1. Intelligence support to strategy and acquisition defaults to the Top Secret / Sensitive Compartmented Information (TS/SCI) despite the fact that most Program Managers (PM) want nothing to do with classified information – their spaces are generally not cleared for storage of TS/SCI.[[9]](#endnote-9)
2. Intelligence support to acquisition provides “one size fits all” products, and does not distinguish between the needs of strategic, operational, tactical, and technical program managers and commanders. The threats – and the sustainability of a capability – change depending on the level of analysis.
3. Intelligence does not “do” strategic generalizations – PM’s and commanders can get country profiles, weapons system studies, weather studies, but they cannot get a single integrated intelligence product that covers military, civil, and geographic factors all together, inclusive of Red on Blue sustainability and lethality trade-off matrices in a concise readable form that can be shared.
4. Terrain analysis and “go/no go” studies are out of touch with reality. Other than the Marine Corps study in 1988-1990, there does not appear to have been a comprehensive integrated survey of tactical mobility factors including bridge loading, tunnel clearance, road width, off-road gradients, and more. Bits and pieces are available, but this is not an integrated product offered by the intelligence world, in part because we still do not have – a quarter-century after the Marine Corps and the US Special Operations Command (USSOCOM) asked for it – updated 1:50,000 combat charts with contour lines for every corner of every country in the world in a form useful to acquisition or operations.[[10]](#endnote-10)
5. Counterintelligence is not allowed to look at or promulgate our known deficiencies. Individual system vulnerabilities are classified and restricted – commanders themselves are not informed of known and often potentially catastrophic deficiencies in weapons and mobility and communications systems. At the strategic level, no one subjects the Services to scrutiny in relation to their joint responsibilities – budget-share and “go along to get along” rule. Most Operational Plans (OPLAN) are unrealistic.

All of the above are short-falls within the Department of Defense (DoD) alone. In contemplating D3 – Defense, Diplomacy, and Development – it is clear there is still no intelligence support suitable for justifying “peaceful preventive measures” as called for by General Gray in 1989.[[11]](#endnote-11) Properly and comprehensively done, national and defense intelligence should show the Return on Investment (RoI) for major diplomatic and development investments, while also showing the true cost of major mis-steps in commercial and financial plans and programs – those that export jobs, import illegal immigrants, poison land, and ultimately destroy entire communities or countries. We lack “central” intelligence, and we lack integrity in how we “do” the craft of intelligence as a foundation for creating a strong prosperous America at peace.[[12]](#endnote-12)

## The Model in Brief

The model’s greatest value is in producing unclassified strategic generalizations across all relevant military, civil, and geographic mission area factors (MAF), such that we can plan and program the force as a whole (or even better, if expanded, Whole of Government – WoG). While many helpful products have been available in the past, including the Country Studies that were produced by the Central Intelligence Agency (CIA), the US Army, and the Federal Research Division (FRD) of the Library of Congress (LoC), they generally suffered from over-classification; remoteness from mission area factors to include no distinctions from a war-fighters perspective of whether a specific threat or specific terrain condition was low, medium, or high; and a lack of an integrative overview: the strategic generalizations across all countries or across a region, for each mission area specifically.[[13]](#endnote-13)

The single most useful important innovation introduced by the Marine Corps study was the engagement of all of the Mission Area Program Managers who provided their specific parameters for classifying a country capability as low, medium, or high. Below is one example.

|  |  |
| --- | --- |
| **THREAT** | **MISSION AREA: ARTILLERY** |
| HIGH | Self-propelled (SP) or towed, with rockets & missiles, NBC, range 30K+ |
| MEDIUM | SP or towed, some missiles, bio-chem, less than 30K range |
| LOW | Towed artillery with less than 30K range and/or mortars |

**Figure 1: Example of a Mission Area Threat Definition by the Program Manager**

PM’s played a vital role in defining civil and geographic factors at multiple levels of difficulty as well – more needs to be done to integrate PM’s into analytic endeavors. The “plans/reality mis-match” that put Chuck Spinney on the cover of *TIME Magazine* in the 1980’s is still with us[[14]](#endnote-14) – planning and programming for expeditionary operations requires both sound intelligence about the real world and sound engineering parameters from the mission managers.

By focusing on “most likely” instead of “worst case” employment scenarios, the Marine Corps sought to overcome the long-standing bias in both the intelligence world and the acquisition world, in favor of training, equipping, and organizing – at great expense – against the few peer competitors and without regard to the constrained utility of “worst case” systems in lower tier countries where civil and geographic factors are vastly more challenging than the “open spaces” characteristic of the German plains or the Arab desert.

The M1A1 tank is a good example. This tank is designed to reach out with precision over 2,000 meters, and to be superior to the best tanks that the Chinese and Russians can produce. It also created the concept of gallons per mile and displaces an entire truck company when embarked on Navy ship constructed years if not decades before this behemoth. It turns out that the Third World has an average line of sight distance of under 1,000 meters, extremely constrained cross-country mobility, and – while included in the original model but only studied in passing – an average bridge-loading limit of 30 tons. The M1A1 weighs 68 short tons or 62 metric tons. It also will not fit (when loaded on trains) through many European tunnels.

Apart from studying each of the countries on the delimited list (the Army needs to create its own list) – a helpful alternative perspective that called into question the long-standing DoD acquisition requirements process focused on “worst case” instead of “most likely” threats – the model assured for the first time a comprehensive look at each of twenty-eight operational geography factors, and each of thirty-five civil factors. Those two tables are provided below.

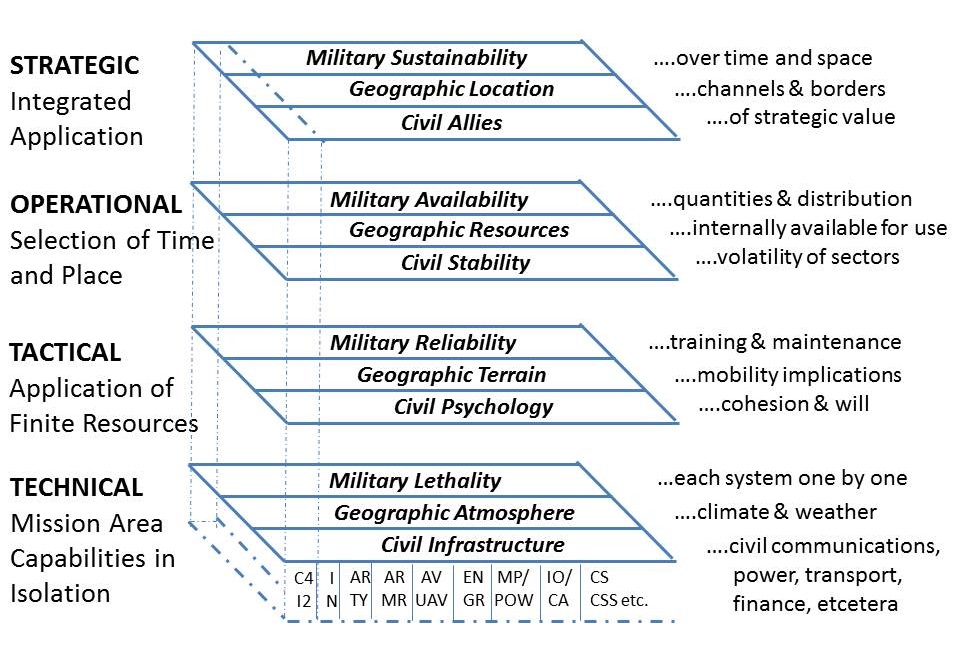
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **BASIC TOPOGRAPHY** | **GROUND ASSAULT** | **ASSAULT HYDROGRAPHY** | **AERONAUTICAL CONDITIONS** | **OPERATIONAL INFRASTRUCTURE** | **BASIC WEATHER** |
| Surface Configuration | Cover | Beaches | Operational Elevation | Port Access | Temperature |
| Surface Vegetation | Concealment | Naval Gunfire  5 fathom line | Aerial Visibility | Port Utility | Windspeed |
| Surface Materials | Intervisibility (Line of Sight) | Surf Conditions | Aerial Ceiling | Air Terminals | Precipitation |
| Surface Hydrology | Landing Zones | Approach Conditions |  | Road/Rail Networks | Humidity |
| Man-Made Features | Drop Zones | Riverine Network |  | Bridges | Light Data |

**Figure 2: Expeditionary Operations – Operational Geography**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **POLITICAL** | **PSYCHOLOGICAL** | **ECONOMIC** | **INFRASTRUCTURE** | **NATURAL RESOURCES** |
| Allies | Religion & Language | Strikes & Riots | Key Facilities & No Fire Areas | Contiguous Hostile Area |
| Opposition | Group Divisions, Customs, Taboos | Black Market, Corruption, & Military/Police Crime | Urbanization & Population Issues | Water Supply |
| Intelligence | Myth/Identity, Media Themes, View of USA | Unemployment & Inflation | Disease & Public Health Resources | Food Supply |
| Government | Education | Basic Civilian Staples/Supply | Public Voice/Print Media & Telecommunications | Energy Supply |
| Human Rights | Intellectual | Garrison State | Public Works (Power & Water) | Strategic Minerals & Raw Materials |
| Public Form, Franchise, & Opinion | Censorship | Foreign Capital & Capital Flight | Public Transportation Assets | Production Base |
| Legal Codes | Violence | Research & Development (R&D) Progress | Electronic Computing & Storage | Land Tenure |

**Figure 3: Expeditionary Operations – Civil Factors**

Below is the model at its highest level of conceptualization.



**Figure 4: Expeditionary Environment Analytic Model for Services & Theaters**

The most nuanced finding to emerge from the original Marine Corps study was that the threat changes depending on the level of analysis. This finding was inspired by a community-wide discussion of the Libryan main battle tank, at the time the T-1 from the Russia.

|  |  |  |
| --- | --- | --- |
| **Level of Analysis** | **Threat Grade** | **Comment** |
| Strategic Sustainability | Low (2.0) | Not sustainable for more than two weeks. |
| Operational Availability | Medium (3.0) | Many of them scattered around. |
| Tactical Reliability | Low (2.0) | Cannibalized parts, stored in open, poor crews |
| Technical Lethality | High (4.0) | Best tanks money could buy; official threat grade |
| Average Threat | <Medium (2.75) | Proper analysis informs each level of commander |
| Military Difference | 1.25 (31%) | The IC does not do nuanced multi-level analysis. |

**Figure 5: Threat Changes at Each of the Four Levels of Analysis**

If the US Army is to re-invent itself, and do so affordably and sustainably, it must recognize that both national and defense intelligence today have limitations –we mustliterally re-invent intelligence if we are to re-engineer US defense and the US Army.The final monograph in this series will reinventing the US Army, DoD, and WoG – specific recommendations will be supported and explained, focused on both the US Army, and necessary joint accommodations – in the context of a new Grand Strategy and respect for Global Reality.

Mission area factors were developed by the Marine Air-Ground Task Force (MAGTF) Integration Section, Proponency and Requirements Branch of the USMC Warfighting Center to show the various threats and conditions that may be encountered by warfighters when operating the countries of the expeditionary environment. The following charts depict the mission area factors and outline the criteria for levels of difficulty (thresholds) within each factor.

## Overview of Degrees of Difficulty

Below are the degrees of difficulty as established by Marine Corps mission area managers in 1988-1990. Army-based updated definitions are needed.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| MAF | Criteria (Levels of Difficulty) | | | | | |
| Drugs  Terrorism  Gray Arms  Consolidated  Ground OOB  - Infantry  - Armor  - Artillery  Air OOB  - Air OOB  - Close Air  - AAW(IAD)  Naval OOB  - Naval OOB  - S/S MSIS  - Patrol Craft  NBC  Ongoing Conflicts | Low  Low  Low  Negligible  Draft/No TR  None  None  None  None  None  None  None  None  None  No Conflicts | Draft/TR  M-48/T-54/LAV  Mortars  DC-3/Props  Props  Early AAA  Small Surface  HE  Speed Boats  Chem/No Deliv. | PM/No Exp  M-60, AA  How/SP  Day/VFR Jets  Day Jet Atk  Hand-Held SAM  DEST/FRIG  Multi-Warhead  Small Gun Boats  Chem w/Delivery | 1 of 3  PM  T-62E/MOD 55  >30K Range with FASCAM/TGM  Early Radar  Early Smart  EW Radar  ASUW/Air/ASW  High/Flex Traj  Large Gun Boats  Chem Have Used | 2 of 3  Reg/TR  T-72/M1  >30K Range NBC  3rd Gen Radar  STD-OFF PGM  3rd Gen SAM  F/W Carrier  Countermeasures  ASU/Antiair  Chem/Bio Used | High  High  High  3 of 3  Reg/Exp  T-80/64B  BLOC  BLOC  NT/AW  BLOC  NT/AW  BLOC  BLOC  Nuc/Chem Avail  In Conflict |
| Abbreviations can be found in the Glossary. | | | | | | |

**Figure 6: Provisional PM Criteria for Defining Threat Degrees of Difficulty**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| MAF | Criteria (Levels of Difficulty) | | | | | |
| US Equities  Culture  - Language  - Religion  Weather  Gen Geo Cond  OP Elevation  X-Country Mob.  Intervisibility  Hydro-NGF  Hydro-Coastal Threat | Low  English  Christian  Dry/Warm  Urban  <2000 FT  Gen. Suited  >2000 Meters  Good  US NGF Advantage | Spanish/French  Christian Orthodox  Wet/Warm  <4000 FT  Fair | Mixed  Desert  <6000 FT  US NGF and Threat Equal | Dry/Hot  Jungle  >6000 FT  Partially Suited  1000-2000 Meters | Arabic  Eastern/Tribalism  Wet/Hot  >9000 FT  Poor | High  All Others  Islam  Wet/Cold  Mountainous  >12000 FT  Gen Unsuited  <1000 Meters  Unsatisfactory  Threat Advantage |
| Abbreviations can be found in the Glossary. | | | | | | |

**Figure 7: Provisional PM Criteria for Defining Environmental Degrees of Difficulty**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| MAF | Criteria (Levels of Difficulty) | | | | | |
| MC&G Coverage  Airfields  Ports  Key Installations  MEU Response Time  NEO  - Embassy Staff  - Evacuees  - Inland Obj NM | 1:50 New  >1/C-5  Wide Harbor/ >50’ Depth  None  <2 Days  <25  None  Coastal | 1:50 Old  1/C-5  Wide Harbor/ >40’ Depth  Few Sites  <50  <100  <100 NM | Some 1:50  >5/C-130  >40’ Depth  Multiple Sites  >2 <4 Days  <100  <200  <300 NM | MSI Avail  2-4/C-130  35-39’ Depth  Pipeline  <250  <300  >300 NM | 1:250 New  1/C-130  25-34’ Depth  Oil Field  >4 <6 Days  <500  >300  >500 NM | None  None  None  NBC  >6 Days  >500  >500  >999 NM |
| \* For the purposes of this study 500 evacuees was used as a threshold. Anything above 500 would probably require consideration of other options, i.e. evacuation by airlift or sealift. | | | | | | |
| Abbreviations can be found in the Glossary. | | | | | | |

**Figure 8: Provisional PM Criteria for Defining Logistics Degrees of Difficulty**

These mission area factors define the critical conditions, situations, threats, and logistical constraints which, when taken together with the countries identified, show various levels or thresholds of difficulty for conducting expeditionary operations. This product represents a totally new approach to intelligence for warfighters because it evaluates and classifies countries in relationship to mission area factors and levels of difficulty assigned by warfighters themselves and provides an integrated appraisal of a specific country with a specific combination of threat, terrain, and logistics challenges. The mission area factors do not represent a “fixed” list but constitute a “snapshot” based on their initial development in 1989 and 1990. The way in which thresholds between levels of difficulty for each factor are defined can be expected to change over time. The intent – then and now – is to inform, to provide a useful reference that does not need to be locked up, and to establish an introductory baseline from which more detailed and precise factors and thresholds of difficulty can be developed.

The following two charts provide a consolidated overview of selected mission area factors for those countries that represent the greatest combination of threat, terrain, and logistic challenges to the US force. Such countries would be good candidates as models for the testing of expeditionary scenarios used to develop strategy, force structure, and operational campaign plans. In the two charts below, 1 is the lower degree of difficulty, 4 is the highest degree of difficulty.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **REGION** | **COUNTRY** | **DRUGS** | **TERROR** | **GRAY ARMS** | **GND** | **AIR** | **NAVY** | **NBC** |
| Americas | Cuba  Mexico | 3  4 | 3  3 | 3  3 | 4  3 | 4  3 | 4  3 | 3  1 |
| Middle East | Iran  Iraq  Libya  Syria | 4  1  1  3 | 4  3  4  4 | 3  3  3  3 | 4  4  4  4 | 4  4  4  4 | 4  4  4  4 | 3  4  3  3 |
| Africa | South Africa | 1 | 2 | 3 | 3 | 4 | 4 | 4 |
| Asia/Pacific | India  Indonesia  Japan  North Korea  Pakistan  PRC  Thailand  Vietnam | 3  3  1  1  4  3  4  1 | 4  1  3  4  3  1  1  3 | 4  1  4  4  2  4  1  4 | 4  3  4  4  3  4  4  4 | 4  3  4  4  3  4  3  4 | 4  4  4  4  4  4  4  4 | 4  3  2  2  4  4  3  4 |
| Europe | Greece  Italy  Turkey | 3  1  3 | 4  4  3 | 3  4  4 | 4  4  4 | 4  4  4 | 4  4  4 | 1  1  1 |

**Figure 9: Hardest Expeditionary Countries (Threat Perspective)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **REGION** | **COUNTRY** | **CULTURE** | **WEATHER** | **TERRAIN** | **NGF** | **MC&G** | **FACILITIES** | **LIFT** | **NEO** |
| Middle East | Iraq  North Yemen  Oman  Saudi Arabia | 3  3  3  3 | 3  3  3  3 | 3  4  4  3 | 4  2  2  3 | 3  4  3  3 | 4  4  3  2 | 1  2  1  1 | 3  4  4  4 |
| Africa | Madagascar  Somalia  Sudan  Uganda  Zaire | 3  4  3  1  2 | 4  3  3  2  4 | 4  1  4  3  4 | 3  2  2  4  1 | 4  4  4  4  3 | 3  3  3  3  3 | 3  3  4  4  4 | 2  3  4  4  4 |
| Asia/Pacific | Afghanistan  Bangladesh  Burma  Pakistan  PRC  Thailand | 4  4  3  4  3  3 | 2  4  4  3  2  4 | 4  4  4  2  4  4 | 4  2  2  3  4  2 | 3  4  4  3  3  3 | 4  3  4  3  2  3 | 4  3  3  2  3  2 | 4  4  2  4  4  4 |

**Figure 10: Hardest Expeditionary Countries (Environmental Perspective)**

## The Findings

For planning and programming purposes, the “expeditionary environment” is not, as some tend to assume, “every clime and place” (although all our Services must be able to fight anywhere), but rather a fairly well defined list of specific countries, comprised of those countries where there is a high probability of employment – and within those countries, specific “Main Supply Routes (MSR) as well as off-road maneuver zones where usable. It differs from the traditional DoD planning environment because it is almost totally comprised of Third World countries with very high mobility obstacles and represents challenges calling primarily for Operations Other Than War (OOTW)[[15]](#endnote-15) and non-state actor interdiction.

Below are some strategic generalizations that emerged from the original Marine Corps study of the expeditionary environment published in 1990. Although they were promulgated at the time, and the current Expeditionary Factors Study is in general use (but lacking the summary section), no one in DoD appears to have made the connection between these strategic generalizations and how we train, equip, and organize ourselves for the future.

### The Military Threat

Our world is a violent and unstable. Expeditionary operations must not be mis-construed as “lite” operations.

• Amphibious Ready Groups (ARG) without benefit of an accompanying Carrier Battle Group are very vulnerable to significant coastal defense missile capabilities as well as submarines, frigates and corvettes.

• On the air side many of our countries have night time/all weather capabilities and early if not third generation radar, stand-off munitions, and integrated air defense systems.

• The ground threat is complex and lethal, with trained experienced infantry, modern armor, relatively sophisticated artillery including scatterable mines, and some smart or stand-off munitions as well as surface-to-surface missiles.

• Of the sixty-nine countries examined in the prototype study, seventeen possess or have used nuclear, biological or chemical weapons and fully forty-one of the countries had active on-going insurgencies, drug wars, civil wars, severe instability, or a regional war in progress.

*In our present configuration we are too expensive, too heavy, too slow, too few, and severely vulnerable in rear areas, bridgeheads, and across our communications grid.*

### The Physical Environment

In considering the physical operational environment, stark distinctions emerged between the real-world expeditionary environment, and the current planning model used by the Navy (which designs our aircraft) and the Army (which designs our major ground systems).

• We found our countries equally divided between mountains, deserts, jungle, and urban environments—our ground and aviation assets must be able to operate in all four environments.

• Thirty-nine of our countries were hot, defined as a sustained heat index of 80° F (and many were very humid as well) suggesting that our aviation systems will always be forced to operate at the outer edge of their performance envelope—delivering half the planned and programmed performance.

• Cross-country mobility was a showstopper—we could not get from the beach to the capital city off-road in 60% of our countries, and would have trouble in an additional 20%.

• The average line of sight distance throughout our world was less than 1,000 meters—only eight countries offered stand-off engagement ranges over 2,000 meters where the M1A1 offers value.

• Although not documented in the study, the average bridge-loading limitation in the Third World appears to be 30 tons, with many areas limited even more, to 10 and 20 tons.

• Hydrography was not a practical constraint to naval gunfire but the Navy’s 5″ is out-gunned by thirty-one of our countries’ coastal defense systems.

• The lack of adequate 1:50,000 map coverage in **usable shareable form[[16]](#endnote-16)** of our world is still a problem although much improved in the past twenty-five years. This deficiency impacts not only on ground maneuver and fire support coordination, but also on aviation mission planning and precision-munitions targeting. This is the single most urgent constraint on military effectiveness in the near and mid-term future. As General Bob Scales has documented in his own book, we still cannot do intelligence support in limited war scenarios.[[17]](#endnote-17)

• Our “cultural terrain” included 40 countries whose primary language was Arabic or other than English, Spanish or French (most practicing Islam or an eastern or tribal religion), and 22 Christian/orthodox countries where Spanish and French were the most common language.

In other words, in virtually our entire expeditionary environment, our aviation assets—both fixed wing and helicopter—are severely constrained in terms of lift and range (or loitering capability) at the same time that we have virtually no cross-country mobility and our most expensive ground assets are next to useless.

It is at this point that the Navy and Marine Corps as well as the US Army must be driven to question the viability of USAF aircraft designs that are distant from the real world of hot and humid atmospheres; and reconsider the roles played by artillery and armor – we must evaluate how some functions might be down-sized (if left on the ground), realigned (if moved to aviation or naval gunfire) and/or enhanced (if augmented with C4I2 assets able to better orchestrate a mix of ground-based, air-based, and theater precision-munitions resources).

As noted before there is much that is wrong with the current “joint” system for defining MNS/ROC. To reinvent the US Army we need to radically enhance how we do MNS/ROC, not only at the service level, but across DoD and WoG.

*In our present configuration we are too expensive, too heavy, too slow, too few, and severely vulnerable in rear areas, bridgeheads, and across our communications grid.*

### Global Reach – the Mobility Challenge

“Getting there” is half the challenge. When we looked at various parameters for naval deployment and employment, the following emerged:

• Forty-two percent of our countries could not be reached in less than six days with existing ARG deployment patterns.

• Half of our countries did not have usable ports and would require in-stream off-loading of amphibious and Maritime Pre-Positioning Ships (MPS).

• Most of our world can accommodate strategic airlift (but only one or two major lift aircraft at a time – the C-130 remains the best platform for rapid broad access to any country).

• Noncombatant Evacuation Operation (NEO) logistics presented some real difficulty—capital cites beyond the round trip range of a CH-46 (i.e. requiring forward refueling points), very hot aviation temperatures and very large numbers of Embassy personnel as well as U.S. citizens.

What does this all mean? Our environment is lethal, but much of that lethality is static. We need to trade-off mobility in both services against firepower, lift against weight, communications and intelligence against weapons systems—and at the strategic level, we need to take a very hard look at the possibility of trading off or integrating maritime mobility with air transport mobility. An improved understanding of our cultural and physical environment, increased emphasis on lift and logistics as well as the communications and intelligence architectures to support our operations are our best means of maintaining capabilities in the face of a reduction in force.

The time/distance/weight/lethality/energy challenge must be rooted in global reality if we are to make the most of our limited resources and be able to put exactly the right mix of capabilities anywhere in the world in the shortest possible time and the greatest likelihood of success in mission accomplishment.

*In our present configuration we are too expensive, too heavy, too slow, too few, and severely vulnerable in rear areas, bridgeheads, and across our communications grid.*

## Limitations of the Original Study and This Monograph

The original Marine Corps study did not examine all elements of the model, only 24 elements across the military, civil, and geographic bands of the model. The US Army could usefully validate and modify both the model and the list of countries that define the “alternative reality” universe to the prevailing DoD approach, and then research every element of the model. This monograph does not cover all of the elements of the USMC model (naval hydrography, for example). It seeks to provoke and inspire a fresh and complete US Army look at the real world.

Most countries where the USA might intervene do not require all of the US forces that would normally be committed to a Major Theater War (MTW). A balance needs to be struck – one that the National Military Strategy has always refused to consider – between “most likely” contingencies in the low threat – small force domain, and “worst case” contingencies that automatically assume we will be confronting one of our two peer competitors: China or Russia. Such a balance would radically ease the time/distance/weight challenge for most contingencies.

This model also does not address the foreign factor – both the degree to which other countries can and should be expected to bear a major portion of the burden for any operations in their defense or in defense of their expeditionary interests, and the degree to which we must be trained, equipped, and organized to do “by, with, and through” operations with indigenous forces. US Special Operations Forces (SOF) should not be the only Army units fully capable of “by, with, and through” operations – this must become an Army-wide standard capability – if it does, it will have substantial C4I2, combined arms coordination, and training implications, including a need for major increases in our foreign language proficiency and foreign cultural understanding, across no fewer than 33 languages, all of which will require sustainment, not our present “hit and run” approach that combined cursory training with one language tour, and on.

# Threat Environment

## Ongoing Conflicts

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **LOW** | **LOW-MEDIUM** | **MEDIUM** | **MEDIUM-HIGH** | **HIGH** |
| Repression | Drug conflicts | Insurgencies | Civil war | Regional conflict |

**SUMMARY ASSESSMENT**

The total number of countries engaged in some level of conflict is 67, and the total number of individually-identified conflicts is 715.[[18]](#endnote-18) Apart from conflicts, there are secessionist movements: 8 in Africa, 20 in Asia, 12 in Europe, 2 in the Middle East.[[19]](#endnote-19) Ranked in terms of cumulative violence, the top on-going conflicts include Afghanistan, Iraq, Syria, and Nigeria including spill-over effects from Boko Haram in Cameroon, Chad, and Niger. Conflicts that have causes over 1,000 deaths but fewer than 10,000 deaths in the current or past year include (in order of duration of the conflict) the Kurdish-Turkish conflict, the Somali Civil War, the war in North-West Pakistan, the Mexican Drug War, the Libyan Civil War, the Yemeni Civil War, the Sinai insurgency in Egypt, the South Kordofan conflict in Sudan, the South Sudanese Civil War, and the war in Donbass, Ukraine.[[20]](#endnote-20) Other conflicts not acknowledged by mainstream authorities but considered significant by Global Security, an alternative source, include Algeria (insurgency), Angola (Cabinda), Burkina Faso (state failure), Burundi (civil war), Colombia (insurgency), Georgia (civil war), Indonesia (Papua, West Irian), Kyrgyzstan (civil unrest), Laos (Hmong insurgency), Namibia (Caprivi Strip), Peru (Shining Path), Philippines (Moro uprising), and Uzbeckistan (civil disturbances).

**SELECTED “HARD” COUNTRY IN EACH REGION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Africa** | **Americas** | **Asia/Pacific** | **Europe** | **Middle East** |
| Nigeria | Mexico | Afghanistan | Turkey | Syria |

**PLANNING AND PROGRAMMING IMPLICATIONS**

The expeditionary environment is a violent one with numerous existing conflicts and high likelihood of increased instability In the future. The threat is predominantly nongovernmental, nonconventional, dynamic or random, nonlinear, and without rules of engagement or known doctrine. This threat is also difficult to guard against because our national intelligence community does not have an 'indications and warnings' capability against these 'type' threats, while the emerging enemy, by contrast, has a virtually unlimited source of drug addicts and related criminals that can be mobilized to compromise our own operational security. The emerging threat has added 'worst case' scenarios, including the threat of nonconventional attacks. such as biochemical attacks against concentrations of U.S. citizens overseas.

## Consolidated Unconventional Threats

**CRITERIA FOR LEVELS OF DIFFICULTY**

The most difficult countries are those that are heavily engaged in all three of the environmental threat issues – drugs, terrorism, and gray arms/technology transfer.[[21]](#endnote-21)

**SUMMARY ASSESSMENT**

All three of the unconventional threat domains – drug trafficking, organized terrorism whether state-sponsored or non-state in nature, and gray arms trafficking – are outside the domain of conventional military planning and programming. They are at the intersection of diplomacy, development, economic sanctions, law enforcement, and special operations with or without covert operations by the secret intelligence services. In combination with the on-going conflicts that are virtually all internal wars rather than wars between sovereign nations, the consolidated unconventional threats appear to demand a hybrid military-civilian planning and programming capability that does not exist today.

**SELECTED “HARD” COUNTRY IN EACH REGION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Africa** | **Americas** | **Asia/Pacific** | **Europe** | **Middle East** |
| South Africa | Mexico | India | Turkey | Syria |

**PLANNING AND PROGRAMMING IMPLICATIONS**

Questionable sales of restricted systems and material to unstable Third World countries are occurring largely through third party transfers. Such transfers often involve at least one Third World transit point. Included in this threat is the proliferation of nuclear, biological, and chemical weapons and manufacturing capabilities. as well as the marketing of 'Blue' (allied) weapons systems, which cannot be countered without adverse impact on friendly forces. Many of the industrialized countries of Europe as well as emerging Third World countries are showing growth in arms and technology sales in the international market. While efforts are being made by cooperating countries to prevent illegal or questionable sales, they are frequently unsuccessful. Involved countries may not yet be aware of impending sales or may disagree with a U.S. view against a sale. Gray arms trafficking and technology may generate requirements for the employment of forces to destroy arms factories and storage depots, neutralize stocks of bio-chemical weapons, or confiscate stolen materials. Drugs, terrorism, and gray arms 'targets' and scenarios require a different force structure, different organization and equipment, and different concepts and capabilities in C412. Force planners must also focus on the unique challenges of Third World environments and logistics requirements where U.S. Army forces must operate without being able to turn on the conventional warfare "pipeline.

# Military Threat

## Integrated Military Strength

The Global Firepower (GFP) ranking makes use of over 40 factors to determine each nation's Power Index score. It is a starting point for more accurately contemplating the conventional military firepower and strength of all other countries in relation to the USA.[[22]](#endnote-22)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Americas** | **Middle East** | **Africa** | **Asia-Pacific** | **Europe** |
| USA (.090) |  |  | Russia (.096)  China (.098) |  |
|  |  |  | India (.166) | France (.199) |
|  | Turkey (.262) |  | Japan (.247)  South Korea (.262) | UK (.216)  Germany (.264)  Italy (.272) |
| Brazil (.336)  Canada (.419)  Mexico (.628)  Argentina (.707)  Peru (.750)  Colombia (.750)  Venezuela (.788)  Chile (.828)  Ecuador (1.16)  Bolivia (1.55)  Guatemala (2.16)  Paraguay (2.22)  Uruguay (2.23) | Egypt (.301)  Israel (.359)  Iran (.407)  Saudi Arabia (.434)  Syria (.708)  UAE (.930)  Iraq (.934)  Yemen (.968)  Jordan (1.24)  Oman (1.42)  Kuwait (1.46)  Bahrain (1.88)  Qatar (1.90)  Lebanon (1.92) | Algeria (.451)  Ethiopia (.762)  Nigeria (.786)  South Africa (.825)  Angola (.888)  Morocco (.901)  Sudan (1.24)  Libya (1.32)  DRC (1.34)  Kenya (1.37)  Tunisia (1.41)  Zimbabwe (1.55)  Zambia (1.65)  Chad (1.83)  Uganda (1.88)  Tanzania (1.96)  South Sudan (1.98)  Ghana (2.05)  Cameroon (2.24)  Mozambique (2.31)  Niger (2.47) | Pakistan (.325)  Indonesia (.335)  Vietnam (.368)  Taiwan (.396)  Thailand (.407)  Australia (.421)  North Korea (.444)  Myanmar (.658)  Malaysia (.668)  Uzbekistan (.838)  Philippines (.866)  Bangladesh (.868)  Kazakhstan (.872)  Azerbaijan (.935)  Singapore (1.02)  Afghanistan (1.06)  Georgia (1.51)  Sri Lanka (1.63)  Turkmenistan (1.67)  Mongolia (1.80)  Cambodia (1.82) | Poland (.391)  Spain (.491)  Greece (.515)  Ukraine (.587)  Czech Republic (.638)  Switzerland (.711)  Netherlands (.718)  Romania (.774)  Belarus (.845)  Denmark (.845)  Austria (.914)  Hungary (1.00)  Portugal (1.02)  Belgium (1.04)  Bulgaria (1.07)  Croatia (1.07)  Slovakia (1.37)  Serbia (1.59)  Albania (1.96)  Lithuania (1.96) |

**PLANNING AND PROGRAMMING IMPLICATIONS**

The USA has only two peer competitors, China and Russia, neither of which is likely to do anything remotely requiring a MTW. A nuclear exchange is more probable but we do not know if our nuclear weapons will work as advertised or their delivery vehicles function reliably. If the USA embraces a grand strategy that demands that allied nations provide for their own primary defense, the reinvention of the US Army will focus on middle-weight contingencies and a role as a reserve force and “hub” for allied coalition endeavors. Algeria, Pakistan, and Turkey are interesting as “notional” countries against which to design and then measure our over-all capabilities outside of a peer to peer engagement with China or Russia.

## Ground Order of Battle

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **LOW** | **LOW-MEDIUM** | **MEDIUM** | **MEDIUM-HIGH** | **HARD** | **VERY HARD** |
| Infantry  Armor  Artillery | Draft/TR  None  None | Draft/TR  M48/LAV  Mortars | PMN/No Exp  M60/AA  How/SP | PM  T62E/MOD55  >30K FASCAM | Reg/TR  T72M1  >30K NBC | Reg/Exp  T80/64B  BLOC |

**SUMMARY ASSESSMENT**

Granting an advantage to indigenous troops fighting on their own ground, there are simply no real competitors to the USA outside of China and Russia, provided that the USA is politically committed to full utilization of the combined arms capabilities within which the US infantry is second to none. It may, however, be time to evaluate “the soldier’s load” and reflect on how the Eastern way of war, with no body armor and very limited logistics support, is more sustainable over time and space.

**SELECTED “HARD” COUNTRY IN EACH REGION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Africa** | **Americas** | **Asia/Pacific** | **Europe** | **Middle East** |
| Algeria | Cuba | China | Turkey | Iran |

**PLANNING AND PROGRAMMING IMPLICATIONS**

Besides Chinese and Russian proxies with advanced weapons systems, the conventional threat includes Third World countries using systems sold to them by allied or nominally friendly countries, and relatively sophisticated systems developed by regional powers. The proliferation of allied systems complicates our electronic warfare planning, signal intelligence, and communications; for in some instances we cannot jam them without jamming ourselves, because of shared frequency spectrums. The expeditionary environment is complex and lethal. The US Army can expect to meet trained and experienced infantry, modern armor, relatively sophisticated artillery including scatterable mines, as well as smart or stand-off munitions. Some countries have sophisticated surface-to-surface missiles and other advanced coastal defense systems. Depending on intelligence and threat country force disposition, a US force could easily conduct raid-type operations against the larger and stronger countries, contingent on air support. Such missions as Noncombatant Evacuation Operations (NEO) and other limited objective operations could be conducted with a reasonable chance of success provided there was adequate preparation and both naval and air support. In deciding how to train. equip, and organize our ground forces planners must begin with the larger context of supporting capabilities not controlled by the US Army: satellites, aviation, and sea-based support. We urgently need to revisit “the soldier’s load” and our over-reliance on electronics and heavy armor.

## Air Order of Battle

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **LOW** | **LOW-MEDIUM** | **MEDIUM** | **MEDIUM-HARD** | **HIGH** | **VERY HIGH** |
| Air OOB  Close Air  AAW(IAD) | None  None  None | DC-3/Props  Props  Early AAA | Day/VFR Jets  Day Jet Atk  HH SAMs | Early Radar  Early Smart  EW Radar | 3rd Gen Radar  STD-OFF PGM  3rd Gen SAMs | Bloc  NT/AW  Bloc |

**SUMMARY ASSESSMENT**

The total capability value was obtained by assigning points to the various air 00B, CAS, and Antiair Warfare (AAW)/lntegrated Air Defense (IAD) capabilities, with the most significant capabilities (e.g.. BLOC. 3d generation radar, Night Time/All Weather (NT/AW), Stand-Off-Precision Guided Munitions (STD-OFF PGM), 3d generation Surface-to-Air Missiles (SAMs)) receiving the most points. Air Force size and quality (an assessment of training, leadership, combat experience, and general efficiency) were also factored into the total capability value. In recent years the advantage has shifted from air attack to air defense – relatively inexpensive counter-air capabilities, combined with the very few aviation platforms the USA is able to deploy, give the advantage to any defender.

**SELECTED “HARD” COUNTRY IN EACH REGION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Americas** | **Middle East** | **Africa** | **Asia** | **Europe** |
| Cuba | Iran | South Yemen | North Korea | Turkey |

**PLANNING AND PROGRAMMING IMPLICATIONS**

The expeditionary environment in the air is as complex and lethal as that on the ground. The US force can expect to encounter threat aircraft with some night or all-weather capability, as well as smart or stand-off munitions. Threat integrated air defense systems may Include three dimensional long-range radars able to detect stealthy airborne platforms. In this regard, some countries employ an air defense system modeled after Russian equipment and doctrine. China has a relatively sophisticated network of air defense radars which provides surveillance and control, and an early warning system for the detection of hostile missiles. Threat air defense systems may also employ a variety of advanced and strategically placed SAMs. Syria, for example, has some of the most modern Russian provided SAMs as well as 50,000 personnel in a separate air defense command. An examination of aviation and air defense capabilities of expeditionary environment countries indicates that a US force could expect to conduct successful air operations against most lower-capability countries. Depending on a variety of factors, such as the operational condition of threat aircraft and air defense weapons, unit locations, and detection capabilities, a US force could also conduct operations effectively against many of the stronger countries. Given our critical reliance on vertical lift as a primary means of expeditionary mobility, planners must make more provision for the suppression of air defense, survivability of lift aircraft, and availability of CAS for all US force missions with special emphasis on stability operations and low-intensity conflict requirements. In the case of the US Army, since the US Air Force is largely unreliable in the domain of CAS, and actively destroying the A-10 long-loiter tank killer, the time appears to have arrived for a revision of the Key West Agreement and the transfer to the Army of at least the A-10 and AC-130 gunships, and perhaps also all of the C-130’s modified for aerial refueling.

## Naval Order of Battle

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **LOW** | **LOW-MEDIUM** | **MEDIUM** | **MEDIUM-HARD** | **HIGH** | **VERY HIGH** |
| Naval OOB  S/S Missiles  Patrol Craft | None  None  None | Small Surface  HE  Speed Boats | DEST/FRG  MW HE/BC  Sm Gun Boats | ASUW/ASW  Flex Traj  L Gun Boats | F/W Carrier  Countermeasures  ASUM/AntiAir | NT/AW  Bloc  Bloc |

**SUMMARY ASSESSMENT**

The total capability value was obtained by assigning points to the various naval OOB. surface-to-surface missile, and patrol craft capabilities, with the most significant capabilities (e.g., NT/AW, Fixed Wing Carrier. Bloc. Countermeasures. Antisurface Warfare (ASUW)/Antiair) receiving the most points. The Navy size and quality (an assessment of training, leadership, combat experience, and general efficiency) were also factored into the total capability value. However, a proper naval assessment has not been done in the public literature in part because all of the conventional assessments focus on ship size and capability and number, and do not focus on the severe vulnerability of conventional ships to a mix of stealth submarine attacks that cannot be detected by existing US Navy battle groups; SUNBURN anti-ship missiles zig-zagging at Mach 2 speeds; and a complete loss of all satellites including geospatial satellites, all essential to US Navy target acquisition. There are, in brief, too few ships too far away from everywhere, many armed with missiles not replenishable at sea, and insufficient littoral ships that are air-capable.[[23]](#endnote-23) As with the Air OOB, the Naval OOB makes it clear that the US has still not created a grand strategy or a joint force acquisition and operational concept that is truly integrated. The services continue to build to budget share rather than joint needs.

**SELECTED “HARD” COUNTRY IN EACH REGION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Americas** | **Middle East** | **Africa** | **Asia** | **Europe** |
| Cuba | Iran | Algeria | North Korea | Turkey |

**PLANNING AND PROGRAMMING IMPLICATIONS**

The expeditionary environment at sea could present some serious challenges for an Amphibious Task Force (ATF) enroute to, or operating in an objective area. SAMs. guns, torpedoes, antisubmarine mortars, countermeasures, and radars are common. A review of the naval capabilities of expeditionary environment countries indicates that those countries depicted in the three most difficult categories would represent a formidable threat to any naval force conducting expeditionary operations. Limited objective operations in these countries should be planned to take greatest advantage of intelligence, naval support, and the element of surprise. Planners should also pursue continued close coordination with the Navy to focus on the shortfalls in amphibious lift, shallow-water anti-submarine and mine warfare, over-the-horizon delivery. and the suppression of coastal missiles.

## Nuclear, Biological, Chemical Order of Battle

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LOW** | **LOW-MEDIUM** | **MEDIUM** | **MEDIUM-HARD** | **HARD** | **VERY HARD** |
| Countries believed to not have an NBC weapons capability. | Countries suspected of having chemical weapons without a delivery capability. | Countries suspected of having chemical weapons with a delivery capability. | Countries which have used chemical weapons. | Countries which have used chemical and biological weapons. | Countries possessing nuclear and chemical weapons. |

**SELECTED “HARD” COUNTRY IN EACH REGION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Americas** | **Middle East** | **Africa** | **Asia** | **Europe** |
| Cuba | Saudi Arabia | South Africa | Pakistan | Iran |

**PLANNING AND PROGRAMMING IMPLICATIONS**

The NBC threat must be factored into Service capabilities planning and programming. There are countries that have used bio-chemical weapons and can be expected to use them again. There are increasing numbers of countries that have stocks of bio-chemical weapons, and other countries working to maintain or develop nuclear capabilities. Perhaps most threatening, as NBC technology and weapons proliferate, the opportunities for nongovernmental groups to steal working weapons and active biochemical agents increases dramatically. The next decade may well see a large metropolitan area held hostage to the threat of covertly emplaced and remotely detonated bio-chemical or nuclear weapons. Some US forces, for example those assigned contingency missions in the Middle East and selected countries in Asia, must continue to plan for and stock equipment needed to fight in a contaminated environment. All US forces should be prepared to execute raids to seize and neutralize NBC weapons under development or in transit. However, it would be imprudent to over-emphasize this threat, which appears in only 25% of the countries of concern in the original study. One strategy of possible value would be to carefully tailor a single US combined arms force and develop a continuous NBC containment training and equipping cycle for this standing unit.

# Civil-Geographic Environment

## Cultural Factors: Language and Religion

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |
| --- | --- | --- | --- |
| **LOW** | **MEDIUM** | **HIGH** | **VERY HIGH** |
| English  Christian | Spanish/French  Christian Orthodox | Arabic  Islam, Eastern, Tribal | All Other Languages  All Other Religions |

**SUMMARY ASSESSMENT**

The regions with the hardest languages and the most distant religions were the Middle East/Southwest Asia (Iran being the most difficult), Africa (Ethiopia and Somalia most difficult), and Asia/Pacific (Afghanistan, Bangladesh. Indonesia, and Pakistan the most difficult). The Western Hemisphere and Europe/Mediterranean (with the exception of Turkey and Yugoslavia) were found to have a much closer language and religion association with the U.S.

**SELECTED “HARD” COUNTRY IN EACH REGION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Americas** | **Middle East** | **Africa** | **Asia** | **Europe** |
| Cuba | Saudi Arabia | South Africa | China | Russia |

**PLANNING AND PROGRAMMING IMPLICATIONS**

Language and religion are two major elements of the 'cultural' terrain within which the US forces must conduct stability operations and limited objective operations. Both require intense interaction with the civilian populace during the operation. The good news is that a US FORCE with strong Spanish and French language skills can operate in 79% of the countries studied, as English, Spanish, or French are established as second languages. Arabic. however, remains a weak point, and is required in fully 30% of the countries of concern. Along with Arabic, an understanding of Islam is critical in 36% of the countries. Intelligence specialists are not the only ones who need language skills. Low intensity operations require many more soldiers and officers in occupational specialties as wide-ranging as military police, engineers, and public affairs to be in language designated billets. The lack of an active duty PSYOP and Civil Affairs capability may pose a dilemma to US forces needing no-notice support but lacking the authority to mobilize reservists. Religion is an important environmental feature. One product that could be developed by the reserves for contingency use would be a series of distinct Codes of Conduct corresponding to each major religion and related ethnic or racial group likely to be encountered by the US force. Such a series should be no more than one page in length per category, and suitable for issuance to the individual soldier.

## Critical Weather Factors

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LOW** | **LOW to MEDIUM** | **MEDIUM** | **MEDIUM to HIGH** | **HIGH** | **VERY HIGH** |
| Rain 12” or less annually; temperatures between 40° F and a heat index of 80 | Rain 70” or more annually; temperatures between 40° F and a heat index of 80 | Rain between 12” and 70” annually; wide variations in temperature and rainfall. | Rain 12” or less annually; heat index of 80 or above for extended periods | Rain 70” per year or more; heat index 80 or above for extended periods. | Rain 70” per year or more; temperature of 40° F or below for extended periods. |

**SUMMARY ASSESSMENT**

The heat index is the combined relative humidity and air temperature. Africa presents a variety of conditions including some of the-most challenging. Asia and the Pacific are primarily wet and hot or to a lesser extent mixed, while Europe has the most difficult conditions in Norway, followed by mixed or variable situations elsewhere. Within the expeditionary environment, only one country, Norway, had wet and cold conditions which are the most difficult to operate in. There were 33%, or 23 of 69 countries with the next most difficult conditions, wet and hot. Countries such as Colombia, Panama, Liberia, and the Philippines fall within this category. The next level of difficulty is dry and hot conditions with 24%, or 16 of 69 countries in the expeditionary environment. Countries such as Libya and Angola are in this grouping. This is followed by countries with mixed or highly variable conditions. Here there are 33% of the total, or 23 countries, including Cuba and Iran.

**SELECTED “HARD” COUNTRY IN EACH REGION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Americas (Wet/Hot)** | **Middle East** | **Africa (Wet/Hot)** | **Asia** | **Europe (Wet/Cold)** |
| Surinam | Syria | Zaire | Indonesia | Norway |

**PLANNING AND PROGRAMMING IMPLICATIONS**

As indicated by the above figures, the weather in the expeditionary environment is uniformly **hot.** This suggests that evaluation standards for vertical lift and other systems should be based on 'hot' as the norm rather than as the extreme' condition. Norway, and its cold weather conditions is unique among the countries. The cost to US forces in maintaining a cold weather capability for this single contingency may merit review.

## General Geographic Conditions

**CRITERIA FOR LEVELS OF DIFFICULTY**

Four operational terrains require four distinct approaches to training, equipping, and organizing the force: Desert, Jungle, Mountain, Urban.

**SUMMARY ASSESSMENT**

In the Western Hemisphere, over half the countries have primarily mountainous conditions. Countries such as Colombia, El Salvador, and Panama fall into this most difficult category. Three countries in the region, Costa Rica, Nicaragua. and Surinam, have predominately jungle conditions which are the next most difficult after mountains. In the Middle East/Southwest Asia, almost 60 percent of the countries have desert conditions. These include Egypt, Kuwait, and Saudi Arabia. In this region, Iran, North Yemen, and Oman can be characterized as mountainous. Bahrain, Iraq, and Lebanon have 70 percent or more of their populations living in urban centers. Africa was found to have a range of conditions. Eight countries such as Algeria. Somalia. and Tunisia have desert conditions, three have jungle (Liberia, Uganda, and Zaire), and four have mountains (Ethiopia. Madagascar, South Africa, and Zimbabwe) as their primary features. In Asia/Pacific, just under half the countries had mainly jungle conditions. Representative countries in this category were Burma, Indonesia, and Malaysia. Mountainous conditions prevailed in almost 40 percent of the countries in this region. Countries such as Afghanistan, North Korea, South Korea, and the People's Republic of China were in this category. In Europe / Mediterranean. Greece, Norway, Turkey, and Yugoslavia presented mountainous conditions while Denmark and Italy had mainly urban populations.

**SELECTED HARD COUNTRIES IN EACH TERRAIN GROUP**

MOUNTAINS: Colombia, Iran, North Yemen, Ethiopia, South Africa, Zimbabwe

JUNGLE: Bangladesh, Indonesia, Nicaragua, Surinam, Thailand, Uganda, Zaire

DESERT: Algeria, Egypt, Saudi Arabia, Somalia, South Yemen, Sudan, Syria, Tunisia

URBAN: Bahrain, Cuba, India, Lebanon, Mexico, Peru, Venezuela

**PLANNING AND PROGRAMMING IMPLICATIONS**

The four types of terrain appear with sufficient frequency to require the development of full combined arms capabilities for each: mountains, jungles, deserts, and urban environments. Scenarios corresponding to each of these different environments would be helpful in developing Required Operational Capabilities (ROC). At least one “point” brigade should be maintained that is constantly trained, equipped, and organized for each of these specific environments.

## Operational Elevation

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LOW** | **LOW to MEDIUM** | **MEDIUM** | **MEDIUM to HIGH** | **HIGH** | **VERY HIGH** |
| < 2,000 ft. | > 2,000 ft. | > 4,000 ft. | > 6,000 ft. | > 9,000 ft. | > 12,000 ft. |

**SUMMARY ASSESSMENT**

In the process of grading each expeditionary environment country, averages were taken of elevations adjacent to coastal areas, capital cities, key installations, important lines of communications, and other areas where Marines would be likely to operate. In the Western

Hemisphere, half the countries had operational elevations between 2,000 and 4,000 feet. The mountainous country of Peru was found to have the highest elevations. In the Middle East/Southwest Asia, almost 80 percent of the countries were grouped in the elevation categories

of less than 4,000 feet and less than 2,000 feet. North Yemen, Iran, and Saudi Arabia had the highest elevations.

**SELECTED HARD COUNTRIES IN EACH ELEVATION GROUP**

* Above 12,000 Feet: Peru
* Above 9,000 Feet: Papua New Guinea, Peru
* Above 6,000 Feet: Afghanistan, Angola, Colombia, Ethiopia, Greece, Kenya, Madagascar, Malaysia, Mexico, North Korea, North Yemen, Norway, Turkey, former Yugoslavia

**PLANNING AND PROGRAMMING IMPLICATIONS**

In preparing for all types of conflict situations, the elevations where US forces will be operating should be a foremost consideration. Particularly in helicopter operations, weather conditions, as well as elevation, must be carefully assessed. The vertical lift of US forces, together with their equipment and supplies, over varied terrain to inland locations is a fundamental requirement for most operations and must receive the careful attention of planners in order to be successfully executed. The expeditionary environment differs from the standard planning environment based on averages in two areas: aviation altitude and aviation temperature and humidity. Both are extraordinarily important and demand firm leadership from ground commanders and staff who desire to avoid nasty surprises, such as aviation assets that are only able to carry half as much, half as far, and loiter half as long, as the “book” says they will. *When combined with the 60% of 60% rule used by Air Force planners, aviation appears to be the weak link in expeditionary operations. We don’t plan for it, we don’t build to it, and we don’t train for it.*

## Cross-Country Mobility

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |
| --- | --- | --- |
| **LOW** | **MEDIUM** | **HIGH** |
| Generally suited | Partially suited | Generally unsuited |

**SUMMARY ASSESSMENT**

Trafficability in this assessment reflects the suitability for cross-country tracked vehicle movement. Over 60 percent of the countries are generally unsuited for this movement and an additional 20 percent are only partially suited. Where large portions of a country are unsuitable for cross-country movement of tracked vehicles due to broken terrain, extensive ground cover, marshes, swamps, and/or significant bodies of water, or in those countries where the coastal region prevents tracked movement from the beach to the interior, the entire country is categorized as unsuited for tracked movement. In the Western Hemisphere, almost 80 percent of the countries were found to be generally unsuited for cross-country movement by tracked vehicles. In the Asia/Pacific region trafficability presents a serious problem with 13 of 18 countries or 72 percent generally unsuited for tracked movement. The primary impediments to trafficability are dense tropical jungles, numerous wetlands such as swamps and marshes, and periodic heavy rainfall.

**SELECTED HARD COUNTRIES GENERALLY UNSUITED**

* Africa: Angola, Liberia, Namibia, South Africa, Sudan, Zaire, Zimbabwe
* Americas: Colombia, Central America, Dominican Republic, Jamaica, Peru, Surinam
* Asia/Pacific: Bangladesh, China, Indonesia, North Korea, South Pacific Islands, Thailand
* Europe: Denmark, Greece, Norway, former Yugoslavia
* Middle East/Southwest Asia: Iran, Iraq, Oman, Saudi Arabia, Yemen (North and South)

**PLANNING AND PROGRAMMING IMPLICATIONS**

US Army capabilities which are totally dependent on vehicular transport may need to be reevaluated. A premise which led to these generalizations was that if the coastal region of a country was unsuited, the entire country was assumed to be unsuited because heavy vehicles could not get from their offshore launch point to inland objectives. Maritime Prepositioning Ships (MPS) and strategic airlift deployment alternatives were not considered. The US Army could – if it commits to C-130 and Joint Precision Airdrop System (JPADS) deliverable forces with no elements weighing more than 20 tons for the former and 15 tons (30,000 pounds) for the latter – JPADS IV should be redefined down from 60,000 pounds to 45,000 pounds (22.5 tons against a maximum planned weight of 20 tons but crew members parachute in separately).

## Intervisibility: Average Line of Sight Distance

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |
| --- | --- | --- |
| **LOW** | **MEDIUM** | **HARD** |
| > 2,000 toward 3,000 meters | > 1,000 < 2,000 meters | > 1,000 meters |

**SUMMARY ASSESSMENT**

In the Western Hemisphere, over 80 percent of the countries have poor intervisibility where armor and antiarmor weapons cannot be fully employed. In the Middle East/Southwest Asia, more than half the countries had poor intervisibility. In Africa, 60 percent of the countries had average line of sight distances less than 1,000 meters. The great majority of countries in Asia/Pacific and Europe/Mediterranean fall into the category of very low intervisibility.

**SELECTED HARD COUNTRIES IN EACH REGION**

Africa: Angola, Namibia, South Africa, Sudan, Uganda, Zaire

Americas: Colombia, Central America, Jamaica, Peru, Surinam

Asia/Pacific: Bangladesh, China Indonesia, North Korea, Philippines, Thailand

Europe: Greece, Italy, Norway, Turkey, former Yugoslavia

Middle East: Iran, Lebanon, Oman, Saudi Arabia, Yemen (North & South)

**PLANNING AND PROGRAMMING IMPLICATIONS**

An overall assessment of intervisibility in the expeditionary environment indicates that almost three quarters of the countries have average line of sight distances less than 1,000 meters. It was determined that on an average the engagement range for armor and antiarmor weapons was about 900 meters. This means that most of the countries in the expeditionary environment have terrain, vegetation, and/or other conditions of obscuration which would preclude engagements by these weapons at their maximum ranges that have been designed, built, and are maintained at very great expense. It does not appear to be cost effective to acquire and maintain a sizeable number of these weapons in the US Army inventory it they cannot be fully utilized. Light infantry forces with a minimum of armor and heavy equipment combined with organic versatile responsive CAS would appear to be better able to operate in the restricted terrain and visibility conditions that were identified in this assessment. Force planners must continually evaluate the tradeoffs between forces and weapon systems to select those that can be employed most effectively in the anticipated environment.

# Logistics Factors

## Strategic and Tactical Lift Capabilities and Constraints

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |
| --- | --- | --- | --- |
| **LOW** | **MEDIUM** | **HIGH** | **VERY HIGH** |
| < 2 days away by sea | 2-4 days away by sea | 4-6 days away by sea | > 6 days away by sea |

**SUMMARY ASSESSMENT**

The time/distance/weight challenge is the single most important factor determining joint force structure – and the most ignored. This has three facets: how fast can the distributed Navy/Marine Corps team get there (generally 4-6 days); how fast can an air-mobile Army get there (inclusive of political considerations, often weeks); and how heavy a force are we sending over what period of time. The US Army has done some excellent work “eating the tail” but there is much more to be done in the way of creating energy and water solutions for the expeditionary environment – using Open Source Everything Engineering (OSEE) that is not understood by anyone in DoD – and much more to be done in designing expeditionary forces from a logistic supportability point of view to include the elimination of all dependencies on deployed contractors.

**SELECTED HARD COUNTRIES IN EACH REGION**

Africa: Angola, Ethiopia, Liberia, Namibia, South Africa, Sudan, Uganda, Zaire, Zimbabwe

Americas: Colombia, Central America, Jamaica, Mexico (South), Peru, Surinam, Venezuela

Asia/Pacific: Afghanistan, Japan (North), North Korea, South Pacific Islands

Europe: Denmark, Norway, Turkey

Middle East: Yemen

**PLANNING AND PROGRAMMING IMPLICATIONS**

This assessment has found that 42 percent of the countries have US Navy/Marine Corps ARG/MEU response times of more than six days. This suggests that the earlier Marine Corps interest on strategic deployment by air merits in-depth planning and programming support and that the US Army should be advancing those studies on its own. In the area of tactical lift, capabilities such as the Landing Craft Air Cushion (LCAC) will allow a naval expeditionary force to be far offshore and still effectively strike a target. The CH-46 helicopter, however, does not have the extended range to adequately support the Over the Horizon (OTH) assault and a replacement such as the MV-22A Osprey needs to be acquired. By using tactical lift capabilities such as the Advanced Assault Amphibious Vehicle, high-speed LCAC, and extended-range vertical lift, the ATF will have a better opportunity to execute its OTH assault.

## Non-Combatant Evacuation Logistics

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LOW** | **LOW TO MEDIUM** | **MEDIUM** | **MEDIUM TO HIGH** | **HIGH** | **VERY HIGH** |
| U.S. Embassy staff less than 25; no evacuees; and evacuation site located on the coast. | U.S. Embassy staff - 25 to 50; evacuees - up to 100; and evacuation site up to 100 nm from the coast. | U.S. Embassy staff - 50: to 100; evacuees - 100 to 200; and evacuation site 100 to 300 nm from the coast. | U.S. Embassy staff - 100 to 250; evacuees - 200 to 300; and evacuation site 300. to 500 nm from the coast. | U.S. Embassy staff - 100 to 250; evacuees - 200 to 300; and evacuation site 300. to 500 nm from the coast. | U.S. Embassy staff over 500; evacuees over 500: and evacuation site 1,000 nm or more from the coast |

**SUMMARY ASSESSMENT**

The capital of each country was selected as the NEO inland objective (evacuation site). Distances were calculated from a point just off the coast to the capital. In the Western Hemisphere, over 80 percent of the countries fell into the most difficult category due primarily to the large number of potential evacuees. In the Middle East/Southwest Asia, all but two countries were rated in the three most difficult categories. There were 9 of the 16 countries in this region that had more than 500 potential evacuees while 5 countries had distances to their capitals (evacuation points) exceeding the range (70 nautical miles) of the CH-46 medium lift helicopter. In Africa, over half the countries presented the most difficult logistic conditions for NEO. Nine of the 15 countries in this region had evacuation distances greater than the range of the CH-46. In Asia/Pacific a total of 12 countries were in the most difficult category while in Europe/Mediterranean all 6 countries were rated most difficult. These two regions had 7 countries where distances to the evacuation point exceeded the range of the CH-46. There were 18 countries in these regions with more than 500 evacuees.

**SELECTED HARD COUNTRIES IN EACH REGION**

Africa: Algeria, Ethiopia, Kenya, Liberia, South Africa, Sudan, Tunisia, Uganda, Zimbabwe

Americas: Colombia, Central America, Jamaica, Mexico (South), Peru, Surinam, Venezuela

Asia/Pacific: Bangladesh, India, Indonesia, Japan, Malaysia, Pakistan, Philippines, Thailand

Europe: Denmark, Greece, Italy, Norway, Turkey, former Yugoslavia

Middle East: Bahrein, Egypt, Kuwait, Lebanon, Oman, Saudi Arabia, Syria, UAE, Yemen,

**PLANNING AND PROGRAMMING IMPLICATIONS**

The study found that these operations are extremely difficult In 53 of the 69 countries (77%) unless there is a major draw-down of U.S. citizens before the crisis develops, or provisions are made for the use of strategic airlift to evacuate the noncombatants. The existing range and lift capability of the CH-46 cannot support the requirements of the expeditionary environment. In most countries, there are over 100 U.S. citizens in the Embassy, and/or over 200 U.S. citizens in the national capital. and/or the distance of the NEO objective from the offshore platform is greater than 300 nautical miles.

## Mapping, Charting & Geodesy Shortfalls

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LOW** | **LOW to MEDIUM** | **MEDIUM** | **MEDIUM to HIGH** | **HIGH** | **VERY HIGH** |
| 1:50 New | 1:50 Old | Some 1:50 | MSI Avail | 1:250 New | No charts, No MSI |

**SUMMARY ASSESSMENT**

Broadly speaking, the 1:50K gaps (not produced by anyone, even the mapping agencies of the respective countries) include:

* North America:  Greenland.  Canada is complete but mostly unpublished
* South America/Caribbean:  only significant gaps are in the interior parts of Brazil and in adjacent areas of most countries bordering Brazil
* Africa:  very incomplete in the Sahara countries, DRC and Congo-Brazzaville, CAR. Somalia, Sudan/South Sudan, Cameroon, Gabon; complete or mostly complete in nearly all other countries.
* Middle East:  complete except for interior parts of KSA, Yemen and Oman, where there is complete 100K, though.
* Antarctica:  mostly incomplete

Roughly 25-30% of the Earth’s land surface is not yet covered in 50K or greater. However, a great deal of the completed 50K mapping is **decades old** and hence lacking all the infrastructure as well as indigenous cultural features and changing water conditions.[[24]](#endnote-24)

**PLANNING AND PROGRAMMING IMPLICATIONS**

There are two major aspects to the MC&G situation: the first is availability of current, not just decades old 1:50,000 combat charts for all contingency areas. The absence of current roads, piers, landing zones, new buildings, waterways, and more is a critical deficiency the NGA has been slow to address. The second relates to the form of delivery. Most multinational and non-governmental partners needs paper maps – as will the US Army if the satellites go down – and NGA is not ready to meet this need. Fortunately there are commercial alternatives, but the US Army must plan and budget for commercial resolution of its needs.

## Airfields

**CRITERIA FO R LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LOW** | **LOW to MEDIUM** | **MEDIUM** | **MEDIUM to HIGH** | **HIGH** | **VERY HIGH** |
| > 1 C-5 | 1 C-5 only | > 5 C-130 | 2-14 C-130 | 1 C-130 only | None |

**SUMMARY ASSESSMENT**

Overall. nearly 80 percent of the countries have at least one airfield that can receive a single C-5. There are more than one C-5 capable airfields in 50 percent of the countries. Some of the airfields, however, are constrained in such ways as runway condition, ramp space, fuel storage, and other support functions. Africa has the fewest countries with airfields able to handle large transport aircraft. The six countries of Algeria, Angola. Madagascar, Tunisia. Uganda, and Djibouti are all unable to accommodate C-5s. In addition to the simple physics of runway length in relation to aviation temperature and humidity; and number of Maximum on Ground (MOG) aircraft spots, there are issues of Materials Handling Equipment (MHE), Petroleum, Oils, and Lubricants (POL), Aerospace Ground Equipment (AGE), and replacement spares package, special support equipment, patient movement items/aeromedical evacuation (AE) support equipment. Weather, aircrew support, air-traffic control, and ground control (as well as airport security in relation to potential attack) are all factors impacting on force flow. With MOG-2 a standard planning factor, assuming permissive airfield conditions, an average of 29 days are required to bring in a standard Army brigade.[[25]](#endnote-25)

**SELECTED HARD COUNTRIES IN EACH REGION**

Realistically all countries are hard from a large unit delivery perspective. This is a major factor to be considered in re-inventing the US Army.

**PLANNING AND PROGRAMMING IMPLICATIONS**

The information shown here is designed to illustrate the types of airfields available for planning purposes and provide indicators about where accessibility by strategic airlift may be most difficult. While single strategic airlift (the C-5) is a viable option for most countries, the reality is that MOG restrictions preclude division-level deliveries in a timely manner. Regional transport campaign plans are needed that leverage C-5 capable airfields in adjacent countries, with over-lapping C-130 “fans” for the final delivery of units in tactical readiness mode. This is an entirely new concept for planners, one that merits a doctrine, a new handbook, and repeated exercising and testing.

## Ports

**CRITERIA FOR LEVELS OF DIFFICULTY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LOW** | **LOW to MEDIUM** | **MEDIUM** | **MEDIUM to HIGH** | **HIGH** | **VERY HIGH** |
| Wide harbor  > 50’ depth | Wide harbor  > 40’ depth | > 40’ depth | 35-39’ depth | 25-34’ depth | None |

**SUMMARY ASSESSMENT**

A major post accommodates vessels over 500 feet in length, has channel and anchorage depths of 25 feet or more, and a harbor size of large, medium or small. Overall. it was found that 33 of 69 countries or about 48 percent of the total fall into the top three levels of difficulty. There were 10 countries, or 14 percent, which have no acceptable major ports. Such countries as El Salvador, Somalia, Oman. and Bangladesh were in this most difficult category. A total of 15 countries, or 22 percent of the expeditionary environment were in the second most difficult category where major ports had channel and anchorage depths of only 25 to 34 feet. Representative countries In this category were Cuba, Nicaragua, Iraq, and Libya. Channel and anchorage depths below 35 feet are highly marginal for the approach .and off-load of strategic sealift such as the Maritime Prepositioning Ships (MPS) and other Military Sealift Command (MSC) shipping. MPS ships have drafts up to 33 feet. Certain types of MSC and U.S. Flag Fleet cargo ships have drafts over 40 feet.

**SELECTED HARD COUNTRIES IN EACH REGION:**

Americas: Cuba, Dominican Republic, El Salvador, Surinam

Africa: Somalia, Uganda, Zimbabwe

Asia: Afghanistan, Bangladesh, Spratley Islands

Europe: Not Applicable (Eastern Europe not covered by original study)

Middle East: Iraq, Libya, Oman, North Yemen

**PLANNING AND PROGRAMMING IMPLICATIONS**

The information shown here is designed to illustrate the types of ports available for planning purposes and provide indicators concerning those countries where accessibility by strategic sealift is most difficult. In the process of rapid mission planning for contingency operations in expeditionary countries, planners must able to examine all avenues of entry, including sea, air, and land to devise the most effective combination of flow channels. US Army wargaming initiatives and other training efforts should be designed to support this process.

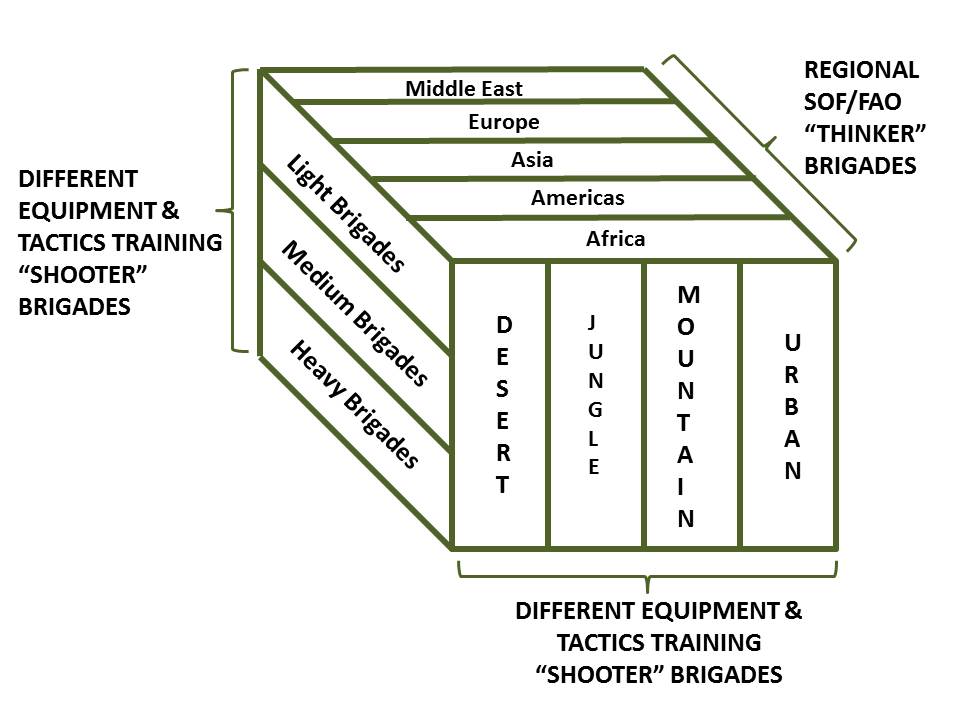
# Conclusion

The first monograph in the series sketched out a Grand Strategy in which the US Army might be re-invented in relation to changing treaty obligations, the closure of all bases overseas, and a radical restructuring of defense, diplomacy and development in consonance with a substantial upgrading of policy maturity and intelligence utility.

This monograph provides a starting point – it is by no means complete – for the other major external influence on how the US Army might reinvent itself: Global Reality.

Among the take-aways from Global Reality are these:

* We need four distinct forces after next tailored to Mountainous, Jungle, Desert, and Urban environments, at three levels of capability: light, medium, and heavy. One size does not fit all, we need to break out of that box. At the same time, because cultural factors have become so much more important as OOTW has become the standard mode of engagement, we clearly need to consider the creation of Foreign Area Officer (FAO) brigades – with companies of language qualified civil affairs, engineering, intelligence, military police, and other WoG/MNO language intense liaison functions – that can be married up with fighting forces for each of the five specific regions of the world that are cultural unique: Africa, Americas, Asia, Europe, and the Middle East.[[26]](#endnote-26)



**Figure 11: Shooters and Thinkers Organized by Weight, Terrain, & Region**

* In combination with the limitations of airports around the world, the limitations of bridges around the world, and the current capabilities of JPADS, 20 tons is the central weight target for all US Army vehicles fully-loaded with armor, ammunition, fuel, water, crew, and passengers.
* Aviation – both long-haul airlift to deliver Army forces and a sufficiency of responsive CAS – is the single greatest Achilles heel of the US Army. A national-defense level renegotiation of the Key West Agreement would appear to be essential, and at a minimum, CAS should be transferred to the US Army (A-10, AC-130).
* Satellites – not only communications but also GPS satellites – as now maintained by the USAF and to a lesser extent the US Army, and the second major Achilles heel. The corollary of this, meriting further consideration, is the reality that our entire structure has become too complicated and too dependent on contractors and a web of C4I2 feeds and speeds that are neither affordable nor sustainable in the long run – they are also impossible to expand to include WoG, MNO, and “eight tribe” information-sharing and sense-making networks.
* Threat levels change depending on the level of analysis. This is still not understood by the US intelligence community, PMs, or others. Global Reality is nuanced, and we need to not only create the capability envisioned by the NGIC (GRAND VIEW), but we need to create the capabilities needed – including organic aerial reconnaissance – to provide US Army units with real-time firing solutions across a broad battlefield.
* The MNS/ROC system remains broken, in part because Service design is rooted in a system that accepts budget share and legacy treaties and bases as a given, and our Army intelligence system does not do strategic, operational, tactical, and technical intelligence as four distinct mission areas intended to help the US Army re-structure itself in the context of a Grand Strategy it can help to inspire; and a Global Reality that no one else is serious about embracing as a foundation for how we train, equip, and organize.
* WoG/MNO operations – “by, with, and through” are the default protocol of the future. White SOF has been neglected – it may be that the FAO brigades should be part of USSOCOM, at the same time that SOF comes back to its original charter of “by, with, and through,” reducing black SOF, hunter-killer teams, to 20% of the whole.

In the third and final monograph, prior publications focused on the future of the Army and the reinvention of the US Army will be reviewed and related to the new notional Grand Strategy and this quick look at Global Reality. A new US Army in which the infantry (including SOF/FAO) jumps from 1% to 10% of the Pentagon budget; in which $150 billion a year is earmarked for an Inter-Agency Development Corps in which WoG and MNO operations become the norm, will be presented for consideration. All of this is a provocation, not a prescription.

# Glossary

AA Anti-Air

AAW Anti-Air Warfare

AE Aeromedical Evacuation

AGE Aerospace Ground Equipment

ARG Amphibious Ready Group

ARMR Armor

ARTY Artillery

ASUW Anti-Surface Warfare

ASW Anti-Submarine Warfare

ATF Amphibious Task Force

Bloc Chinese and Russian-level proxy

C4I2 Command, Control, Communications, Computers, Intelligence, Interoperability

CAS Close Air Support

Chem Chemical

CIA Central Intelligence Agency

CMC Commandant of the Marine Corps

CONUS Continental United States

CSA Chief of Staff US Army

CS/CSS Combat Support/Combat Service Support

D3 Defense, Diplomacy, Development

DEST Destroyer

DoD Department of Defense

ENGR Engineers

Exp Experienced

F Fahrenheit

Flex Traj Flexible Trajectory

F/W Fixed Wing

FASCAM Family of Scatterable Mines

FRD Federal Research Division

FRIG Frigate

FT Feet

GFP Global Firepower

How Howitzer

HMMWC High Mobility Multipurpose Wheeled Vehicle

IAD Integrated Air Defense

IN Infantry

IO/CA Information Operations/Civil Affairs

JPADS Joint Precision Air Drop System

K Kilometers

LAV Light Armored Vehicle

LCAC Landing Craft Air Cushion

LoC Library of Congress

M Meters

MAF Mission Area Factors

MAGTF Marine Air Ground Task Force

MC&G Mapping, Charting, & Geodesy

MCIA Marine Corps Intelligence Activity

MEU Marine Expeditionary Unit

MHE Materials Handling Equipment

MNS Mission Needs Statement

MOG Maximum on Ground

MP/POW Military Police/Prisoners of War

MPS Maritime Prepositioning Ships

MSC Military Sealift Command

MSI Multi-Spectral Imagery

MSR Main Supply Route

MTW Major Theater War

MW Multi-Warhead

NASA National Aeronautics and Space Administration

NBC Nuclear, Biological, Chemical

NEO Non-Combatant Evacuation Operation

NGF Naval Gunfire

NGIC National Ground Intelligence Center

NIT National Intelligence Topic

NM Nautical Miles

Nuc Nuclear

NT/AW Night Time/All Weather

OOB Order of Battle

OOTW Operations Other Than War

OP Operational

OPLAN Operational Plan

OSEE Open Source Everything Engineering

OTH Over the Horizon

PM Paramilitary

PM Program Manager

PSYOP Psychological Operations

R&D Research & Development

Reg Regular (Uniformed) Forces

ROC Required Operational Capability

RoI Return on Investment

S/S Surface to Surface

SAM Surface to Air Missile

SOF Special Operations Forces

SP Self-Propelled

SSCI Senate Select Committee on Intelligence

SSI Strategic Studies Institute

STF-OFF Stand Off

TGM Terminally Guided Munition

TRADOC Training and Doctrine Command

TR Training

TS/SCI Top Secret/Sensitive Compartmented Information

USAF United States Air Force

USMC United States Marine Corps

USN United Stated Navy

USSOCOM US Special Operations Command

VFR Visual Flight Rules

WoG Whole of Government

X Cross

# 

# Endnotes

1. The multi-volume set is available on request to MCIA or can be copied from my personal unclassified copy, but realistically, the entire endeavor needs to be repeated. “1990 Expeditionary Environment Analytic Model,” *Phi Beta Iota Public Intelligence Blog*, March 15, 1990, provides online access to three documents in full text: the analytic model document; the strategic generalizations document, and in color, the formal briefing of the study results, with color-coded maps for each Mission Area factor. The National Ground Intelligence Center (NGIC) undertook a similar but more complex study in the 1980’s, Project GRANDVIEW under the intellectual guidance of Mr. Tim Hendrickson, but as with the Marine Corps study, Project GRANDVIEW was set aside in an environment where acquisition is driven by dollars rather than reality. [↑](#endnote-ref-1)
2. Academic, Civil Society including Labor Unions and Religions, Commerce especially Small Business, Government especially Local, Law Enforcement, Media including Bloggers, Military, and Non-Government/Non-Profit. [↑](#endnote-ref-2)
3. Steele, Robert. “Intelligence Support for Expeditionary Planners,” *Marine Corps Gazette*, September 1991, pp. 73-79. [↑](#endnote-ref-3)
4. The grand strategy monograph proposes that the US Marine Corps (USMC) return to its role as naval infantry, with the USMC combine arms team being sized to handle no more than one opposed amphibious landing and multiple minor littoral operations. [↑](#endnote-ref-4)
5. “Air Properties Definitions,” National Aeronautics and Space Administration (NASA), undated, accessed July 4, 2016. [↑](#endnote-ref-5)
6. The Stryker Brigade was a brilliant idea badly executed – each platform must be able to roll-on to a single C-130, fully loaded with crew, and roll-off guns blazing. Apart from not fitting on a single C-130, the Stryker gets at best six miles per gallon (310 mile range on a 53 gallon tank). We are long overdue for a deep assessment of options that provide for lighter, faster ground mobility options that do not require a massive fuel support infrastructure and that can be truly air mobile, not only rolling off a C-130 guns blazing, but airborne (parachute) capable. On C-130 shortfalls: “Strategy Brigade Combat Team Formation Assessment, “4th Update,” US Army Training and Doctrine Command (TRADOC), March 2014, p. 9; on gallons per mile, p. 6. Recent attempts to drop the much lighter High Mobility Multipurpose Wheeled Vehicle (HMMWV) using heavy lift parachutes have failed: Ollie Gilliman and Keligh Baker, “Not even a Humvee can withstand being dropped hundreds of feet to the earth! US Army destroys THREE vehicles in two minutes when parachutes fail during training mission,” *Daily Mail*, April 21, 2016. [↑](#endnote-ref-6)
7. Franklin Spinney, Defense Facts of Life: The Plans/Reality Mismatch, Boulder, CO: Westview Press, 1985; Steele, Robert. “Intelligence Support for Expeditionary Planners,” *Marine Corps Gazette*, September 1991, pp. 73-79. [↑](#endnote-ref-7)
8. Unclassified reporting on this critical deficiency stopped around 1995. Since then there has been a tendency to classify everything that is remotely critical of how we do business – the most recent example of this is the classification of the national military strategy. Cf. John Grady, “Dunford: Next U.S. Military Strategy Document will be Classified,” *US Naval Institute News*, March 29, 2016. [↑](#endnote-ref-8)
9. Small units in the field are also not able to work with classified information. Just as the national imagery system is optimized for precision imagery against static targets rather than real-time wide-area surveillance, so also are the signals and human and other systems organized against relatively static targets clustered in the capital cities, not against non-state actors and fast-moving singleton vehicles scattered over broad areas. [↑](#endnote-ref-9)
10. Mapping, Charting, & Geodesy (MC&G) is a cornerstone not only for effective combined arms and multinational operations including coordination of fire and maneuver, but also a vital aspect of proper strategic acquisition planning and programming. Although much progress has been made on MC&G since 1990, there is still a great deal of the world where the maps are decades old and lacking cultural feature updates, or in the case of portions of Africa and South America, still not available at all. [↑](#endnote-ref-10)
11. Al Gray (Ghost-Written by Robert Steele), “Global Intelligence Challenges in the 1990’s,” *American Intelligence Journal*, Winter 1989-1990, pp. 37-41. [↑](#endnote-ref-11)
12. I have written eight books on intelligence reform, two with Forewords from Senators who served as Chairmen of the Senate Select Committee on Intelligence (SSCI), as well as many articles, chapters, and submitted testimony to Congress. My personal website provides access to all my publications as well as copies of media interviews and testimony: http://robertdavidsteele.com. [↑](#endnote-ref-12)
13. Defense intelligence productivity has been of concern to me since the 1980’s. My earliest white paper, for Paul Strassmann, then Director of Defense Information, remains valid today: “Defense Intelligence Productivity in the 1990’s,” Quantico, VA: USMC Intelligence Center, May 18, 1991. My most recent published critique of defense intelligence is “On Defense Intelligence: Seven Strikes,” *CounterPunch*, July 2, 2014. [↑](#endnote-ref-13)
14. Franklin Spinney, *Defense Facts of Life: The Plans/Reality Mismatch*, Boulder, CO: Westview Press, 1985. [↑](#endnote-ref-14)
15. The Marine Corps made one attempt, in 1992, to champion a redirection of national strategy and National Intelligence Topics (NIT) away from the obsessive focus on the Russians and toward emerging Third World threats where we have spent most of the past twenty-five years. The attempt was not successful. *Cf.* Robert Steele, “Staff Correspondence: National Intelligence Topics 1992,” Washington, DC: Headquarters, US Marine Corps, C4I2 Department, May 7, 1991. [↑](#endnote-ref-15)
16. The National Geospatial Agency (NGA) eschews responsibility for “feeds and speeds” that it claims are solely the provenance of the National Reconnaissance Office (NRO), i.e. the US Air Force. An average battalion needs 175 copies of each 1:50 in paper form if it is to survive an outage of poorly secured satellite Global Positioning System (GPS) feeds, and if working with multinational and non-governmental elements that do not have the complex expensive and often unreliable US communications and computing systems, we need perhaps twice that number of paper maps on demand. The existing NGA system is incapable of meeting that need in a timely manner. [↑](#endnote-ref-16)
17. Robert Scales, *Firepower in Limited War: Revised Edition*, New York, NY: Presidio Press, 1997. Nothing has changed in the 20 years since the book was published. As General Tony Zinni, USMC, former Commanding General of the US Central Command observed in about 2006, he received, as CG USCENTCOM, “at best” 4% of what he needed from the secret intelligence community. Cited online at “Tony Zinni: Background & Confirmation of the 4% “At Best” Quote on Secret versus Open Sources,” *Phi Beta Iota Public Intelligence Blog*, 30 December 2012. [↑](#endnote-ref-17)
18. Wars in the World; the site is noteworthy for providing a list of all belligerent parties and for its comprehensiveness. [↑](#endnote-ref-18)
19. This is an useful list with one glaring omission (Quebec in Canada), but it also avoids the reality that there are over 5,000 secessionist movements around the world, including 27 in the USA, that could be “sparked” into more activity including violence, by any number of occurrences including a global economic meltdown. Various lists of active separatist movements include 30 in Africa, 29 in Asia, 31 in Europe, 22 in North America, 6 in South America, and 10 in Oceania. Cf. Wikipedia, Lists of active separatist movements, accessed July 3, 2016. [↑](#endnote-ref-19)
20. Wikipedia List of ongoing armed conflicts, accessed July 3, 2016. [↑](#endnote-ref-20)
21. Separate appraisals for drugs, terrorism, and gray arms trafficking are available in the original study. [↑](#endnote-ref-21)
22. There is a great deal of excellent material in more traditional sources such as Jane’s, but Jane’s makes it too hard to get to ranked integrated information. GFP is a blunt instrument useful here as a free quick look at relative aggregate capability. [↑](#endnote-ref-22)
23. Addressed by the Marine Corps in a separate factor not included in this compressed monograph is Naval Gunfire Support (NFG) – the US Navy 5” is out-gunned by virtually every coastal artillery in every Third World coastal country. [↑](#endnote-ref-23)
24. Two unclassified references are available online. Colonel Pavel Skala (Czech Republic), *Military Geospatial Support in Crisis Management, Government of the Czech Republic*, May 29, 2013, online at http://phibetaiota.net/wp-content/uploads/2016/08/MCG-Brief-2013.pdf and G. Kenecny et al, *The Status of Topographic Mapping in the World, A UNGGIM-ISPRS Project 2012-2015*, June 2015, in four parts available online at http://phibetaiota.net/2016/08/yoda-mcg-update-deep-document/. [↑](#endnote-ref-24)
25. “Getting there is half the battle,” *Armed Forces Journal*, October 1, 2011. [↑](#endnote-ref-25)
26. Instead of “one tour and out” the FAOs would serve an entire career in language billets, not only within the US military, but within WoG, MNO, and “eight tribe” exchange programs within their areas of cultural, historical, and linguistic specialization. Thinkers must be co-equal to shooters as the plan the diversified force of the future. [↑](#endnote-ref-26)